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TESIS DOCTORAL

ANÁLISIS DEL IMPACTO DE LA TECNOLOGÍA EN LOS HOTELES ANDALUCES Y EN LAS EMPRESAS DE ALTA TECNOLOGÍA

MENCIÓN DE DOCTORADO EUROPEO

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“Nuestra recompensa se encuentra en el esfuerzo y no en el resultado. Un esfuerzo total es una victoria completa”. – Gandhi.

“Lo que sabemos es una gota de agua; lo que ignoramos es el océano”. –Isaac Newton.

Tabla de Contenido

CAPÍTULO 1

CAPÍTULO 2

CAPÍTULO 3

Índice de tablas

Índice de Figuras

Capítulo 1

1 INTRODUCCIÓN

1.1 Introducción al tema de estudio

1.1.1 Introducción

La innovación se ha convertido en uno de los ejes básicos para la competitividad de las empresas. La inmensa mayoría de las empresas necesita innovar para alcanzar una posición ventajosa en su sector. La innovación se convierte en una respuesta fundamental para conseguir adaptación y responder a la incertidumbre tecnológica que subyace a los entornos competitivos actuales (Gopalakrishnan y Damanpour, 1997). La innovación y la creación de nuevos productos se han convertido en piezas centrales para adaptarse y transformarse en los entornos cambiantes (Porter, 1980). Así, en la actualidad, la innovación es concebida como el motor de las economías desarrolladas, lo que impulsa que las empresas multinacionales rediseñen y optimicen sus procesos de negocio, hasta el punto de que la innovación llegue a ser parte de su cultura y misión empresarial (Agarwal y Prasad, 1998b; Zien y Buckler, 1997).

La importancia del fenómeno y el interés que despierta en distintos campos disciplinares, han provocado la proliferación de abundantes estudios sobre la innovación, que en bastantes casos no pueden ser sintetizados desde un punto de vista único. De esta forma, encontramos que los valores teóricos y prácticos de la investigación en un campo disciplinar, no son apropiados y claros para otro campo, encontrándose diferencias en la conceptualización y dimensiones que cada disciplina identifica.

Así, este trabajo pretende centrarse en la innovación y en diferentes variables estratégicas que deben ser consideradas para hacer frente a este reto valiéndose para ello de una recopilación de tres artículos de investigación que estudian las sinergia existente entre la innovación y diferentes variables estratégicas que permitan mejorar la innovación y el desempeño de la organización.

1.1.2 Delimitación del tema objeto de estudio

En este trabajo de investigación se pretende observar como la innovación afecta al resultado empresarial tanto a nivel personal como a nivel organizativo. En el actual ambiente competitivo de los negocios, la innovación es un factor clave en la

supervivencia de la empresa y en la excelencia del desempeño (Jankowski, 1998; Jassawalla, 2002). La principal finalidad de este estudio es profundizar en el desarrollo del concepto de capacidad de innovación, tanto a nivel individual, lo que nos lleva a un personal proactivo e innovador, como a nivel organizativo, aspecto que nos llevará a estudiar el espíritu emprendedor corporativo.

Para ello nos centraremos en empresas andaluzas, españolas y europeas. En el caso de las empresas andaluzas el sector que más mueve la economía es el turismo y por ello nos enfocamos en las compañías hoteleras de Andalucía. Su principal medio de publicidad reside en las tecnologías de la comunicación y la información. Así, en estos hoteles la capacidad de innovación del personal será estudiada a nivel del individuo y en el empleo de las tecnologías de la información y la comunicación, pues su uso por parte del personal de la empresa permitirá ofrecer una mejor imagen a los turistas del hotel (Lee et al., 2001; Martínez y Raya, 2008; Satterlee, 2003).

Aunque en España el turismo es la principal actividad generadora de recursos, las empresas españolas y europeas no están tan centradas como Andalucía en materia de turismo sino que están más enfocadas en otro tipo de actividades donde siempre juega un papel importante la tecnología, como un elemento estratégico conductor del cambio y de la innovación, principalmente en el actual ambiente competitivo y dinámico (Damanpour, 1991).

Es en este caso de empresas tecnológicas donde la "organizational innovativeness" o capacidad de innovación de la organización se desarrolla ampliamente, al tratarse de actividades novedosas y con un conocimiento muy específico (Omerzel y Antoncic, 2008). Pero esta capacidad de innovación organizativa no actúa aisladamente en las empresas sino que forma parte de un concepto muy actual y fundamental para el desarrollo del resultado de la empresa (Antoncic y Hisrich, 2001). Por lo que se pretende estudiar la influencia de este espíritu emprendedor corporativo en el resultado de la organización.

Este espíritu emprendedor corporativo no se desarrolla por sí sólo ni actúa aisladamente, sino que al igual que la capacidad de innovación de la empresa actúa conjuntamente con otras variables en el proceso de toma de decisiones estratégicas de la compañía (Smith et al., 1994). En este sentido hay que destacar que existen una serie de características tecnológicas en la compañía, que pueden ser influidas por este espíritu emprendedor o influir en él. Por lo que estas variables tecnológicas que interactúan con

el espíritu emprendedor corporativo serán estudiadas en el trabajo, intentando incidir en aquellas que más interacción puedan realizar.

En definitiva, se pretende pues en esta investigación que la empresa logre obtener ventajas competitivas sostenibles a través de un mayor conocimiento que le permita la utilización e implementación empresarial de las variables analizadas en estos estudios realizados.

1.1.3 Relación existente entre la innovación y las variables estratégicas de la investigación

A continuación profundizamos en algunos de los conceptos claves empleados en las investigaciones relacionadas con la innovación tales como innovación empresarial, capacidad u orientación de innovación del personal o "innovativeness" del personal, espíritu emprendedor corporativo, aprendizaje organizativo y variables tecnológicas en el marco de las empresas tecnológicas.

1.1.3.1 Innovación Empresarial

El concepto de innovación empresarial es muy amplio, reflejando la existencia de una amplia variedad de dimensiones dentro del fenómeno (Damanpour, 1991). Por ello, la innovación puede ser un nuevo producto o servicio, una nueva tecnología para los procesos de producción, una nueva estructura o un nuevo sistema administrativo.

En términos generales la innovación empresarial puede ser definida como la adopción de un nuevo sistema, política, programa, proceso, producto o servicio, que se ha generado internamente o se ha comprado en otra empresa (Daft, 1982; Damanpour y Evan, 1984; Zaltman et al., 1973).

Con intención de centrar el concepto que estamos tratando, cabe mencionar la distinción entre los conceptos invención e innovación tal y como propuso Schumpeter (1934) quién presentó por primera vez la innovación y estableció que, mientras la invención alude al ámbito técnico de cualquier novedad, la innovación implica sobre todo un ámbito comercial, ya que el concepto alude a la novedad y a al valor comercial de dicha novedad.

Y es que cuanto más se profundiza en el concepto de innovación, más dificultades se encuentran para definirlo, pues debemos determinar si se trata de un proceso o un producto, si se refiere globalmente al proceso de innovación o a una etapa concreta, si lo abordamos desde un punto de vista técnico o administrativo, si se trata de una

innovación parcial o fundamental, etc. Para contextualizar mejor el término abordamos las principales calificaciones que se realizan del concepto en la siguiente tabla.

TABLA 1.1. Tipologías de innovación empresarial

Criterio	Clasificación	Autor
Grado de Novedad y cambio	Innovación radical	Kimberly y Evanisko (1981), Zaltman et al. (1973)
	Innovación incremental	
Usuario	Innovación de producto	Damanpour (1991), Zaltman et al. (1973)
	Innovación de proceso	
Ámbito	Innovación técnica o tecnológica	Daft (1978), Damanpour (1987), Eisenhardt y Martin (2000), Kimberly y Evanisko (1981), Zaltman et al., (1973)
	Innovación administrativa	

Fuente: Elaboración propia y Barrales (2008)

Para nuestra investigación la clasificación de innovación que más nos interesa es la que diferencia entre innovaciones técnicas o tecnológicas y las administrativas (Daft, 1978; Damanpour, 1987; Eisenhardt y Martin, 2000; Kimberly y Evanisko, 1981). La innovación técnica o tecnológica aparece como un resultado del uso de una nueva herramienta, técnica, servicio o sistema que produce cambios en los productos o servicios o en la forma en que tales productos o servicios son producidos o ejecutados (Damanpour, 1987). Algunos ejemplos de estas innovaciones tecnológicas pueden ser, los catálogos de productos de microfilm de ordenadores, tecnología blu-ray para ordenadores, sistemas de compras automáticos. En el caso de las innovaciones administrativas, estas implican desarrollos en la estructura de la organización y procesos de administración. Estas innovaciones están indirectamente relacionadas con las actividades de trabajo básicas de una organización y están más directamente relacionadas con su gestión (Damanpour y Evan, 1984; Kimberly y Evanisko, 1981; Knight, 1967). Algunos ejemplos de innovaciones administrativas son la administración por objetivos, el presupuesto de 0 €, la rotación del trabajo, los sistemas de incentivos de plantilla o los horarios flexibles. En esta investigación nos vamos a centrar en las investigaciones técnicas o tecnológicas que analizan la tecnología como un conductor de cambió (Daft, 1978; Damanpour, 1991) por lo que prestaremos una especial atención a la innovación técnica o tecnológica.

La tecnología se caracteriza por ser un conductor integral de la innovación (Prajogo y Ahmed, 2006). No sólo juega un papel clave al crear nuevos productos o procesos, sino que es clave para los fundamentos de la estructura industrial tecnológica mediante la redefinición radical de las reglas de la competición (Leblanc et al., 1997; Napolitano, 1991; Prajogo y Ahmed, 2006; Tushman y Anderson, 1986). Una de las decisiones más importantes de dirección estratégica que hace frente al actual ambiente competitivo es el desarrollo de la tecnología. Durante los pasados 20 años, el ambiente de negocio ha llegado a ser más competitivo debido a la globalización, cambios tecnológicos rápidos y la sofisticación en el comportamiento de los empleados y clientes (Jones et al., 2000). Consecuentemente, estos cambios afectan tanto a la organización en su entorno como internamente para el desarrollo competitivo de la empresa (Porter, 1980). El personal y el contexto donde se mueve la organización (cultura) son también determinantes del triunfo de la innovación (Cooper y Kleinschmidt, 1995; Zien y Buckler, 1997).

1.1.3.2 Capacidad u Orientación de Innovación del Personal o "Innovativeness" del Personal

La capacidad de innovación se define como "la habilidad de la organización para adoptar o ejecutar nuevas ideas, procesos o productos satisfactoriamente" (Hurley y Hult, 1998, p. 44). Otros autores la definen como la capacidad o voluntad para innovar (Prajogo y Ahmed, 2006) o como la inclinación de la organización para permitir un comportamiento innovador (Zaltman et al., 1973). Pero todas las definiciones coinciden en que la "innovativeness" o capacidad de innovación (Hurtley y Hult, 1998) proporciona una dirección para expandir el esfuerzo hacia la realización del potencial para innovar. Si la compañía no dirige adecuadamente ese esfuerzo, entonces la capacidad o potencial de innovación parecería un potencial sin desarrollar completamente, puesto que la organización sin capacidad para innovar puede invertir tiempo y recursos en el estudio de mercados pero será *incapaz* de trasladar su conocimiento a la práctica.

Por lo que se establece que la "innovativeness" o capacidad u orientación para innovar es una herramienta que caracteriza las empresas proactivas, según Hurt et al. (1977). Las empresas deben de adoptar innovaciones donde las más importantes innovaciones serán aquellas que permiten a la empresa mejorar el tipo de ventaja competitiva, contribuyendo así a su desempeño (Kanter, 1983; Porter, 1980). De hecho, hay autores que ven la "innovativeness" o capacidad u orientación de innovación como

aquella capacidad que conduce la relación orientación-desempeño (Narver y Slater, 1990).

Auh y Menguc (2005) analizaron el capital humano concluyendo que es insuficiente para conseguir la "innovativeness" o capacidad de innovación dentro de una organización. Este capital humano no puede ser estudiado por aislado, sino que se le debe de añadir un capital social, como una infraestructura organizativa apropiada o unas reglas de trabajo comunes, necesarias para complementar ese capital humano y por tanto obtener mayor "innovativeness". Por lo tanto en ese estudio, los autores trataron de explicar como la diversidad en los equipos de la alta dirección puede obtener mayores beneficios o menores costes adoptando una estructura con un buen capital social y humano que permita explotar completamente la "innovativeness" de la empresa.

Concretamente para hacer un estudio más completo en el primer artículo hablamos de la "innovativeness" aplicada a cada empleado o específicamente al personal que trabaja en una compañía (*employees*) por lo que aparecerá el concepto de personal "innovativeness" o capacidad de innovar del personal de la empresa. Concepto que puede ser definido como "la capacidad de un individuo de la empresa para encontrar una innovación" (Agarwal y Prasad, 1998a, 18). Posteriormente aplicamos este concepto en el primer trabajo a las empresas de la tecnología de información y comunicación, y es por ello, por lo que pasamos a hablar de "Personal Information Technology Innovativeness" (P.I.I.T.) o capacidad de innovación del personal de las empresas de la tecnología de la información.

Las innovaciones suelen ser por naturaleza normalmente arriesgadas, inciertas e imprecisas y que, por lo tanto, no tienen garantía de consecuencias anticipadas, por lo que los individuos con mayor capacidad de innovación o innovativeness serán quienes hagan frente a los mayores niveles de incertidumbre en beneficios (Agarwal y Prasad, 1998a, 1998b). Además, Leonard-Barton y Deschamps (1988) y Rogers (1995) argumentan que estos individuos no son tan fácilmente influenciables por el entorno o variables internas de la organización, por lo que servirán para establecer la configuración estratégica de la compañía (Agarwal y Prasad, 1998b). En este mismo sentido posteriormente Thatcher et al. (2003) establecieron que los individuos tienden a ser innovadores a pesar de su ambiente porque tienen predisposiciones para desarrollar comportamientos exploratorios. Además ellos sugieren que las influencias sociales

pueden llegar a favorecer la capacidad exploradora del individuo pues, según ellos, la capacidad para innovar es una función de la personalidad de cada individuo y de las percepciones del ambiente. Específicamente los individuos con mayor capacidad de innovación en las empresas de tecnología de la información serán aquellos con mayor predisposición a aceptar los cambios e innovar, mientras que los individuos con menor capacidad para innovar en empresas de tecnologías de la información requerirán un refuerzo externo antes de poder ejecutar una nueva innovación, puesto que cuando los empleados o individuos ven la ausencia de recursos o de habilidades a innovar, su carácter exploratorio se verá mermado (Thatcher et al., 2003).

Sin embargo hay que destacar que la mayoría de las personas no son innovadoras por naturaleza, es decir esta innovación no tiene porque ser inherente en el ser humano, sino que se adquiere en la medida en que cada individuo quiere aprender y hacer algo nuevo (Leonard-Barton, 1992). De esta forma, para que la innovación pueda ser llevada a cabo debe de ir unida a un proceso de aprendizaje organizativo que se desarrolle no sólo en el ápice estratégico de la empresa, sino que vaya desde el núcleo de operaciones hasta este ápice estratégico, de forma que absolutamente todos los trabajadores de la empresa puedan adquirir una serie de conocimientos que puedan ser aplicados a la vida real (Andreu y Ciborra, 1996; Leonard-Barton, 1992; Miró et al., 2010) y de esta manera innovar en la sociedad a fin de que la empresa donde se ha aprendido ese conocimiento se beneficie de esa innovación y pueda conseguir una ventaja competitiva que sea difícil de imitar por los competidores (Barney, 1991; González y Nieto, 2007), es decir, conseguir una ventaja competitiva sostenible (Porter, 1980, 2001). Por lo tanto, para poder adquirir esta serie de conocimientos y para que la organización pueda obtener esa ventaja competitiva sostenible y difícil de imitar nos hace falta un proceso de aprendizaje organizativo (Andreu y Ciborra, 1996). Sobre este concepto de aprendizaje organizativo retomaremos más adelante en la investigación.

1.1.3.3 Espíritu Emprendedor Corporativo

Si la capacidad de innovación es aplicada a nivel organizativo tendremos el concepto de capacidad de innovación organizativa que es uno de los elementos más comunes en prácticamente todas las definiciones dadas del espíritu emprendedor corporativo (Antoncic y Hisrich, 2001; Covin y Slevin, 1991; Jones y Butler, 1992; Knight, 1997; Zahra, 1993) por lo que una vez analizada la "innovativeness" a nivel personal y

aplicada a las empresas de tecnologías de información y comunicación (P.I.I.T.) se procede a analizar el espíritu emprendedor corporativo.

En primer lugar, resaltar que la "innovativeness" o capacidad de innovación organizativa se distingue de la orientación emprendedora porque no exige la entrada a nuevos mercados (Deshpandé, 1993). Además la orientación emprendedora implica estrategias y acciones que la empresa puede utilizar para actualizar las orientaciones corporativas y los objetivos (Hurley y Hult, 1998).

La "innovativeness" a nivel organizativo no debe ser estudiada aislada simplemente, sino que debe vincularse a una serie de factores económicos, tales como nuevos medios de producción, productos o mercados (Cantillón, 1755; Schumpeter 1934), factores socio-psicológicos como la creatividad, atrevimiento, tendencia al riesgo, osadía, agresividad, deseo de independencia, control, liderazgo, necesidad de logro, motivaciones personales (McClelland, 1961), y factores del comportamiento tales como acciones o procesos a seguir para fundar y dirigir un negocio, formación de estrategias, forma de hacer frente a los problemas a los que se enfrentan las nuevas compañías de encontrar factores clave para el éxito (Antoncic y Hisrisch, 2001; Covin y Slevin, 1991; Hornby et al., 1993). Factores todos ellos que a lo largo de la historia han ido perfilando un nuevo concepto estratégico denominado "corporate entrepreneurship" o espíritu emprendedor corporativo que se vincula en torno al concepto de oportunidad emprendedora (Shane y Venkatraman, 2000).

Por lo tanto, al centrarnos en la capacidad de innovación organizativa no vamos a estudiarla por aislado sino que hemos considerado oportuno estudiarla junto con aquellos factores más utilizados a lo largo del tiempo por los investigadores y que son creación de nuevos negocios, autorenovación y proactividad (Antoncic y Hisrich, 2001; Antoncic y Prodan, 2008; Knight, 1997; Zahra, 1993). Con lo que pasaremos a estudiar el concepto de "corporate entrepreneurship" o espíritu emprendedor corporativo.

Son muchos los estudios e investigadores implicados en esta capacidad organizativa (Alvarez y Barney, 2007; Antoncic y Hisrich, 2001; Antoncic y Prodan, 2008; Badguerahanian y Abetti, 1995; García-Morales et al., 2006; Goodale et al., 2010; Ireland et al., 2001; Kelley, 2010; Knight, 1997; Simsek y Heavey, 2011; Woolley, 2010; Zahra, 1991, 1993, 1995, 1996). Aunque para entender bien este concepto deberíamos retroceder mucho más en el tiempo pues fue Richard Cantillón (1680-1734) el primero en utilizar la palabra "entrepreneur" como el agente de compra de medios de

producción a ciertos precios para combinarlos en un producto que se venderá a cierto precio (Cantillón, 1755). Posteriormente y desde esta perspectiva económica Joseph Schumpeter (1883-1950) desarrolló ampliamente la teoría del empresario innovador e investigó el espíritu emprendedor señalando que el individuo emprendedor es aquel que innova, una persona que desarrolla nuevos productos, mercados, o nuevos medios de producción. Además definió el concepto de emprendedor como aquel individuo que ayuda a mover la economía, rompiendo el equilibrio del mercado a través de nuevas combinaciones de recursos y que además actúa de un modo creativo (Schumpeter, 1934).

A partir de esta teoría de Schumpeter muchos economistas aceptaron la identificación del emprendedor con la innovación y la creatividad, con el agente que trata de descubrir nuevas oportunidades para crear valor, abandonando así la idea de un simple hombre de negocios. Ser emprendedor consiste, por tanto, en combinar los elementos y los recursos de una forma creativa, buscando nuevas ideas y oportunidades con el objetivo de crear valor, y esto se puede hacer dentro de una organización ya establecida o fuera de ella y con total independencia. Así Schumpeter (1934) distinguió entre el concepto de emprendedor e intraemprendedor, siendo el segundo aquel emprendedor dentro de una organización ya existente. Mientras que el primero es el encargado de empresas y mercados nuevos.

Desde entonces, las teorías del espíritu emprendedor han pasado además de por la perspectiva económica por una perspectiva socio-psicológica y por otra perspectiva comportamental. La perspectiva socio-psicológica se ha centrado en enfatizar las diferencias individuales y en examinar las características personales de los emprendedores y cuyo principal exponente es McClelland (1917-1998). Son muchos los autores que centrándose en esta tendencia de McClelland han marcado diferencias entre directivos y emprendedores. De este modo, por ejemplo, Busenitz y Barney (1997) han escrito que los emprendedores han sido descritos como propensos al riesgo y bastante individualistas porque su comportamiento no está basado en las normas del comportamiento social (Ginsberg y Buchholtz 1989; Shapero 1975). Por otra parte, la perspectiva comportamental contempla el espíritu emprendedor desde un punto de vista más práctico, analizando las características del comportamiento del emprendedor. Los investigadores de estos modelos sugieren que son las acciones y no los atributos personales los que dan significado al proceso emprendedor (Covin y Slevin, 1991). Así,

el perfil psicológico individual no hace que una persona sea emprendedora, sino que, por el contrario, se sabrá quién es emprendedor a través de sus acciones.

En resumen, las tres perspectivas desarrolladas en el estudio del emprendedor (entrepreneur) –económica, socio-psicológica y comportamental.- se refieren al papel que desempeña el emprendedor en la economía, a los rasgos y motivaciones predominantes en él y al desarrollo de su conducta respectivamente. De modo que a medida que el paradigma del espíritu emprendedor se ha ido afianzando, las tres perspectivas se han ido aplicando a nivel organizativo. De este modo, está generalmente admitido que las organizaciones puedan comportarse de forma emprendedora (Miller, 1983; Zahra, 1991, 1995).

Así, una organización emprendedora es aquella que asume riesgos, es innovadora y proactiva y se encuentra en el otro extremo de una organización conservadora, que tiene aversión al riesgo, no innova y es reactiva (Covin y Slevin, 1989). Por tanto, el espíritu emprendedor corporativo es un fenómeno comportamental, que todas las empresas desarrollan, a través de un continuo conceptual donde un extremo lo ocupan las empresas altamente conservadoras y el otro las empresas altamente emprendedoras (Barringer y Bluedorn, 1999).

No obstante, no es fácil definir el espíritu emprendedor corporativo o "corporate entrepreneurship". Los diferentes autores generalmente se muestran de acuerdo al incidir en la naturaleza emprendedora de las actividades en el interior de las organizaciones y sin embargo difieren en la terminología utilizada a la hora de describir dichas actividades (Sharma y Chrisman, 1999). La dificultad de una definición es pues alta ya que el mismo término es definido por múltiples autores y, a veces la misma definición se refiere a dos términos distintos y a eso hay que añadir la posible diferente interpretación en la traducción del inglés. En este último caso a veces es preferible incluso hablar de "corporate entrepreneurship" directamente en lugar de espíritu emprendedor corporativo, pues puede dar lugar a confusión. De hecho, la complejidad del fenómeno emprendedor ha motivado un desarrollo ecléctico de su correspondiente área de investigación, abordándose desde distintas disciplinas tales como la economía, sociología, psicología cognitiva, psicología social, comportamiento organizativo o la dirección estratégica. Por todo lo anterior, con el propósito de esclarecer la terminología utilizada en el campo del espíritu emprendedor corporativo o "corporate

entrepreneurship" analizamos, en la siguiente tabla, las principales definiciones sobre dicho concepto.

TABLA 1.2: Concepto de espíritu emprendedor corporativo o "corporate entrepreneurship"

Autor	Definición
Schollhammer (1982, 210)	Es el elemento clave para que una empresa gane ventaja competitiva y consecuentemente obtenga mayores recompensas financieras.
Burgelman (1983, 1349)	Hace referencia al proceso por el cual las empresas se diversifican a través del desarrollo interno. Tal diversificación requiere de nuevas combinaciones de recursos que amplíen las actividades de la empresa hacia áreas no relacionadas, o poco relacionadas, con su dominio actual de competencias y con su correspondiente conjunto de oportunidades.
Miller (1983, 770)	Es el compromiso de una compañía para innovar en sus negocios ya existentes. Es el proceso por el cual las compañías se renuevan a sí mismas y a sus mercados.
Burgelman (1984, 154)	Supone aumentar el dominio de competencias de la empresa, así como su correspondiente conjunto de oportunidades, a través de la generación interna de nuevas combinaciones de recursos.
Vesper (1984, 295)	Implica la iniciativa de los empleados de los niveles más bajos de la organización para emprender algo nuevo. Es una innovación llevada a cabo por subordinados sin que sus directivos hayan sido preguntados, sin que lo esperen, o incluso quizás sin que hayan dado su permiso para hacerlo.
Spann, et al. (1988, 149)	Consiste en el establecimiento de una organización empresarial separada (normalmente en forma de centro de negocio, de unidad estratégica de negocio, de división o de subsidiaria) para introducir un nuevo producto, servicio o para crear un nuevo mercado o utilizar una nueva tecnología.
Jennings y Lumpkin (1989, 489)	Es el grado de desarrollo de nuevos productos y/o nuevos mercados. Una organización es emprendedora si desarrolla un mayor número de nuevos productos y/o nuevos mercados que la media de organizaciones.
Guth y Ginsberg (1990, 5)	Engloba dos tipos de fenómenos y los procesos que los rodean (1) el nacimiento de negocios nuevos dentro de las empresas ya existentes (*corporate venturing*), y (2) la transformación de las organizaciones a través de la renovación de las ideas clave sobre las que fueron construidas (*corporate renewal*)
Schendel (1990, 2)	Implica la idea de nacimiento de nuevos negocios dentro de un negocio ya existente y la transformación de su estancamiento, dada la necesidad de renovación y reactivación del negocio ya existente.
Stevenson y Jarillo (1990, 23)	Es el proceso a través del cual los individuos dentro de las organizaciones a las que pertenecen persiguen oportunidades sin tener en cuenta los recursos que controla en ese momento.
Zahra (1991, 262)	Se refiere a las actividades formales e informales encaminadas a crear nuevos negocios en compañías establecidas a través de innovaciones de productos y de procesos y del desarrollo de mercados. Esas actividades pueden tener lugar a nivel corporativo, de división, funcional o de proyecto con el objetivo de mejorar la posición competitiva de la compañía y su desempeño financiero. También supone la renovación estratégica de un negocio existente.
Covin y Slevin, (1991, 1)	Implica extender el dominio de competencia de la empresa y la correspondiente oportunidad establecida a través de nuevas combinaciones de recursos internamente generadas.
Jones y Butler, (1992, 734-735)	Se refiere al comportamiento emprendedor dentro de una empresa. Además hace referencia al proceso por el que las empresas advierten las oportunidades y actúan para organizar creativamente las transacciones entre los factores de producción para crear mayor valor en la empresa.
Churchill (1992, 586)	Es el proceso de desarrollo de oportunidades en la empresa que permitan crear valor a través de la innovación aprovechando esa oportunidad sin tener en cuenta los recursos (humanos o capitales) o la localización del emprendedor- en una compañía nueva o ya existente.
Zahra (1993, 321)	Es un proceso de renovación estratégica que tiene dos dimensiones diferenciadas pero relacionadas: la innovación y creación de negocios (*venturing*) y la renovación

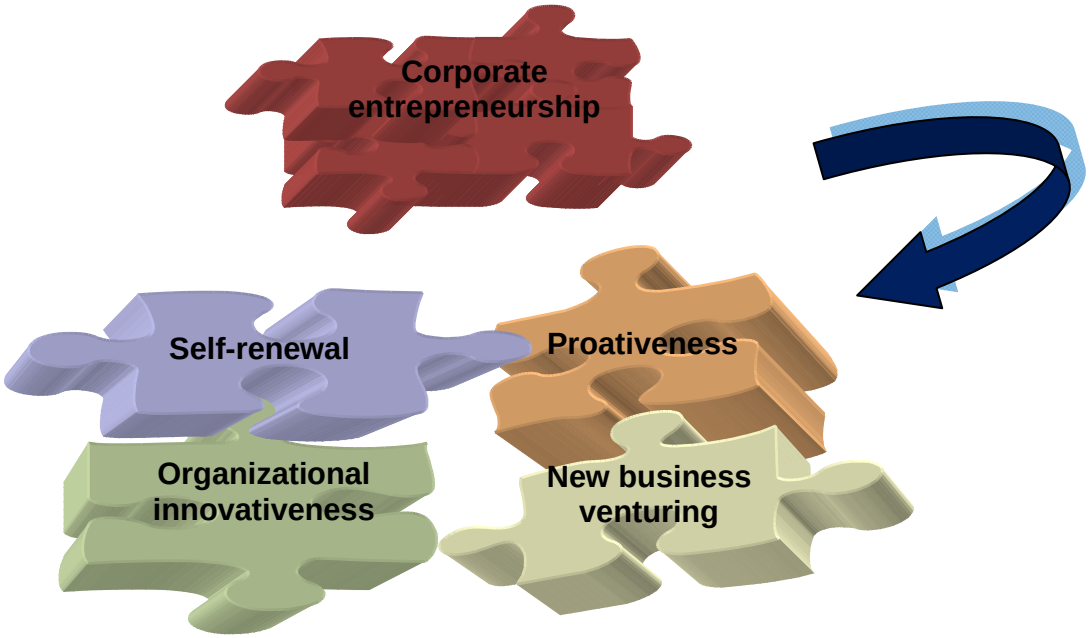
Autor	Definición
	estratégica (*strategic renewal*).
Zahra (1995, 227)	Es la suma de los esfuerzos de una compañía en innovación, renovación y creación de negocios (*venturing*). La innovación implica crear e introducir productos, procesos productivos y sistemas organizativos. La renovación implica la revitalización de las operaciones de la compañía cambiando el alcance de sus negocios, de sus enfoques competitivos o de ambos. La creación de negocios significa que la empresa acometerá nuevos negocios expandiendo sus operaciones en los mercados existente o en otros nuevos.
Zahra y Covin (1995, 44)	Es un factor clave que revitaliza las compañías establecidas a través de aceptación del riesgo, innovación y comportamientos competitivos proactivos.
Brikinshaw (1997, 210)	Es una iniciativa de un proyecto proactivo y diferenciado que anticipa a la corporación una nueva forma para usar o desarrollar sus recursos.
Chung y Gibbons (1997, 210)	Es un proceso organizativo de transformación de ideas individuales en acciones colectivas a través de la dirección de la incertidumbre.
Knight (1997, 214-215)	Es un constructo general de la orientación emprendedora de la empresa que está formado por la competitividad, la innovación y la proactividad. Además es una postura clave para la innovación estratégica, particularmente bajo las condiciones de ambiente externo de una empresa. La noción de orientación emprendedora es aplicable a cualquier empresa a pesar de su tipo y tamaño. Estimula el desarrollo económico general además del desempeño económico de los individuos de la empresa, por lo que es un elemento fundamental para ganar ventaja competitiva y mayor resultado financiero.
Sharma y Chrisman (1999, 18)	Es el proceso por el cual un individuo o un grupo de individuos, en asociación con una organización existente, crean una nueva organización o propician la renovación o la innovación dentro de dicha organización.
Barringer y Bluedorn, (1999, 422)	Es un fenómeno comportamental que enmarca a todas las empresas en un espectro continuo desde altamente conservadoras hasta altamente emprendedoras. Las empresas más emprendedoras son propensas al riesgo, innovadoras y proactivas. Mientras que las conservadoras son adversas al riesgo, menos innovadoras y adoptan una postura más de esperar y actuar.
Zahra y Garvis (2000, 471)	Es la suma de la innovación, asunción del riesgo y proactividad de una compañía. Actividades que normalmente buscan incrementar la capacidad de innovación o "innovativeness" de una compañía, la adaptación y las respuestas estratégicas ágiles para permitir los cambios en el ambiente.
Antoncic y Hisrich (2001, 498-499)	Es la suma de 4 dimensiones: (1) Creación de nuevos negocios (*new business venturing*) (2) capacidad de innovación (*innovativeness*), (3) autorenovación, y (4) proactividad. La creación de nuevos negocios puede permitir la redefinición de los productos de una compañía y el desarrollo de nuevos mercados. La capacidad de innovación o "innovativeness" se refiere a la innovación de productos y servicios con énfasis en el desarrollo e innovación en tecnología. La autorrenovación refleja la transformación de la organización a través de la renovación de ideas claras en la empresa. Por último la proactividad está relacionada con la propensión al riesgo de la empresa respecto a sus competidores.
McFadzean et al., (2005, 352)	Es el esfuerzo para promover la innovación desde una perspectiva organizativa interna, a través de la evaluación de nuevas oportunidades potenciales, de la asignación de recursos y de la explotación y comercialización de dichas oportunidades.
Antoncic y Prodan (2008, 258)	Es el espíritu emprendedor dentro de una organización existente, que incluye intenciones de comportamiento emergentes o innovadores y comportamientos de la organización que rompan salidas de la costumbre que pueden tener muchas dimensiones características, tales como creación de nuevos negocios, innovación en productos o servicios, innovación de procesos, autorenovación, propensión de riesgos, proactividad y agresividad competitiva.
Ireland et al. (2009, 21)	Es una visión dirigida, con el objetivo de continuamente rejuvenecer la organización y perfilarla a través de sus operaciones con el reconocimiento y la explotación de una oportunidad emprendedora.
Goodale et al. (2011, 1)	Se refiere al objetivo de acciones e iniciativas emprendedoras que transforma la organización establecida a través de de procesos de renovación estratégica y lleva el fin de la empresa a las operaciones en nuevos mercados, es decir, nuevos segmentos de

Autor	Definición
	mercado de productos o nuevas áreas tecnológicas.

Fuente: Elaboración propia, Sharma y Chrisman (1999) y Jiménez (2009)

Una vez vistas todas las definiciones habría que destacar que en todas las definiciones se viene viendo una tendencia a establecer que el espíritu emprendedor corporativo o "corporate entrepreneurship" es un concepto general para la organización que está formado por una serie de sub constructos o sub conceptos (Antoncic y Prodan, 2008; Knight, 1997). Los que coinciden mayormente o son más resaltados son la creación de nuevos negocios o "new business venturing", capacidad de innovación organizativa u "organizational innovativeness", autorenovación o "self-renewal" y proactividad o "proactiveness" (Antoncic y Hisrich, 2001; Antoncic y Prodan, 2008; Knight, 1997; Zahra, 1993). Por lo que en nuestra investigación será con estos cuatro conceptos los que estudiaremos y que formarán el espíritu emprendedor corporativo que se representa en la siguiente figura.

***FIGURA** 1.1. Dimensiones del espíritu emprendedor corporativo*



Fuente: Elaboración propia, Antoncic y Prodan (2008) y Jiménez (2009).

En definitiva, en el contexto de la creciente competitividad en la economía global, el espíritu emprendedor corporativo o "corporate entrepreneurship" se ha convertido en uno de los temas centrales de la economía. Se considera que la actividad emprendedora representa uno de los más importantes motores del crecimiento empresarial,

encontrándose detrás de la mayoría de las nuevas empresas creadas y del desarrollo de las ya existentes (Ireland et al., 2009; Zahra, 1993).

Además, el concepto de oportunidad emprendedora subyace de todas las definiciones de espíritu emprendedor corporativo ya sea desde la visión de nuevas entradas (Ireland et al., 2009) o la renovación, creación o innovación organizativa que toman lugar dentro o fuera de una organización ya existente (Shane y Venkatraman, 2000). Por lo tanto se puede observar que para que una empresa pueda tener éxito en un entorno muy dinámico y complejo debe de ser bastante emprendedora, sobre todo si se centra en las empresas de tecnología (Brinckmann et al., 2010; Covin y Slevin 1989; 1991; Shan 1990; Zahra, 1993).

Además nuestras investigaciones se han enfocado en empresas tecnológicas, por lo que este espíritu emprendedor corporativo puede ser denominado espíritu emprendedor corporativo tecnológico o "corporate technological entrepreneurship" (Antoncic y Prodan, 2008) y que puede ser considerado parte de este espíritu emprendedor corporativo y definido en términos de "actividades que fomentan la capacidad de innovación o "innovativeness" tecnológica y de procesos" (Antoncic y Prodan, 2008, 258).

Pero el que una empresa tenga carácter emprendedor es una condición necesaria, aunque no suficiente para el triunfo de la empresa (Barringer y Bluedorn, 1999; Shan, 1990). Se necesitan una serie de activos complementarios tecnológicos que potencien el espíritu emprendedor, sobre todo en las compañías tecnológicas (Fontes, 2001). Estos activos tecnológicos deberán potenciarse a través de una serie de procesos de aprendizaje organizativo, que analizamos a continuación, que son necesarios para alcanzar un conocimiento que permita una ventaja competitiva sostenible (Liu et al., 2002).

1.1.3.4 Aprendizaje Organizativo

Las investigaciones han venido mostrando que las empresas innovadoras, en comparación con las menos innovadoras (prospectivas contra retrospectivas), invierten más recursos en el desarrollo de nuevos productos, preparación para los empleados, supervisión del personal de ventas, educación de los clientes, investigación del marketing y de los sistemas de información computarizados. Por ello la capacidad de

innovación está relacionada y es prácticamente un proceso vinculado con el aprendizaje organizativo (Garcia et al., 2006; Llorens et al., 2005).

Osigweh (1989, 580) argumenta que "el desarrollo de definiciones claras para conceptos es importante para mejorar la investigación organizativa y la construcción de teoría". De ahí se deduce la importancia de llegar a concretar el concepto de "aprendizaje organizativo", aunque es difícil al ser un concepto complejo y multidimensional. Desde un principio diversos investigadores principales (ej. Cyert y March, 1963; Duncan, 1974; Miller y Friesen, 1980; Shrivastava, 1981) han intentado proporcionar las bases iniciales para crear un concepto claro, existiendo numerosos resúmenes de la literatura buscando lanzar una propuesta de lenguaje universal (ej. Argyris y Schön, 1978; Dodgson, 1993; Easterby-Smith, 1997; Fiol y Lyles, 1985; Huber, 1991; Nicolini y Meznar, 1995) pero aún este idioma común no existe, existiendo muy poco consenso en términos de definición, perspectiva, conceptualización y metodología, creándose pues un reino de confusión entre los estudiosos y practicantes de la materia (ej. Edmondson y Moingeon, 1998; Fiol y Lyles, 1985; Garvin, 1993; Kim, 1993; Slater y Narver, 1995). Con el objetivo de aclarar un poco más en la siguiente tabla destacamos algunas de las principales definiciones, ordenadas cronológicamente, sobre el significado de aprendizaje organizativo que han ido apareciendo en la literatura.

TABLA 1.3: Definiciones principales de aprendizaje organizativo y organización que aprende

Autor	Definición
Cyert y March (1963)	Es el proceso por el que la organización como colectivo aprende a través de la interacción con su entorno.
Simon (1969)	Es observado como las perspicacias crecientes y las reestructuraciones exitosas de problemas organizativos a través de individuos reflejados en los elementos estructurales y resultados de la organización en sí.
Argyris (1977, 116)	Es un proceso de detección y corrección de errores. Error es para nuestros propósitos cualquier forma de conocimiento o de inteligencia que prohíbe el aprendizaje.
Argyris y Schön (1978, 58)	Es el proceso mediante el cual los miembros de una organización detectan errores o anomalías y las corrigen mediante una reestructuración de la teoría de acción sustentada por la organización, integrando los resultados de sus indagaciones en los mapas e imágenes organizativos.
Duncan y Weiss (1979)	Es el proceso dentro de la organización por el cual el conocimiento sobre las relaciones entre la acción y el resultado y el efecto del ambiente en estas relaciones es desarrollado. El conocimiento que ellos tratan es un conocimiento comunicable, consensual e integrado que en esencia es compartido entre muchos, pero no necesariamente todos, los miembros de una organización.
Shrivastava (1981, 15)	Es el proceso por el que la base de conocimiento organizativo es desarrollada y compartida.
Fiol y Lyles	Es el proceso de perfeccionamiento de las acciones mediante un mejor conocimiento y

Autor	Definición
(1985, 803, 811)	comprensión (de la realidad). Es el desarrollo de habilidades, conocimientos y asociaciones entre acciones pasadas, su efectividad y acciones futuras.
Levitt y March (1988, 320)	Las organizaciones son vistas como aprendizaje a través de codificar inferencias desde la historia en rutinas que guían el comportamiento.
Stata (1989, 64)	Es realizado a través de perspicacia, conocimiento y modelos mentales compartidos... (y) se construye sobre pasada experiencia y conocimiento – eso es, sobre memoria.
Huber (1991, 89)	Ocurre en la entidad si a través de su procesamiento de la información, su rango de comportamientos potenciales varía. El procesamiento de la información puede implicar la adquisición, distribución o interpretación de la información... una organización aprende si cualquiera de sus unidades adquiere conocimiento que es observado como potencialmente útil para la organización. Por lo tanto el aprendizaje organizativo se refiere al proceso por el que las organizaciones adquieren y desarrollan conocimiento.
Kim (1993, 43).	Es un incremento en la capacidad de una organización para llevar a cabo acciones eficaces.
McGill y Slocum (1993, 67)	Es el proceso por el cual la organización toma conciencia de las cualidades, modelos y consecuencias de sus propias experiencias y desarrolla unos modelos mentales para comprender estas experiencias. Las LO descubren lo que es efectivo a través de reformular sus propias experiencias y aprender desde ese proceso. Son organizaciones autos conscientes e introspectivos que constantemente analizan sus ambientes.
Day (1994, 9).	El aprendizaje es más que recibir información. El proceso de aprendizaje debe incluir la habilidad de los directivos para plantear las cuestiones correctas en el momento adecuado, incluir las respuestas en su modelo mental sobre cómo se comporta el mercado, compartir la nueva comprensión con otros miembros del equipo directivo y, entonces, actuar decididamente.
Swieringa y Wierdsma (1995, 37)	Es un término con el que nos referimos al cambio del comportamiento organizativo; este último es un proceso de aprendizaje colectivo.
Senge et al. (1995, 51)	Es someterse a la prueba continua de la experiencia, y transformar esa experiencia en un conocimiento que sea accesible a toda la organización, y pertinente a su propósito central.
Aubrey y Cohen (1995, 28)	Son aquellas empresas que se han comprometido a incrementar e intensificar permanentemente los conocimientos y la destreza en beneficio de sus empleados, así como de su propio progreso colectivo.
Slater y Narver (1995, 63)	Es el desarrollo de nuevos conocimientos o percepciones que tienen la capacidad de influir en el comportamiento. Presumiblemente, el aprendizaje facilita el cambio de comportamiento que conduce a una mejora en el desempeño.
Nicolini y Meznar (1995, 727)	Es una construcción social la cual transforma la cognición adquirida en explicable conocimiento abstracto.
Guns (1996, 16)	Es averiguar qué da buenos resultados o qué da mejores resultados o es adquirir y aplicar los conocimientos, técnicas, valores, creencias y actitudes que incrementan la conservación, el crecimiento y el progreso de la organización.
López y Madrid (1996, 68)	Es un proceso acumulativo, compartido por todos los individuos de la empresa, encaminado al desarrollo de recursos y capacidades para conseguir, así, una mejora en el desempeño de la organización.
DiBella, et al. (1996, 363)	Es la capacidad (o el proceso) dentro de una organización para mantener o mejorar el desempeño basado en la experiencia. Esta actividad comprende la adquisición de conocimiento (desarrollo o creación de habilidades, insights, relaciones), el compartir conocimientos (difundir a otros lo que ha sido adquirido por alguien) y la utilización del conocimiento (integración del conocimiento de manera que sea asimilado, que esté disponible y que pueda ser generalizado a nuevas situaciones).
Nonaka, et al. (1996, 834)	Es el proceso mediante el cual organizadamente se amplifica el conocimiento creado por los individuos y se cristaliza como parte del sistema de conocimiento de la organización. Este proceso tiene lugar dentro de una comunidad de interacción en donde se crea y expande el conocimiento en una dinámica constante entre lo tácito y lo explícito.

Autor	Definición
Dixon (1997, 23)	Es un proceso, o una serie de procesos, a través de los que una organización construye el significado que guía su acción. Es estos procesos relacionados con aprendizaje en si lo que constituye aprendizaje organizativo, más que el conocimiento que es acumulado como un resultado de los procesos.
Sinkula et al. (1997)	Es un conjunto de valores organizativos que define la habilidad para crear, utilizar y divulgar conocimiento.
Bain (1998, 413)	Es definido como ocurriendo cuando hay co-evolución de contenedor organizativo y contenido. Esta co-evolución de contenedor organizativo y contenido es observada como el crecimiento de capacidad y puede ser usado como una definición y como una medida de aprendizaje organizativo.
Edmondson y Moingeon (1998, 12).	Es un proceso en el que los miembros de una organización activamente usan datos para guiar el comportamiento de tal modo que promueve la adaptación continua de la organización.
Nonaka et al. (2001)	Es un proceso donde los miembros en una organización son estimulados para esforzarse continuamente para adquirir nuevos enfoques además de compartir conocimiento para interactuar con distintos ambientes.
Liu et al. (2002, 368)	Es un recurso importante pero complejo que puede generar ventaja competitiva para una empresa en mercados turbulentos y dinámicos.
Real et al. (2006, 505)	Representa una fuente de heterogeneidad y de ventajas competitivas potencialmente sostenibles, como consecuencia de las diferentes capacidades de la compañía para aprender y absorber conocimiento. El estudio del aprendizaje organizativo busca responder a los retos que aumentan en un ambiente de negocios constantemente cambiantes y puede ayudar a las empresas a hacer frente a las dificultades de supervivencia a largo plazo.
García-Morales et al. (2006, 22)	Es un proceso que se extiende a lo largo del tiempo, permitiendo nuevas habilidades y que el conocimiento sea desarrollado, incrementando así la capacidad de la organización para llevar a cabo acciones que mejoran el resultado empresarial.
Gabrielsson et al. (2008, 395)	Es una cuestión de interés emergente, porque permite hacer frente a la identificación y explotación de oportunidades por parte de los emprendedoras. Los procesos de aprendizaje organizativo exitosos activan los esfuerzos para recopilar y generar inteligencia relacionada con el mercado y buscan potenciar al espíritu emprendedor porque lo expanden globalmente, maximizando los flujos del conocimiento a través de los procesos de aprendizaje.
Simsek et al. (2009)	Es un mecanismo central en la empresa, un mecanismo que es probable que garantice una ventaja adaptativa a través del espíritu emprendedor corporativo.

Fuente: Elaboración propia y García y Martin (2011)

Una vez vistos estos conceptos de aprendizaje organizativo a lo largo de la literatura se puede observar que existe mucha confusión sobre el concepto de aprendizaje organizativo, pues este aprendizaje se aplica a procesos tan dispares como a: la difusión de la información dentro de la organización (ej. Huber, 1991, 1996), la creación e interpretación de la organización por los individuos (ej. Weick, 1979), la codificación de rutinas organizativos (ej. Cyert y March, 1963; Levitt y March, 1988; Nelson y Winter, 1982), las barreras de comunicación interpersonal que bloquean la posibilidad de detectar y corregir errores (ej. Argyris y Schön, 1978), las barreras de racionalidad limitada (ej. March y Olsen, 1975), la innovación de productos (ej. Nonaka y Takeuchi, 1995), la construcción de significados compartidos (ej. Nicolini y Meznar, 1995), la

experiencia (ej. Lipshitz et al, 1996), la memoria organizativa (ej. Nelson y Winter, 1982), etc.

Por lo tanto, para clarificar toda esta amalgama de conceptos que nos van o pueden llevarnos a confusión podemos concluir afirmando que el aprendizaje organizativo es observado por la mayoría como un proceso que se extiende en el tiempo y que está unido a la adquisición de conocimiento y a la mejora del desempeño, de tal forma que podemos analizar el aprendizaje organizativo como "el proceso mediante el cual se detectan las disfunciones por medio del estudio de las relaciones existentes entre la acción y el resultado (se transforma la experiencia en conocimiento), entre la organización y el entorno o entre la organización y la memoria, reestructurándose los modelos mentales y la teoría de acción y compartiéndose la base del conocimiento organizativo, lo que permite el desarrollo de nuevas habilidades y conocimientos, incrementándose así la capacidad organizativa para llevar a cabo acciones eficaces, mejorando el desempeño organizativo". Esta actividad comprende la adquisición (desarrollo cognitivo), la difusión y la utilización de dicho conocimiento (desarrollo comportamental). Así la organización que aprende debe facilitar la transformación y el aprendizaje continuo a todos los miembros y a la organización en sí. Es una organización que "aprende a aprender".

Y es que la orientación al aprendizaje también ha sido conceptualizada como una variable cultural crítica que enfatiza el desarrollo de modelos de revisión y conocimiento general (García-Morales et la., 2006; Wild et al., 2002). Cuando este aprendizaje organizativo es utilizado estratégicamente, los sistemas o flujos de información en la compañía (Legnick-Hall, 1992; Leonard-Barton, 1992; Rhee et al., 2007) promueven las acciones emprendedoras, filtrando, ordenando, organizando y contextualizando eficientemente la información relevante para los directivos principales (Hurtado et al., 2007; Simsek *et al*., 2009).

1.1.3.5 Variables Tecnológicas

A continuación analizamos también los conceptos principales de las variables tecnológicas utilizadas en los trabajos de investigación. Entre todos los activos complementarios necesarios para fomentar la innovación destacan los activos tecnológicos, tales como soporte o apoyo de la alta dirección en empresas tecnológicas, habilidades tecnológicas de los directivos, o competencias tecnológicas distintivas. Además de que se deben de aprovechar los recursos existentes en la empresa y crear una

infraestructura tecnológica en la empresa que permita, de un modo correcto, el desarrollo de todas las variables tecnológicas comentadas.

En primer lugar, destacan las habilidades directivas y más concretamente las habilidades directivas tecnológicas, recogiéndose en la siguiente tabla algunas de las definiciones más destacadas.

TABLA 1.4: Conceptos de habilidades directivas y habilidades directivas tecnológicas

Autor	Definición
Teece et al. (1990, 29)	Las habilidades directivas son un conjunto de habilidades diferenciadas, activos complementarios y rutinas que suministran los fundamentos para las capacidades y competencias competitivas de una empresa y para producir una ventaja competitiva en un negocio particular.
Leonard-Barton (1992, 113)	Las habilidades directivas son uno de los cuatro componentes que distingue y suministra el conjunto de conocimiento necesario para producir una capacidad o competencia distintiva o clave. Esta dimensión de las habilidades, viene acompañada de técnicas específicas de la empresa y del conocimiento de expertos. Las habilidades directivas tecnológicas constituyen el sistema técnico completo, que normalmente produce los fundamentos de los primeros productos de la empresa.
Berry (1996, 490)	Las habilidades directivas tecnológicas son generalmente áreas de debilidad dentro de tales empresas, donde los emprendedores tienden a sobre-enfatizar pura y completamente el área tecnológica de su negocio e infravalorar o rechazar otras cuestiones estratégicas clave.
Lee *et al.* (2001)	Las habilidades directivas tecnológicas son las raíces de una ventaja competitiva sostenible en la empresa.

Fuente: Elaboración propia

De todas estas características se puede extraer que las habilidades directivas –tecnológicas o no- permiten el desarrollo de capacidades o competencias que pueden dar lugar a una ventaja competitiva sostenible (Leonard-Barton, 1992).

Otro concepto igualmente estratégico y utilizado es del de competencias distintivas tecnológicas (TDCs) cuyo estudio ha sido muy limitado en la literatura y es bastante reciente al tratarse de temas de tecnología (Leonard-Barton, 1992). A continuación se reflejan en la siguiente tabla las principales definiciones de este concepto.

TABLA 1.5: Concepto de competencias distintivas tecnológicas (TDCs)

Autor	Definición
Real *et al.* (2006, 508)	Representan la experiencia o habilidad de la organización para movilizar varios recursos técnicos y científicos a través de una serie de rutinas y procedimientos que permiten que nuevos productos y procesos de producción sean desarrollados y diseñados.
Alvarez y Barney (2007)	Son las competencias que permiten la explotación de oportunidades tecnológicas para el desarrollo del espíritu emprendedor corporativo y la generación de ventaja competitiva en la empresa.
Danneels (2008, 520)	Reflejan la habilidad de una empresa para hacer que ciertos productos o procesos físicos sirvan para capacitor a la empresa para server a un determinado grupo de clientes.

Fuente: Elaboración propia.

Estas competencias tecnológicas distintivas y habilidades tecnológicas harán que se desarrolle una infraestructura tecnológica en la empresa que permitirá el desarrollo de un espíritu emprendedor tecnológico corporativo (Byrd y Turner, 2001; Omerzel y Antoncic, 2008). Pero no hay que olvidar que estas variables tecnológicas, junto con otras variables estratégicas tecnológicas deben de ser apoyadas por la alta dirección para que puedan aplicarse en la organización correctamente, pues sino no podrán llevarse a cabo ya que no habrá medios ni económicos ni de decisión estratégica para realizarlos (Byrd y Davidson, 2003). Este soporte por parte de los altos directivos permitirá que la empresa desarrolle, de muchas formas, las competencias y habilidades tecnológicas a lo largo de toda la organización desde el presidente hasta el operario a través de los procesos de aprendizaje internos que ya hemos comentado anteriormente (Benitez *et al*., 2010; Byrd y Davidson, 2003; Byrd y Turner 2001; Chenhall, 2005; González y Nieto, 2005; Leonard-Barton, 1992; Omerzel y Antoncic, 2008; Rerup, 2005; Senge *et al*., 1994).

No obstante, antes de concluir este epígrafe, y aunque ya se ha comentado brevemente en el apartado de introducción del espíritu emprendedor corporativo, conviene resaltar la diferencia existente entre los altos directivos de una empresa y los emprendedores de la empresa, pues aunque parezca que ambos pueden ser las mismas personas en una organización; normalmente eso no es así. Como antes hemos comentado algunos autores ven los emprendedores como propensos al riesgo y bastante individualistas porque su comportamiento no está basado en las normas del comportamiento social (Busenitz y Barney, 1997; Ginsberg y Buchholtz, 1989; Shapero, 1975). En contraste, los altos directivos han sido descritos como adversos al riesgo, adaptados ampliamente a las normas aceptadas del comportamiento, y más profesionales y predecibles en su toma de decisiones (Busenitz y Barney, 1997).

Los directivos normalmente tienen acceso a tendencias históricas de la empresa, el desempeño pasado, u otro tipo de información que puede reducir el nivel de incertidumbre que estos hacen frente en la toma de decisiones (Mintzberg, 1973). En este sentido, los directores pueden aproximarse más claramente a la racionalidad a la hora de tomar decisiones, puesto que poseen información privilegiada (Busenitz y Barney, 1997). Por otro lado, los emprendedores generalmente toman decisiones donde no existe historial de la tendencia de la empresa, no hay niveles previos de desempeño y apenas existe información específica del mercado en el que la empresa

actúa (Miller y Friesen, 1984). Sólo, la decisión de empezar una nueva empresa basada en nuevos productos o nuevos servicios implica tomar numerosas decisiones de las que no se posee información o se posee muy poca. Consecuentemente, los emprendedores deben de ser apoyados por los altos directivos para así hacer frente a las decisiones de alto riesgo, puesto que los directivos pueden poseer información que les ayude y que los emprendedores no poseen (Businitz y Barney, 1997). Por lo tanto, los emprendedores no pueden desarrollar por sí solos una compañía ya existente sino que requieren el soporte o apoyo decisivo y financiero de la alta dirección (Busenitz y Barney, 1997; Sánchez y Aragón, 2003). No obstante hay situaciones en las que la figura de un alto directivo y un buen emprendedor coinciden como es por ejemplo el caso en el que el fundador y algunos directivos combinan las innovaciones tecnológicas adquiridas en la compañía a través de los procesos de aprendizaje organizativo con las necesidades potenciales del mercado y de la compañías (Busenitz y Barney, 1997).

1.1.3.6 Empresas Tecnológicas

En nuestras investigaciones nos hemos centrado principalmente en las empresas tecnológicas, sin embargo al hablar de empresas tecnológicas no tenemos que pensar únicamente en empresas biotecnológicas o empresas específicas de software y hardware. Y es que esta agrupación puede provocar bastante controversia en la literatura (Ansoff y Stewart, 1967, Baruch, 1997; Fontes, 2001; Grinstein y Goldman, 2006; Ho, 2011; Pavitt, 1984) por lo que conviene matizarlas aunque sea brevemente.

No existe una metodología concisa que defina las empresas tecnológicas (OECD, 2009) por lo que hay muchas definiciones para empresas tecnológicas (Ansoff y Stewart, 1967; Baruch, 1997; Grinstein y Goldman, 2006). Muchas de estas definiciones coinciden al considerar que las empresas de tecnología constituyen un grupo de empresas que difieren de las demás en aspectos importantes puesto que estas conducen a un crecimiento económico, a unas ganancias en la productividad y a crear nuevos mercados y nuevos productos o procesos. Su importancia se refleja en una amplia cobertura que reciben en los medios masivos y en la literatura de los negocios (Grinstein y Goldman, 2006). Esta perspectiva está enraizada en la gestión de tecnología de procesos-productos donde se debe de hacer una distinción entre las empresas sobre si su objetivo es innovar en productos o en procesos (ej. Eisenhardt y Martin, 2000).

Por lo tanto las empresas tecnológicas según Grisntein y Goldman (2006), en su estudio de 200 artículos que usaban este concepto vendrán definidas como aquellas empresas que ponen énfasis hacia la I+D y en la capacidad de innovación o "innovativeness" y que mantienen un modelo especial de relaciones de trabajo, conocido como "cultura corporativa de la tecnología". Estos elementos describen valores compartidos, creencias y símbolos, además de la forma en que las cosas son hechas en la empresa (Grinstein y Goldman, 2006). No sólo las empresas de software/hardware o biotécnológicas son consideradas empresas tecnológicas, sino que una empresa textil o de la construcción puede ser perfectamente una empresa tecnológica lo único que debe de tener es un especial énfasis en I+D, en la capacidad de innovación de la empresa u "organizational innovativeness" y en la cultura tecnológica de la empresa.

Asimismo, hay que tener en cuenta que para empresas del sector hotelero en las que nos basamos en nuestro segundo capítulo, las variables tecnológicas son cada día también más estratégicas para el resultado de la empresa. Estas empresas tienen una serie de productos que las caracterizan, entre los que se encuentra Internet (OECD, 2009) y que permiten su mayor desarrollo. Así, los hoteles suelen hacer inversiones muy significativas en las tecnologías de la información, tales como servicios web, almacenes de datos, gestión de clientes, o tecnologías de la cadena de abastecimiento, que permitan aumentar las funcionalidades de estas tecnologías al perfilar sus estrategias de negocios, sus relaciones con los clientes y las redes de la empresa (Sambamurth et al., 2003). Y aunque la investigación previa ha demostrado que las inversiones en IT tienen un efecto beneficioso en el desempeño e impactan en la productividad, el marco teórico no explica todavía cómo y porqué estas inversiones permiten el desempeño de las empresas (Sambamurthy et al., 2003). En nuestro caso esto se podrá ver a través de Internet (Buhalis, 2003, 2004).

1.1.4 Interés de la Investigación

El presente trabajo presenta una recopilación de tres artículos de investigación que versan sobre como la tecnología puede ayudar a las empresas a adaptarse al ambiente competitivo actual, e incluso situarlas por encima de sus competidores, llegando a obtener una ventaja competitiva que las demás empresas no poseen por la dificultad que supone la imitación de una serie de mecanismos tecnológicos que favorecen la orientación o capacidad de innovación de la empresa.

Esta innovación juega un papel fundamental en las empresas que quieren mantener su rendimiento en niveles excepcionales, e indirectamente, provoca una mejora continua en la calidad de vida de los clientes (Gopalakrishnan y Damanpour, 1997). Si una empresa u organización desea permanecer simplemente en la misma posición competitiva a lo largo del tiempo, al menos debe llevar a cabo niveles incrementales de innovación; por tanto, se precisarán innovaciones profundas y fundamentales cuando la empresa quiera posicionarse en un nivel estratégicamente superior (Lawson y Samson, 2001).

La literatura sobre la innovación ha puesto de manifiesto su importancia en el resultado de la empresa (Daft, 1978; Damanpour, 1991). En esta investigación se pretende analizar teórica y empíricamente la influencia que la innovación juega sobre el resultado. Para ello es necesario utilizar el paradigma teórico de la teoría de recursos y capacidades que ve la innovación como una de las principales capacidades de la empresa (Jiménez et al., 2009), aunque hay estudios que prefieren usar la teoría de la agencia en el caso del espíritu emprendedor (Miller y Sardais, 2011) –concepto que está relacionado con la capacidad de innovación organizativa.

Para que los estudios teóricos y prácticos en torno al término innovación puedan ampliarse y avanzar a nuevas áreas veremos la capacidad de innovación de las personas, según la teoría de recursos y capacidades, aplicada a nivel individual. Para ello se analizara como esa capacidad se aplica en empresas hoteleras andaluzas, donde el comportamiento de los empleados es importante para determinar la aptitud del hotel hacia la innovación (Agarwal y Prasad, 1998b; Akgün et al., 2007; Buhalis, 2003). Y es que el resultado del hotel, es decir los mayores ingresos del hotel, normalmente en las investigaciones suelen venir determinados por los efectos independientes de las tecnologías de la comunicación y la información a través de Internet (Buhalis, 2003), a través de los vuelos de bajo coste (Costa, 1995; Goodrich, 2002) o por las buenas condiciones climáticas de un país (Kerpel, 1990). Sin embargo el estudio conjunto de la influencia de Internet y los vuelos de bajo coste apenas ha sido previamente estudiado conjuntamente, y además y el principal punto que se debe de destacar en el capítulo segundo o artículo primero de este trabajo es que estas influencias no pueden darse sin una orientación innovadora de los empleados en las técnicas de comunicación e información. Este hecho junto con el desarrollo de una serie de procesos de aprendizaje organizativo que permitan que los empleados de la empresa alcancen todos esa

capacidad de innovación (Larsen y Sorebo, 2005) es lo que puede dar lugar a la originalidad del estudio y a la ampliación de la literatura existente sobre las organizaciones turísticas andaluzas.

Pero esa capacidad de innovación no puede analizarse únicamente a nivel individual y en empresas hoteleras si se quiere realizar un estudio completo de la innovación, sino que para hacer un estudio más genérico se debe de ver la capacidad de innovación en términos globales por toda la empresa y en otro tipo de organizaciones, y es por ello que vamos a estudiar la capacidad de la innovación en empresas tecnológicas y no en Andalucía, sino en España y en Europa. No obstante, como hemos comentado previamente, esta capacidad de innovación, en estos estudios, va a formar parte de un concepto más genérico y relevante para toda la organización que es el "corporate entrepreneurship" o espíritu emprendedor corporativo, cuya definición más actual establece que "se refiere al objetivo de acciones e iniciativas emprendedoras que transforma la organización establecida a través de procesos de renovación estratégica y lleva el fin de la empresa a las operaciones en nuevos mercados, es decir, nuevos segmentos de mercado de productos o nuevas áreas tecnológicas" (Goodale et al., 2011, 1). Y aunque el espíritu emprendedor ha sido recientemente visto como elemento de la teoría de agencia (Miller y Sardais, 2011) en este estudio se verá como una capacidad dinámica y que por lo tanto se enmarca en la teoría de recursos y capacidades (Jiménez, 2009).

Una vez enmarcado el espíritu emprendedor corporativo dentro de uno de los principales enfoques teóricos de la administración hay que destacar que el espíritu emprendedor corporativo va a ser estudiado junto con una serie de variables tecnológicas. En este estudio existen diferentes planteamientos interesantes: el primero es que no es estudiado de forma disgregada los cuatro componentes que hemos comentado previamente, sino de forma conjunta (Antoncic y Hisrich, 2001; Antoncic y Prodan 2008); el segundo es que se estudia en el marco de empresas tecnológicas; el tercero es que en los artículos segundo y tercero el espíritu emprendedor no va a ser estudiado como un antecedente del aprendizaje organizativo y de las competencias tecnológicas de la empresa, sino que va a ser visto como una consecuencia de un conjunto de variables tecnológicas y de aprendizaje organizativo, que permiten ampliar la literatura existente (Danneels, 2008).

Inicialmente, en el capítulo tercero o artículo segundo el punto principal que le da el valor más original al artículo es que las competencias distintivas tecnológicas -una de las variables tecnológicas escasa y muy recientemente estudiada- van a ser estudiadas como un antecedente del espíritu emprendedor corporativo y no como una consecuencia de éste (Real et al., 2006). Por lo tanto, el principal valor es que este espíritu emprendedor corporativo será potenciado por las competencias distintivas tecnológicas, además de por otras variables cómo el soporte de la alta dirección, o los procesos de aprendizaje organizativo y todo ello en empresas tecnológicas, donde alcanzar la ventaja competitiva será más difícil (Fontes, 2001).

Posteriormente, en el capítulo cuarto o artículo tercero, el factor original o distintivo va a ser que este espíritu emprendedor va a constituir la consecuencia de una serie de variables tecnológicas –habilidades tecnológicas, soporte de alta dirección y competencias distintivas tecnológicas- que actuarán conjuntamente sobre él y cuya influencia conjunta no ha sido previamente estudiada. Además va a ser potenciado por los procesos de aprendizaje organizativo de la empresa. Pero para que todo esto pueda realizarse los directivos deberán realizar un ajuste adecuado entre el contexto estratégico y administrativo de forma que se pueda potenciar el espíritu emprendedor corporativo (Randoy y Goel, 2003). En ambos artículos, será analizada también la relación existente entre el espíritu emprendedor corporativo y el desempeño organizativo en las empresas tecnológicas.

También resulta interesante destacar la metodología que ha sido utilizada a la hora de demostrar estadísticamente las hipótesis planteadas y analizadas en este trabajo, por los siguientes motivos:

1. Para la realización de los artículos se han realizado cuestionarios a distintos tipos de empresas y con distintas bases de datos.
   a. En el caso del artículo primero se ha utilizado la base de datos de turismo andaluz, que recoge todos los hoteles, hostales, posadas y demás alojamientos de Andalucía y que ascienden a una población total de 1621 alojamientos. En este caso el cuestionario fue enviado a cada directivo de hotel andaluz mediante correo postal en un primer envío y transcurridos 2 meses desde el primer envío se volvió a enviar el cuestionario a los directivos de los alojamientos que no habían respondido en el anterior envío, consiguiéndose una buena muestra de 327 cuestionarios hábiles.

b. En el artículo segundo las empresas analizadas fueron las empresas tecnológicas españolas mayores, cuyos datos se obtuvieron de la base de datos *Dun & Bradstreet (D&B) España* en 2003. En este caso las empresas fueron seleccionadas aleatoriamente y el cuestionario se envió a 900 empresas de las que 2001 fueron exitosamente seleccionadas para hacer el estudio por cumplir con todos los objetivos del cuestionario.
c. En el artículo tercero se consiguió solucionar una de las limitaciones de los artículos anteriores y se realizaron cuestionarios a nivel europeo. La base de datos aquí utilizada para ver las empresas tecnológicas a evaluar fue la base de datos Amadeus (2007). En este caso el cuestionario fue enviado a parte de a empresas españolas a empresas de Alemania, Austria, Bélgica, Dinamarca, Francia, Holanda (Países Bajos), Italia, Polonia y Reino Unido. Pero se consiguió una muestra de 160 cuestionarios válidos, por ser más costoso este proceso que el anterior.

2. Los métodos estadísticos utilizados en esta investigación han sido dos principalmente. En los dos primeros artículos hemos usado modelos de ecuaciones estructurales. Este método ofrece un conocimiento excepcional por el muy buen ajuste entre los aspectos teóricos y empíricos: Además este método tiene en cuenta los errores de medida y las variables de múltiples indicadores o comparaciones multigrupo. En el caso del último artículo para probar nuevas metodologías de estudio empírico se ha realizado una regresión lineal jerárquica, que permite comprobar la no existencia de multicolinealidad en los datos y el cumplimiento de los requisitos de tolerancia y varianza de los factores de medida.
3. Los programas estadísticos empleados para desarrollar estas metodologías estadísticas han sido LISREL 8.30 para el análisis de ecuaciones estructurales y SPSS 15.0 para el caso del tercer artículo con regresiones moderadoras jerárquicas.
4. Las preguntas de los cuestionarios han sido tomadas todas ellas de estudios previos validados.
5. Todos los artículos realizados son artículos empíricos sustentados con un buen desarrollo teórico de la literatura previamente estudiada y todos ellos cuentan con una serie de implicaciones teóricas y prácticas para los directivos de la empresa.

1.2 Objetivos de la Investigación

El objetivo central de este trabajo consiste en el estudio de los vínculos existentes entre los conceptos anteriormente mencionados de las variables tecnológicas (ej. habilidades tecnológicas, competencias distintivas tecnológicas, infraestructura tecnológica, apoyo de la alta dirección a la tecnología), la capacidad de innovación o "innovativeness", el espíritu emprendedor corporativo, el aprendizaje organizativo y como afectan al resultado de las organizaciones u organizaciones tecnológicas. Cada uno de los artículos presentados relaciona esta temática, obteniendo finalmente como resultado un conjunto de trabajos de investigación interconectados, pero que también conservan su propia contribución individual. A continuación, enumeramos algunos de los objetivos que pretendemos lograr con el desarrollo de esta tesis:

- Analizar cómo puede afectar la capacidad de innovación del personal de una empresa al resultado empresarial.
- Observar la importancia del aprendizaje organizativo en el caso de la capacidad de innovación del personal, y la importancia del aprendizaje organizativo en el caso de la capacidad de innovación organizativa o "organizational innovativeness".
- Observar cómo afectarán realmente las tecnologías de información y comunicación, por medio de Internet, al resultado hostelero, o ¿será únicamente importante el clima de una determinada región para atraer a los turistas?
- Comprobar si a los turistas que vienen a España les interesa tener un personal bien formado en los hoteles o prefieren descansar únicamente.
- Observar la influencia del precio de los vuelos en las reservas hoteleras.
- Estudiar la relación del aprendizaje organizativo con el mayor número de reservas de hoteles.

Si nos centramos en las empresas de tecnología pretendemos lograr los siguientes objetivos:

- Ver cómo la disponibilidad de recursos tecnológicos ayuda al desarrollo de competencias tecnológicas, y/o si estás competencias son poseídas inicialmente por unos pocos individuos en la organización.
- Comprobar que las habilidades directivas pueden incrementar las competencias tecnológicas distintivas de las organizaciones.

- Ver si estas competencias distintivas tecnológicas están influenciadas por el apoyo de la alta dirección.
- Además, ver si la alta dirección influye en el aprendizaje organizativo, o si éste se desarrolla sin necesidad de un soporte directivo a lo largo de toda la empresa.
- Comprobar si es el espíritu emprendedor corporativo es el que influirá en las competencias tecnológicas y si los emprendedores promoverán el aprendizaje organizativo. O por el contrario, si serán las competencias distintivas tecnológicas las que permitan el desarrollo del espíritu emprendedor y los procesos de aprendizaje serán los que mejoren el espíritu emprendedor corporativo.
- Comprobar si los emprendedores influyen en la alta dirección o es la alta dirección la que influye en el espíritu emprendedor.
- Analizar si las variables tecnológicas influirán en el espíritu emprendedor corporativo o bien si serán los emprendedores quienes mejoren las variables tecnológicas de la empresa.
- Observar cómo afecta el conocimiento al espíritu emprendedor corporativo.
- Estudiar si los distintos componentes del espíritu emprendedor son influidos uno a uno por las mismas variables tecnológicas que afectan el espíritu emprendedor corporativo de forma conjunta.
- Finalmente, saber cómo influyen todas estas variables en el resultado de las empresas tecnológicas. Y si podrán influir cada una de las partes del espíritu emprendedor en el resultado empresarial de la misma forma que la variable conjunta.

1.3 Estructura del Trabajo de Investigación

La presente investigación consta, además de este capítulo de introducción, de tres artículos de investigación y de un último capítulo de recapitulación. El hilo conductor que une a los tres artículos reside en las variables anteriormente mencionadas. A continuación realizamos una breve descripción de los contenidos de cada uno de los capítulos.

El capítulo 2 recoge un artículo donde se tratará la "innovativeness" a nivel personal y que, por ser el primer artículo ha sido aplicado a empresas más cercanas a nuestro

entorno y que representan la principal fuente de economía de Andalucía pues están dedicadas al sector turístico (empresas hoteleras andaluzas).

En este trabajo se analiza qué factores de los que nos analizados en esta investigación pueden afectar al número de reservas hoteleras, aumentado el desempeño empresarial. En este caso al tratarse de hoteles, y como hemos comentado previamente, nos enfocaremos en las tecnologías de la información y la comunicación, donde Internet es una de sus herramientas más útiles y por ello será la que usemos. Nos centramos en estas tecnologías puesto que dan más difusión y publicidad a la empresa u hotel, de modo que éste sea conocido por más sitios y pueda atraer a mayor número de turistas.

En este trabajo de investigación se indica que una combinación de la adopción de las tecnologías de la información, a través de Internet, con el transporte a bajo coste lleva a un mayor número de reservas hoteleras. Se examina esta relación en el caso de la industria hotelera andaluza y el impacto de esas variables en los indicadores del resultado organizativo.

Para este estudio se usa una muestra de unos 327 cuestionarios respondidos de los 1621 que fueron enviados a los distintos hoteleros andaluces y que constituyen la población de hoteles alojamiento andaluces. Hemos elegido el sector turístico porque es la principal fuente de ingresos de la balanza de pagos española y además el sector principal en Andalucía porque esta comunidad es aquella cuyo sector turístico es el más rentable de España, y porque además es la comunidad donde, como norma general, hay precios más bajos en las compañías turísticas. La metodología utilizada ha sido un análisis de ecuaciones estructurales que permite una perfecta conjunción entre el conocimiento teórico y empírico para ofrecer una serie de resultados bien aplicables al mundo real. Este modelo permite formar un buen ajuste de fenómenos poco observables y, además, tiene en cuentas errores de medida, indicadores de múltiples variables y comparaciones multigrupos de estas variables. Además nosotros usamos los directivos o "CEOs" de la compañía porque ellos están familiarizados con casi todos los temas sobre los que se les preguntan ya que por su experiencia en el trabajo pueden informarnos sobre muchas preguntas.

Pretendemos verificar empíricamente que el aprendizaje organizativo y el interés del personal en la innovación de Internet, capacitan a los hoteles para ganar una ventaja competitiva de las aerolíneas de bajo coste que llegan a Andalucía. También pretendemos comprobar que la inversión en el personal de la empresa es un aspecto

clave que permita que la orientación hacia la innovación para el uso de Internet sea mejorada. Todo ello dentro de un marco global que permita entender que la administración o gestión del turismo es de vital importancia para las reservas hoteleras puesto que los hoteles buscan mantener una imagen prestigiosa a través de la red y de adquirir conocimiento por medio de procesos de aprendizaje organizativo que faciliten que todos los empleados de la organización sepan cómo actuar con las nuevas tecnologías de la información, permitiendo así una mejora continua que lleve hacia una ventaja competitiva y que haga que la organización sea más innovadora. Y es que una organización hotelera con una buena imagen permite que las empresas atraigan a un mayor número de turistas extranjeros. Este mayor número de turistas puede incluso incrementar el sector de la vivienda pues al venir a España y ver las buenas condiciones que los hoteles españoles ofrecen, pueden comprar y de hecho adquieren propiedades como segundo hogar en Andalucía para pasar sus vacaciones.

El valor u originalidad de este artículo está en ver qué aspectos muy estudiados, tales como el efecto de Internet o de las aerolíneas de bajo coste en el sector hotelero andaluz (Buhalis, 2003; Cockerell, 1992, Goodrich, 2002; Papatheodorou, 2002) son motivados por el aprendizaje organizativo de los individuos de la empresa y por la orientación o capacidad de innovación o "innovativeness" del personal de la compañía. Aspectos que apenas han sido relacionados y demostrados empíricamente en investigaciones anteriores.

El capítulo 3, una vez vista la "innovativenes" u orientación da la innovación a nivel personal, se procede a analizar "innovativeness" a nivel organizativo y por tanto, como se ha explicado previamente, estudiaremos el espíritu emprendedor corporativo o "corporate entrepreneurship" relacionado con una serie de conceptos tecnológicos a nivel de España. Se pasa de un marco regional a un marco europeo. Ya no nos concentramos en empresas hoteleras donde utilizábamos las tecnologías de la información sino en empresas tecnológicas. Por lo tanto, para este segundo artículo ya hemos dejado Andalucía y hemos subido de nivel a las empresas tecnológicas españolas. Por lo que una mayor generalización podrá ser hecha en términos de conclusiones.

En este tercer capítulo, vamos por lo tanto a tomar un campo de estudio más tecnológico por lo que a parte del espíritu emprendedor corporativo se tienen que estudiar las características tanto de los empleados como de los directivos que pueden

llevar a ese espíritu emprendedor. Y sobre todo se destacará el concepto de competencias o capacidades distintivas tecnológicas, que no ha sido muy estudiado en la literatura empíricamente.

Se pretende analizar cómo las empresas que poseen excedente de recursos tecnológicos tienen más capacidad de actuación en materia de competencias tecnológicas que las que no las tienen. Pero estos recursos no pueden funcionar por sí mismos, sino que tienen que ser gestionados por una serie de personas que son las que mandan en la empresa y que deben de poseer unas habilidades profesionales específicas para poder utilizar tales recursos y favorecer las competencias tecnológicas de modo que puedan llegar a conseguir una ventaja competitiva sostenible. Pero estos profesionales implicados no se conformarán con los excedentes de recursos que la compañía pueda poseer sino que mediante sus habilidades tecnológicas específicas tendrán que buscar una financiación extraordinaria además de proporcionar un soporte para la toma de decisiones empresariales, para de esta forma permitir que los emprendedores puedan mejorar el resultado de la empresa.

Para que todas estas relaciones puedan llevarse a cabo, hace falta una serie de procesos de aprendizaje organizativo que permitirán a los empleados entender y adquirir ese conocimiento necesario para que la empresa llegue a ser una entidad cognitiva con características difícilmente imitables por parte de los competidores al tratarse de laboriosos procesos de aprendizaje. La finalidad de este capítulo será por tanto la de subrayar la importancia de diferentes aspectos tecnológicos de las empresas tecnológicas españolas.

La metodología utilizada en este caso va a ser la misma que la usada en el capítulo debido a los buenos y consistentes resultados que ofrece el modelo de ecuaciones estructurales, dando lugar a una entramada serie de relaciones o hipótesis que produce una investigación bastante interesante tanto en términos de investigación como en la práctica. Y todo ello demostrado empíricamente.

En este capítulo, en consonancia con el anterior se han mantenido los directivos como principales encuestados por las mismas razones que en el capítulo 2. Pero eso sí al ser más costoso el estudio, la muestra a analizar se ha reducido a 201 empresas de un total de 927 que fueron seleccionadas aleatoriamente de toda la población que constituían las empresas tecnológicas españolas.

Por último destacar de este capítulo que con él se pretenden establecer nuevas líneas de investigación en torno al concepto de competencias distintivas tecnológicas, que ha sido poco tratado en la literatura y que los pocos artículos que lo han usado (Real et al., 2006) lo han hecho como consecuencia del aprendizaje organizativo o del espíritu emprendedor y no como consecuencia de tales. Por tanto este capítulo completa en gran medida la investigación de Danneels (2008) en términos de competencias tecnológicas, puesto que este autor únicamente trataba cómo el excedente de recursos y las habilidades directivas influyen en las competencias y no tantas relaciones como nosotros.

El capítulo cuarto, permite profundizar un poco más en la literatura sobre estas variables analizadas. Además, en lugar de estudiar las empresas españolas hemos pasado a un estudio más allá de nuestro país y hemos elaborado un estudio de empresas europeas. Por lo que las conclusiones y resultados obtenidos en este artículo son todavía más generalizables que las del capítulo 3. Sin embargo, por la misma razón que antes -los mayores costes de investigación- la muestra de trabajo ha quedado reducida a 160 empresas europeas.

Este capítulo se va a diferenciar de los anteriores en que la metodología utilizada para analizar la muestra ya no va a ser un modelo de ecuaciones estructurales, sino que va a ser regresión lineal jerárquica. Pues así se mejora la predicción de la variable objetivo (el desempeño) y de este modo podemos ver qué método resulta más adecuado a la hora de establecer empíricamente los resultados esperados. Eso sí, los directivos o "CEOs" seguirán siendo entrevistados como principales representantes de la empresa para responder a todas nuestras preguntas, por las mismas razones que en los anteriores capítulos.

La temática que se va a tratar en este cuarto capítulo es como una serie de variables estratégicas tecnológicas (competencias distintivas tecnológicas, soporte o apoyo de la alta dirección y habilidades directivas tecnológicas) y de procesos de aprendizaje organizativo afectarán al espíritu emprendedor corporativo, el cual influirá a su vez en la existencia de un mejor desempeño en la organización. Por lo tanto se van a tratar variables parecidas a las del capítulo tres, aunque con otro enfoque de la literatura y en empresas europeas y no sólo españolas.

Con este capítulo lo que se pretende observar es si esa ventaja competitiva conseguida en el capítulo 3 por las variables tecnológicas va a poder mantenerse abierta

en el caso de empresas europeas. Y si los resultados son positivos eso significará que una generalización en términos globales puede realizarse con pocos inconvenientes.

Al igual que en el caso del capítulo anterior la originalidad de este capítulo yace en el uso de las competencias distintivas tecnológicas, pero en este caso combinadas con otras variables tecnológicas enfocadas de forma distinta a las del capítulo 3, y del aprendizaje organizativo para generar un mayor espíritu emprendedor corporativo. Aspectos estudiados por muy pocos investigadores (Omerzel y Antoncic, 2008).

Una vez acabados los tres capítulos podremos comparar los análisis metodológicos empleados (ecuaciones estructurales y regresiones lineales jerárquicas). Además podremos ver qué variable es más útil para estudiar el desempeño organizativo si la orientación innovadora personal o la orientación innovadora organizativa por medio del espíritu emprendedor corporativo. Teniendo en cuenta, obviamente, que existen importantes matices, al utilizarse muestras diferentes.

Finalmente, el capítulo 5, analiza las principales conclusiones e implicaciones que todas estas hipótesis planteadas pueden conllevar. Asimismo también exponen las principales limitaciones de los estudios y las futuras líneas de investigación que se desprenden de esta temática.

1.4 Bibliografía

Agarwal, R., y Prasad, P. (1998a), "The antecedents and consequences of user perceptions in information technology adoption", *Decision Support Systems*, Vol. 22 No. 4, pp. 15-29.

Agarwal, R., y Prasad, P. (1998b), "A conceptual and operational definition of personal innovativeness in the domain of information technology", *Information Systems Research*, Vol. 9, pp. 204-215.

Akgün, A.E., Keskin, H., Byrne, J.C. y Aren, S. (2007), "Emotional and learning capability and their impact on product innovativeness and firm performance", *Technovation*, Vol. 27, pp. 501-513.

Alvarez, S.A. y Barney, J.B. (2007), "Discovery and creation: Alternative theories of entrepreneurial action", *Strategic Entrepreneurship Journal*, Vol. 1 No. 1-2, pp. 11-26.

Andreu, R. y Ciborra, C. (1996), "Organisational learning and core capabilities development: The role of IT", *Journal of Strategic Information Systems*, Vol. 5, pp. 111-127.

Ansoff, I. y Stewart, J. (1967), "Strategies for a technology-based business", *Harvard Business Review,* Vol. 45 No. 6, pp. 71–83.

Antoncic, B. y Hisrich, R.D. (2001), "Intrapreneurship: construct refinement and cross-cultural validation", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 495-527.

Antoncic, B. y Prodan, I. (2008) "Alliances, corporate technological entrepreneurship and firm performance: Testing a model on manufacturing firms", *Technovation*, Vol. 28, pp. 257–265.

Argyris, C. (1977), "Double loop learning in organizations", *Harvard Business Review*, Vol. 55 No. 5, pp. 115-125.

Argyris, C. y Schön, D. A. (1978), *Organizational learning: a theory of action perspective*, Addison-Wesley: Reading, MA.

Aubrey, R. y Cohen, P. (1995), *La organización en aprendizaje permanente: estrategias prácticas para ganar ventajas competitivas*, Ediciones: Bilbao (original en ingles: *Working wisdom: timeless skills and vanguard strategies for learning organizations*, Jossey-Bass Publishers: San Francisco).

Auh, S. y Menguc, B. (2005), "Top management team diversity and innovativeness: The moderating role of interfunctional coordination", *Industrial Marketing Management (SSCI)*, Vol. 34 No. 3, pp. 249-261.

Badguerahanian, L. y Abetti, P. A. (1995), "Case study. The rise and fall of the Merlin-Gerin Foundry Business: A case study in French corporate entrepreneurship", *Journal of Business Venturing*, Vol. 10, pp. 477-493.

Bain, A. (1998), "Social defenses against organizational learning", *Human Relations*, Vol. 51, pp. 413-429.

Barney, J. B. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.

Barrales Molina, V. (2008), "Construcción de Capacidades dinámicas para generar innovación y ajuste de flexibilidad. La influencia moderadora del dinamismo de las rutinas organizativas", Tesis doctoral, Editorial Universidad de Granada, Granada.

Barringer, B. R. y Bluedorn, A. C. (1999), "The relationship between corporate entrepreneurship and strategic management", *Strategic Management Journal*, Vol. 20, pp. 421-444.

Baruch, Y. (1997), "High technology organization — what it is, what it isn't", *International Journal of Technology Management*, Vol. 13 No. 2, pp.179–195.

Benitez Amado, J., Lloréns Montes, F. J. y Perez Arostegui, M. N. (2010), "Information technology-enabled intrapreneurship culture and firm performance", *Industrial Management & Data Systems*, Vol. 110 No. 4, pp. 550-566.

Berry, M. M. J. (1996), "Technical entrepreneurship, strategic awareness and corporate transformation in small high-tech firms", *Technovation*, Vol. 16, No. 9, pp. 487-498.

Brikinshaw, J. (1997), "Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives", *Strategic Management Journal*, Vol. 18 No. 3, pp. 207-229.

Brinckmann, J., Grichnik, D. y Kapsa, D. (2010), "Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms", *Journal of Business Venturing*, Vol. 25, pp. 24-40.

Buhalis, D. (2003), *eTourism: information technology for strategic tourism management,* Prentice-Hall: New Jersey.

Buhalis, D. (2004), "e-Airlines: strategic and Tactical Use of ICTS in the Airline Industry" *Information & Management*, Vol. 41 No.7, pp.805–825.

Burgelman, R. A. (1983), "Corporate entrepreneurship and strategic management: Insights from a process study", *Management Science*, Vol. 29 No. 12, pp. 1349-1364.

Burgelman, R. A. (1984), "Desings for corporate entrepreneurship in established firms", *California Management Review*, Vol. 26 No. 3, pp. 154-166.

Busenitz, L. W. y Barney, J. B. (1997), "Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decisión-making", *Journal of Business Venturing*, Vol. 12, pp. 9-30.

Byrd, T. A. y Davidson, N. W. (2003), "Examining possible antecedents of IT impact on the supply chain and its effect on firm performance", *Information & Management*, Vol. 41, pp. 243-255.

Byrd, T.A. y Turner, D. (2001), "An exploratory analysis of the value of the skills of IT personnel: their relationship to IS infrastructure and competitive advantage", *Decision Sciences*, Vol. 32 No.1, pp. 21–54.

Cantillón, R. (1755), *Ensayo sobre la naturaleza del comercio en general*, Fondo de Cultura Económica, México, 1978.

Chenhall, R. H. (2005), "Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: An exploratory study", *Accounting, Organizations and Society*, Vol. 30, pp. 395-422.

Chung, L. H. y Gibbons, P. T. (1997), "Corporate entrepreneurship. The roles of ideology and social capital", *Group & Organization Management*, Vol. 22 No. 1, pp. 10-30.

Churchill, N.C. (1992), "Research issues in entrepreneurship", in D.L. Sexton and J.D. Kasarda, eds., *The State of the Art of Entrepreneurship.* PWS-KENT: Boston, MA.

Cockerell, N. (1993), "Germany outbound", *Travel and Tourism Analyst*, Vol. 2, pp. 19-34.

Cooper, R.G. y Kleinschmidt, E.J. (1995), "Benchmarking the firm´s critical success factors in new product development", *Journal of product innovation Management*, Vol. 12, pp. 374-391.

Costa, J. (1995), "International perspectives on travel and tourism development", *International Journal of Contemporary Hospitality Management*, Vol. 7 No.7, pp. 10-19.

Covin, J. G. y D. P. Slevin (1989), "Strategic management of small firms in hostile and benign environments", *Strategic Management Journal*, Vol. 10 No. 1, pp. 75–87.

Covin, J.G. y Slevin, D.P. (1991) "A conceptual model of entrepreneurship as firm behavior", *Entrepreneurship: Theory and Practice*, Vol. 16, pp. 7-25.

Cyert, R. M. y March, J. G. (1963), *A behavioural theory of the firm*, Englewood Cliffs, N.J.: Prentice Hall.

Daft, R.L. (1978), "A dual-core model of organizational innovation", *Academy of Management Journal*, Vol. 21, pp. 193-210.

Daft, R.L. (1982), "Bureaucratic versus non bureaucratic structure and the process of innovation and change", in S.B. Bacharach (Ed.), *Research in the sociology of organizations*, Vol. 1, pp. 129-166, JAI Press: Greenwich, CT.

Damanpour F. (1987), "The adoption of technological, administrative and ancillary innovations: impact of organizational factors", *Journal of Management*, Vol. 13 No. 4, pp. 675–688.

Damanpour, F. (1991), "Organizational innovation: A Meta-Analysis of Effects of Determinants and Moderators", *Academy Management Journal*, Vol. 34 No. 3, pp. 555-590.

Damanpour, F. y Evan, W.M. (1984), "Organizational innovation and performance: The problem of organizational lag", *Administrative Science Quarterly*, Vol. 29, pp. 392-409.

Danneels, E. (2008), "Organizational antecedents of second-order competences", *Strategic Management Journal*, Vol. 29, pp. 519-543.

Deshpandé, R., Farley, J. U. y Webster, F. E. Jr. (1993), "Corporate culture, customer organization, and innovativeness in Japanese firms: A quadrad analysis", *Journal of Marketing*, Vol. 57 No. 1, pp. 23-37.

Dibella, A., Nevis, E, C. y Gould, J. M. (1996), "Understanding organizational learning capability", *Journal of Management Studies*, Vol. 33, pp. 361-379.

Dixon, N. M. (1997), "The Hallways of learning", *Organizational dynamics*, Vol. 25 No. 4, pp. 23-34.

Dodgson, M. (1993), "Organizational learning: a review of some literatures", *Organization Studies*, Vol. 14, pp. 375-394.

Duncan, R. B. (1974), "Modifications in decision structure in adapting to the environment: some implications for organizational learning", *Decision Science*, Vol. 5 No. 4, pp. 707-725.

Duncan, R. y Weiss, A. (1979), "Organizational learning: implications for organizational design", en B. Staw (Ed.), *Research in organizational behavior*, JAI: Greenwich, CT, pp. 75-123.

Easterby-Smith, M. (1997), "Disciplines of organizational learning: contributions and critiques", *Human Relations*, Vol. 50, pp. 1085-1113.

Edmondson, A. y Moingeon, B. (1998), "From organizational learning to the learning organization", *Management Learning*, Vol. 29 No. 1, pp. 5-20.

Eisenhardt, K. M. y Martin, J. A. (2000), "Dynamic capabilities: What are they?", *Strategic Management Journal*, Vol. 21 No. 11, pp. 1105-1121.

Fiol, C. M. y Lyles, M. A. (1985), "Organizational learning", *Academy of Management Review*, Vol. 10, pp. 803-813.

Fontes, M. (2001), "Biotechnology entrepreneurs and technology transfer in an intermediate economy", *Technological forecasting and social change*, Vol. 66, pp. 59-74.

Gabrielsson, M., Kirpalani, V. H. M., Dimitratos, P. Solberg, C. A. y Zucchella, A. (2008), "Born globals: Propositions to help advance the theory", *International Business Review*, Vol. 17, pp. 385-401.

García Morales, V.J., Lloréns Montes, F.J. y Verdú Jover, A.J. (2006), "Antecedents and consequences of organizational innovation and organizational learning in entrepreneurship", *Industrial Management & Data Systems*, Vol. 106 Nos. 1-2, pp. 21-42.

García Morales, V. J. y Martín Rojas, R. (2011) *Un estudio del aprendizaje organizacional desde la perspectiva de los centros educativos: Análisis empírico de una escala de medición*, Ediciones K&L: Padul (Granada).

Garvin, D. A. (1993), "Building a learning organization", *Harvard Business Review*, Vol. 71 No. 4, pp. 78-91.

Ginsberg, A, y Buchholtz, A (1989), "Are entrepreneurs a breed apart? A look at the evidence", *Journal of General Management,* Vol. 15 No.2, pp. 32-40.

Goodale, J. C., Kuratko, D. F., Hornsby, J. S. y Covin J. G. (2010), "Operations management and corporate entrepreneurship: The moderating effect of operations control on the antecedents of corporate entrepreneurial activity in relation to innovation performance", *Journal of Operations Management*, Vol. 29, pp. 116-127.

Goodrich, J.N. (2002), "September 11, attack on America: A record of the immediate impacts and reactions in the USA travel and tourism industry", *Tourism Management*, Vol. 23, pp. 573-580.

González Álvarez, N. y Nieto Antolín, M. (2005), "Protection and internal transfer of technological competencies: The role of causal ambiguity", *Industrial Management & Data Systems*, Vol. 105 No. 7, pp. 841-856.

González Álvarez, N. y Nieto Antolín, M. (2007), "Appropriability of innovation results: An empirical study in Spanish manufacturing firms", *Technovation*, Vol. 27 No. 5, pp. 280-295.

Gopalakrishnan, S. y Damanpour, F. (1997), "A review of innovation research in Economics, Sociology and technology management", *Omega*, Vol. 25 No. 1, pp. 15-28.

Grinstein, A. y Goldman, A. (2006), "Characterizing the technology firm: an exploratory study", *Research Policy*, Vol. 35, pp. 121-143.

Guns, B. (1996), *The faster learning organization; gain and sustain the competitive edge*, Pfeiffer & Company.

Guth, W. D. y Ginsberg, A. (1990), "Guest editors´ introduction: Corporate entrepreneurship", *Strategic Management Journal*, Vol. 11, pp. 5-15.

Ho, L.A. (2011), "Meditation, learning, organizational innovation and performance", *Industrial Management & Data Systems*, Vol. 111 No. 1, pp. 113-131.

Hornsby, J. S., Naffziger, D. W., Kuratko, D. F. y Montagno, R. V. (1993), "An interactive model of the corporate entrepreneurship process", *Entrepreneurship: Theory and Practice*, Vol. 17 No. 2, pp. 29-37.

Huber, G. (1991), "Organizational learning: the contributing processes and the literatures", *Organization Science*, Vol. 2, pp. 88-115.

Hurley, R.F. y Hult, G.T.M. (1998), "Innovation, market orientation, and organizational learning: an integration and empirical examination", *Journal of Marketing*, Vol. 62, pp. 42-54.

Hurt, Th., Joseph, K., y Cook, Ch. (1977), "Scales for the "human communication research", Vol. 4 No.1, pp. 58-65.

Hurtado Torres, N. E., Cordón Pozo, E. and Senise Barrio, E. (2007), "Efectos de la cultura nacional en la relación entre orientación emprendedora y el resultado de la innovación de producto: el caso del sector farmacéutico", *Cuadernos Económicos del ICE*, Vol. 73, pp. 135-149.

Ireland, R.D., Covin, J.G., y Kuratko, D.F. (2009), "Conceptualizing corporate entrepreneurship strategy", *Entrepreneurship Theory and Practice*, Vol. 33 No.1, pp.19–46.

Ireland, R. D., Hitt, M. A., Camp, S. M. y Sexton, D. L. (2001), "Integrating entrepreneurship and strategic management actions to create firm wealth", *Academy of Management Executive*, Vol. 15 No. 1, pp. 49-63.

Jankowski, J.E. (1998), "R&D: foundation for innovation", Research *Technology Management*, Vol. 41, pp. 14-20.

Jassawalla, A.R. y Sashittal, H.C. (2002), "Cultures that support product innovation processes", *Academy of management executive*, Vol. 16, pp. 42-54.

Jennings, D. F. y Lumpkin, J. R. (1989), "Functioning modeling corporate entrepreneurship: An empirical integrative analysis", *Journal of Management*, Vol. 15 No. 3, pp. 485-502.

Jiménez Barrionuevo, M. M. (2009), "Infuencia de la capacidad de absorber conocimiento en la capacidad estratégica intraemprendedora: Un modelo causal en empresas españolas" Tesis doctoral, Editorial Universidad de Granada, Granada.

Jones, G.R. y Butler, J.E. (1992), "Managing internal corporate entrepreneurship: An agency theory perspective", *Journal of Management*, Vol. 18 No.4, pp.733-749.

Jones, G.K., Lanctot, A. Jr. y Teegen, H.J. (2000), "Determinants and performance impacts of external technology acquisition", *Journal of Business Venturing*, Vol. 16, pp. 255-283.

Kanter, R.M. (1983), *The change master – Innovation & Entrepreneurship in the American corporation*, New York: Simon & Schuster.

Kelley, D. (2010), "Sustainable corporate entrepreneurship: Evolving and connecting with the organization", *Business Horizons*, Vol. 54 No.1, pp. 73-83.

Kerpel, E. (1990), "Tourism potential in Eastern Europe", *Travel and Tourism Analyst*, Vo1, pp. 68-86.

Kim, D. H. (1993), "The link between individual and organizational learning", *Sloan Management Review*, Vol. 35, No. 1, pp. 37-50.

Kimberly, J. R. y Evanisko, M. J. (1981), "Organizational innovation: The influence of individual, organizational and contextual factors on hospital adoption of technological and administrative innovation", *Academy of Management Journal*, Vol. 24, pp. 689-713.

Knight, K.E. (1967), "A descriptive model of the intra-firm innovation process" *The Journal of Business*, Vol. 40 No.4, pp. 478-497.

Knight, G.A. (1997), "Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation", *Journal of Business Venturing*, Vol. 12, pp. 213-225.

Larsen, T.J. y Sorebo, O. (2005), "Impact of personal innovativeness on the use of the Internet among employees at work", *Journal of Organizational and End User Computing*, Vol. 17, pp. 43-63.

Lawson, B., y Samson, D. (2001), "Developing innovation capability in organizations: A dynamic capabilities approach", *International Journal of Innovation, Management*, Vol. 5 No. 3, pp. 377-400.

LeBlanc, L.J., Nash, R., Gallagher, D., Gonda, K. y Kakizaki, F. (1997), "A comparison of US and Japanese technology management and innovation", *International Journal of Technology Management*, Vol. 13, pp. 601-614.

Lee, C., Lee, K. y Pennings, J. M. (2001), "Internal capabilities, external networks, and performance: A study on technology-based ventures", *Strategic Management Journal*, Vol. 22, pp. 615-640.

Lengnick-Hall, C. A. (1992), "Strategic configurations and designs for corporate entrepreneurship: Exploring the relationship between cohesiveness and performance", *Journal of Engineering and Technology Managemnent*, Vol. 9, pp. 127-154.

Leonard-Barton, D. (1992), "Core capabilities and core rigidities: A paradox in managing new product development", *Strategic Management Journal*, Vol. 13, pp. 111-125.

Leonard-Barton, D. y Deschamps, I. (1988), "Managerial influence in the implementation of new technology", *Management Science*, Vol. 34 No. 10, pp.1252-1265.

Levitt, B. y March, J. G. (1988), "Organizational learning", *Annual Review of Sociology*, Vol. 14, pp. 319-340.

Lipshitz, R., Popper, M. y Oz, S. (1996), "Building learning organizations: the design and implementation of organizational learning mechanisms", *Journal of Applied Behavioral Science*, Vol. 32 No. 3, pp. 292-305.

Liu, S.S., Luo, X. y Shi, Y.Z. (2002), "Integrating customer orientation, corporate entrepreneurship, and learning orientation in organizations-in-transition: An empirical study", *International Journal of Research in Marketing*, Vol. 19, pp. 367-382.

Lloréns Montes, F. J., Ruiz Moreno, A. y García Morales, V. (2005), "Influence of support leadership and teamwork cohesion on organizational learning, innovation and performance: An empirical examination", *Technovation*, Vol. 25, pp. 1159-1172.

López Yepes, J. A. y Madrid Garre, M. F. (1996), "Cómo hacer de la empresa una organización aprendiente", *Economía Industrial*, No. 311, pp. 67-76.

March, J. G. y Olsen, J. P. (1975), "The uncertainty of the past: organizational learning under ambiguity", *European Journal of Political Research*, Vol. 3 No. 2, pp. 147-171.

Martinez Garcia, E. y Raya, J.M. (2008), "Length of stay for low-cost tourism", *Tourism Management*, Vol. 29, pp. 1064–1075.

McClelland, D. C. (1961), *The achieving society*, Van Nostrand, Princeton, NJ.

McFadzean, E., O´Loughlin, A. y Shaw, E. (2005), "Corporate entrepreneurship and innovation part 1: The missing link", *European Journal of Innovation Management*, Vol. 8 No. 3, pp. 350-372.

McGill, M. E. y Slocum, J. W. Jr. (1993), "Unlearning the organization", *Organizational Dynamics*, Vol. 22 No. 2, pp. 67-79.

Miller, D. (1983), "The correlates of entrepreneurship in three types of firms", *Management Science*, Vol. 29, pp. 770–791.

Miller, D. y Friesen, P. H. (1980), "Momentum and revolution in organizational adaptation", *Academy of Management Journal*, Vol. 23, pp. 591-614.

Miller, D., y Friesen, P.H. (1984), *Organizations: A Quantum View*, Prentice Hall: Englewood Cliffs, NJ.

Miller, D. y Sardais, C. (2011), "Angel agents: Agency theory reconsidered", *Academy of Management Perspectives*, pp. 6-13.

Mintzberg, H. (1973), *The Nature of Managerial Work*, Prentice Hall: Englewood Cliffs, NJ.

Miró Arias, C., Leal Millán, A. G., Cepeda Carrión, G. A. y Miró Arias, M. A. (2010), "Clima de confianza, aprendizaje e innovación: Una metáfora biomimética", *Revista Europea de Dirección y Economía de la Empresa*, Vol. 19 No. 4, pp. 21-36.

Napolitano, G. (1991), "Industrial research and sources of innovation: a cross-industry analysis of italian manufacturing firms", *Research Policy*, Vol. 20, pp. 171-178.

Narver, J.C. y Slater, S.F. (1990), "The effect of a market orientation on business profitability", *Journal of Marketing*, Vol. 54, pp.20-35.

Nelson, R. R. y Winter, S. G. (1982), *An evolutionary theory of economic change*, Belknap Press and Harvard University Press: Cambridge, MA.

Nicolini, D. y Meznar, M. B. (1995), "The social construction of organizational learning: conceptual and practical issues in the field", *Human Relations*, Vol. 48, pp. 727-746.

Nonaka I., Reinmoller P. y Toyama R. (2001), "Integrated information technology systems for knowledge creation", in Dierkes M., Berthoin-Antal A., Child J., Nonaka I., (eds.), *Handbook of organizational learning and knowledge*, Oxford University Press, New York.

Nonaka, I., Takeuchi, H. y Umemoto, K. (1996), "A theory of organizational knowledge creation", *International Journal of Technology Management*, Vol. 11 No. 7/8, pp. 833-845.

Nonaka, I. y Takeuchi, H. (1995), *The knowledge-creating company*, Oxford University Press: Oxford.

OECD (2009), *Guide to measuring the information society*, Paris, available at http://www.oecd.org/sti/measuring-infoeconomy/guide (accesed 23 April 2011).

Omerzel, D.G. y Antoncic, B. (2008), "Critical entrepreneur knowledge dimensions for the SME performance", *Industrial Management & Data Systems*, Vol. 108 No. 9, pp. 1182-1199.

Osigweh, C. A. B. (1989), "Concept fallibility in organizational science", *Academy of Management Review*, Vol. 14, pp. 579-594.

Papatheodorou, A. (2002), "Civil aviation regimes and leisure tourism in Europe", *Journal of Air Transport Management*, Vol. 8, pp.381-388.

Pavitt, K. (1984), "Sectoral patterns of technological change: towards a taxonomy and a theory", Research Policy Vol. 13 No.6, pp.343–373.

Porter, M. (1980), *Competitive strategy: Techniques for analysing industries and competitors*, New York: Free Press.

Porter, M. (2001), "Strategy and the Internet", *Harvard Business Review*, Vol. 79 No.3, 63–78.

Prajogo, D. I. y Ahmed, P. K. (2006), "Relationships between innovation stimulus, innovation capacity, and innovation performance" R&D Management, Vol. 36 No. 5, pp. 499-515.

Randoy, T. y Goel, S. (2003), "Ownership structure, founder leadership, and performance in Norwegian SMEs: Implications for financing entrepreneurial opportunities", *Journal of Business Venturing*, Vol. 18, pp. 619-637.

Real, J.C., Leal, A. y Roldan, J.L. (2006), "Information technology as a determinant of organizational learning and technological distinctive competencies", *Industrial Marketing Management*, Vol. 35, pp. 505-521.

Rerup, C. (2005), "Learning from past experience: Footnotes on mindfulness and habitual entrepreneurship", *Scandinavian Journal of Management*, Vol. 21, pp. 451-472.

Rhee, B. V. D., Verma, R. y Plaschka, G. (2009) "The Role of Flexibility, Delivery, and Value-Added Services/Support in the Supplier Selection Process - Understanding Tradeoffs in the Supplier Selection Process", *International Journal of Production Economics* – Special Issue, Vol. 120 No. 1, pp. 127–149.

Rogers, E.M. (1995), *Diffusion of Innovations,* Free Press: New York.

Sambarmurthy, V., Bharadwaj, A. y Grover, V. (2003), "Shaping agility through digital options: Reconceptualizing the role of information technology in contemporaty firms", *MIS Quarterly*, Vol. 27 No. 2, 237-263.

Sánchez Marin, G. y Aragón Sánchez, A. (2003), "Top Managers' Compensation, Strategic Orientations, and Firm Performance", *Management Research*, Vol. 1 No.1, pp. 27-44.

Satterlee, S. (2003), "The impact of low cost flights: Enter the cut-price jet set", *Financial Times*.April 15, pp. 1, available at <http://www.ft.com/home/europe> FT.com (accesed February 2008).

Schendel, D. (1990) "Introduction to the special issue on corporate entrepreneurship", *Strategic Management Journal,* Vol. 11, pp. 1-3.

Schollhammer, H. (1982), "Internal corporate entrepreneurship", in C.A. Kent, D.L. Sexton, and K.H. Vesper, eds., *Encyclopedia of Entrepreneurship*, Englewood Cliffs, NJ: Prentice Hall, pp. 209-223.

Schumpeter, J. A. (1934), "The theory of economic development", 1st Edition, Harvard University Press, Cambridge, MA.

Senge, P., Kleiner, A., Roberts, C., Ross, R. B. y Smith, B. J. (1995), *La quinta disciplina en la práctica*, Granica: Barcelona (original en ingles: The fifth discipline fieldbook, 1994, Doubleday Publ: New York.

Senge, P., Roberts, C., Ross, R.B., Smith, B.J. y Kleiner, A. (1994), *The fifth discipline*, Fieldbook. Doubleday Publ,: New York.

Shan, W. (1990), "An empirical analysis of organizational strategies by entrepreneurial high-technology firms", *Strategic Management Journal, Vol.* 11, pp. 129-139.

Shane, S. y Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25 No. 1, pp. 217-226.

Shapero, A (1975), "The displaced, uncomfortable entrepreneur", *Psychology Today, Vol. 9 No. 6, pp. 83-88.*

Sharma, P. y Chrisman, J. J. (1999), "Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship", *Entrepreneurship: Theory and Practice*, Vol. 23 No. 3, pp. 11-27.

Shrivastava, P. (1981), *Strategic decision making process: The influence of organizational learning and experience*, Unpublished PhD Dissertation, University of Pittsburgh, Pittsburgh.

Simon, H. A. (1969), *Sciences of the artificial*, MIT Press: Cambridge, MA.

Simsek, Z. y Heavey C. (2011), "The mediating role of knowledge-based capital for corporate entrepreneurship effects on performance: A study of Small- to Medium-Sized firms", *Strategic entrepreneurship Journal*, Vol. 5 No. 1, pp. 81-100.

Simsek, Z., Lubatkin, M.H., Veiga, J. F. y Dino, R.N. (2009), "The role of an entrepreneurially alert information system in promoting corporate entrepreneurship", *Journal of Business Research*, Vol. 62, pp. 810-817.

Slater, S. F. y Narver, J. C. (1995), "Market orientation and the learning organization", *Journal of Marketing*, vol. 59 No. 3, pp. 63-74.

Smith, K. G., Smith, K.A., Olian, J.D., Sims, H.P., O´Bannon, D.P. y Scully, J.A., (1994), "Top management team demography and process: The role of social integration and communication" *Administrative Science Quarterly, Vol.* 39 No.3, pp. 412-438.

Spann, M., Adams, M. y Wortman, M. (1988), "Entrepreneurship: Definitions, dimensions and dilemmas", *Proceedings of the U.S. Association for Small Business and Entrepreneurship*, pp. 147-153.

Srivastava, A. y Lee, H. (2005), "Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship", *Journal of Business Venturing*, Vol. 20, pp. 459-481.

Stata, R. (1989), "Organizational learning: the key to management innovation", *Sloan Management Review*, Vol. 30 No. 3, pp. 63-74.

Stevenson, H. H. y Jarillo, J. C. (1990), "A paradigm of entrepreneurship: Entrepreneurial management", *Strategic Management Journal*, Vol. 11, pp. 17-27.

Swieringa, J. y Wierdsma, A. (1995), *La organización que aprende*, Addison Wesley Iberoamericana: Wilmington (original en ingles: *Becoming a learning organization*, 1992, Addison-Wesley: Reading, MA).

Teece. D. J., G. Pisano y A. Shuen (1990), "Firm capabilities, resources and the concept of strategy", *Consortium on Competitiveness and Cooperation Working Paper*, University of California at Berkeley 1990, Center for Research in Management, Berkeley, CA, pp. 90-99.

Thatcher, J.B. Srite, M., Stepina, L.P. y Liu, Y. (2003), "Culture, overload and personal innovativeness with information technology: Extending the nomological net", *Journal of Computer Information Systems*, Vol. 44 No. 1, pp. 74-81.

Tushman, M.L. y Anderson, P. (1986), "Technological discontinuities and organizational environments", *Administrative Science Quarterly*, Vol. 31, pp. 94-102.

Vesper, K. H. (1984), "Three faces of corporate entrepreneurship: A pilot study", in J. A. Hornaday, F. Tarpley, Jr., J. A. Timmons & K. H. Vesper (Eds.), *Frontiers of Entrepreneurship Research*, Wellesley, MA: Babson College.

Weick, K. E. (1979), *The social psychology of organizing (2nd ed.),*, Addison-Wesley: Reading, MA.

Wild, R.S., Griggs, K.A. y Downing,T. (2002), "A framework for e-learning as a tool for knowledge management", *Industrial Management & Data Systems*, Vol. 102 No. 7, pp. 371-380.

Woolley, J. (2010), "Technology emergence through entrepreneurship across multiple industries", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 1-21.

Zahra, S.A. (1991), "Predictors and financial outcomes of corporate entrepreneurship: an exploratory study", *Journal of Business Venturing*, Vol. 6 No. 4, pp. 259-85.

Zahra, S.A. (1993), "Environment, corporate entrepreneurship, and financial performance: a taxonomic approach", *Journal of Business Venturing,* Vol. 8 No.4, pp. 319-340.

Zahra, S. A. (1995), "Corporate entrepreneurship and financial performance: The case of management leveraged buyouts", *Journal of Business Venturing*, Vol. 10, pp. 225-247.

Zahra, S. A. (1996), "Technology strategy and new venture performance: A study of corporate-sponsored and independent biotechnology ventures", *Journal of Business Venturing*, Vol. 11, pp. 289-321.

Zahra, S.A. y Covin, J. G. (1995), "Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis", *Journal of Business Venturing*, Vol. 10, pp. 43-58.

Zahra, S.A. y Garvis, D.M. (2000), "International corporate entrepreneurship and firm performance: the moderating effect of international environmental hostility", *Journal of Business Venturing*, Vol. 15 Nos. 5-6, pp. 469-492.

Zaltman, G., Duncan, R. y Holbek, J. (1973), *Innovations and organizations,* Wiley: New York.

Zien, K.A. y Buckler, S.A. (1997), "Dreams to market: Crafting a culture of innovation", *Journal of Product Innovation Management*, 14, pp. 274-287.

Capítulo 2

2 THE IMPACT OF INTERNET ON TOURISM: THE CASE OF SPANISH HOTELS

2.1 Abstract

Research indicates that a combination of the adoption of new technologies with the introduction of low cost transport leads to bookings higher than might otherwise be the case. This study further examines this relationship in the case of the Spanish accommodation industry with reference to indicators of organizational performance.

The study uses a sample of 327 respondents to a questionnaire sent to hotels in tourist destinations in Spain. The findings include a finding that organizational learning and a personal interest in Internet innovation best enables hotels to gain from the advent of low cost airlines. It is also suggested that investment in staff is one key way in which innovation in Internet usage can be achieved.

Finally, conclusions are of vital importance in tourism management because they can contribute to several practical implications of tourism for managers in hotels, and for the better design and development of the future research on tourism.

Keywords: Organizational learning, personal information technology innovativeness, Internet, low-cost airlines, organizational performance.

2.2 Introduction

Technological progress and the tourist sector have been connected for decades. Their continued and increasing interaction has produced fundamental changes in the tourism industry and perceptions of it (Poon, 1993). The use of communication technology plays a strong role in the competitiveness of tourist organizations (Buhalis, 1998). Information and Communication Technology (ICT) has radically transformed the efficiency and effectiveness of tourism organizations, the structure of this industry, the

way the companies are refined in the market and, to an especially great degree, customers' interaction with tourism organizations (Buhalis, 2003).

In addition to increasing customers' power to identify and purchase products, Information and Communication Technology allows tourists to travel further and more frequently, motivating the industry's adoption of effective tools to develop, manage, and distribute its global offers (Buhalis, 1998). Internet, an essential ICT tool, has caused relevant changes in the behavior of the "average tourist" (Mills and Law, 2004). Tourism publications before the 1990s are very few (Frew, 2000). The birth of a real community of inquiry on e-tourism—tourism linked to the use of the Internet—stems from the discussions and conclusions of the 1994 Innsbruck (Austria) Inter-annual Conference (Frew, 2000). For the last 20 years, rapid development of telecommunications and proliferation of international and national collaboration have increased publications by a spectacular 275% (Frew, 2000) and highlighted the key role of Internet in tourism (Tse et al., 2005).

Nowadays, many tourists book flights or hotels on-line, eliminating classic booking by travel agents (Morrison et al., 2001). Tourists who visit big cities are usually well prepared and can function in multicultural environments without many problems (Buhalis, 2004). The development of Internet has created a "new potential tourist" with good knowledge, both technological and linguistic, and an exceptionally low price search (Buhalis, 2003; Martinez-Garcia and Raya, 2008). The key to success lies, therefore, in rapid and accurate identification of consumers' needs and potential customers and in customizing products, services and processes to satisfy those needs. Internet is key in these processes, as is the development of proper tourism organization management. Tourism organization management (e.g., hotel management) must be competitive in an environment characterized by increasing globalization, especially the risky conditions of crisis in the economic environment. Such organizational management must be motivated by the use of Internet to attract and retain foreign tourists to tourism organizations (e.g., hotels). Organizational learning and personal Information Technology (IT) innovativeness must also be developed (Agarwal and Prasad, 1998a; Akgün et al., 2007; Larsen and Sorebo, 2005; Nonaka and Takeuchi, 1995; Senge, et al., 1994).

To achieve our objectives and verify the proposed relationships, the article is structured as follows. The next section forms the body of the paper, which explains theoretical background needed for each variable; the subsection following that proposes a series of hypotheses on the influence of organizational learning on personal IT innovativeness and the influence of both of these on Internet. We emphasize the importance of providing empirical results that prove these relationships. The model also claims to demonstrate a positive influence of Internet on low-cost airlines and the influence of both Internet and low-cost airlines on organizational performance. The relatively slight attention paid in practice to these topics contrasts with their importance for technicians and practitioners. The subsection on research methodology presents the data and the method used to analyze empirically the hypotheses developed in Spanish firms. The results subsection presents the outcomes obtained. Finally, the conclusion section analyzes the results and some of the limitations of this study.

2.3 Influence of Internet on tourism

Organizational learning is the capability "within an organization to maintain or improve performance based on experience. This activity involves knowledge acquisition (the development or creation of skills, insights, relationships), knowledge sharing (the dissemination to others of what has been acquired by some), and knowledge utilization (integration of the learning so that it is assimilated and broadly available and can be generalized to new situations)" (DiBella, Nevis, and Gould, 1996:363). Organizational learning is thus the process by which the knowledge created by individuals is increased in an organized way and transformed into part of the organization's knowledge system (DiBella, Nevis, and Gould, 1996). This process takes place within a community of interaction in which knowledge is created and expands in a constant dynamic between the tacit and the explicit (Nonaka and Takeuchi, 1995). Organizational learning is enabled by developing new abilities and knowledge and increasing the organization's capability. It involves cognitive and behavioral change. More than ever, organizational learning is a need rather than a choice. Inability to learn is the reason most firms disappear before forty years have passed (Argyris and Schön, 1996; Senge, et al., 1994).

Learning in tourism organization encourages the existence of knowledgeable tourism workers who can use Internet in today's knowledge society. The intellectual capital of

these workers is undervalued, although they possess work-related knowledge (Simpson, Siguaw and Enz, 2006).

Tourism organizations that invest in their front-line workers achieve a significant competitive advantage (Shaw and Williams, 2009). It is crucial to attract and retain these "knowledgeable" employees as a critical economic resource and a core element (Kundo and Vora, 2004).

Some researchers analyze organizational learning as a means of explaining and resolving the problems of implementing and using the Internet in organizations (Liao, et al., 2003; Robey et al., 2000). Organizational learning fosters business by Internet (Robey et al., 2000). Internet adoption is linked to obtaining a positive result (Cegarra et al., 2007). Firms with well-developed capabilities in organizational learning are more likely to adapt to technological advances (Gilbert and Cordey-Hayes, 1996; Liao, et al., 2003).

An organization committed to learning enhances its IT innovativeness in three ways (Calantone et al., 2002). First, it is more likely to be committed to innovation, have state-of-the-art technology, use that technology in innovations, and have the capacity to build and market a technological breakthrough. Second, the organization is not likely to miss opportunities created by emerging market demand because it has the knowledge and ability to understand and anticipate customer needs (Damanpour, 1991). Third, the organization closely monitors competitors' actions in the market (Lant and Montgomery, 1987). It understands the strengths and weaknesses of rivals and learns from their successes and failures (Lant and Montgomery, 1987; Slater and Narver, 1994). All of this contributes to high IT innovativeness.

IT innovativeness is influenced by perceptions of the environment and personality (Thatcher et al., 2003). Personality's influence varies by situation and with individuals' ability to realize target behaviors (Goldsmith and Hofacker, 1991; Leonard-Barton and Deschamps, 1988). Perceived constraints such as a lack of resources or negative outcomes such as punishment may deter individuals from expressing interest in exploratory or creative behavior. By carefully identifying the target behavior's domain and salient influences, we may better understand how personality and the environment influence an individual's willingness to engage in innovative behavior (Agarwal and Prasad, 1998b; Goldsmith and Hofacker, 1991).

Personal innovativeness may be conceptualized as either a trait or a state (Thatcher et al., 2003). One stream of research suggests that innovativeness reflects innovative predispositions to engage in exploratory behaviors. Social influences may constrain or affect individuals' willingness to engage in exploratory behavior (Midgley and Dowling, 1978). If innovativeness reflects innovative predispositions and social influences affect individuals' capacity to manage exploratory behavior in tourism, both factors can stimulate innovativeness in the hotel personnel or personal innovativeness (Midgley and Dowling, 1978).

In the domain of IT, personality is analyzed through personal IT innovativeness, "the willingness of an individual to try out any new information technology" (Agarwal and Prasad, 1998b:206). This definition derives from work by Midgley and Dowling (1978) and Flynn and Goldsmith (1993). Personal IT Innovativeness is an organizational construct conceptualized as a trait, i.e., a relatively stable descriptor of individuals that is invariant across situational considerations. The trait's stability is expected across different types of IT but not across all types of innovation (Agarwal and Prasad, 1998b).

Individuals who are more willing to take risks are more likely to express willingness to innovate with IT, whereas individuals less willing to change are more likely to require external "reinforcement" before trying an IT innovation (Leonard-Barton and Deschamps, 1988). When individuals perceive that they lack resources or skills, they may be less likely to report integration of their skills or engage in exploratory behavior with IT (Delbecq and Mills, 1985). External and internal differences may influence expressions of personal information technology innovativeness (Thatcher et al., 2003).

As a trait, personal IT innovativeness can produce a cultural framework that facilitates execution of a strategy or makes this strategy more difficult to copy (as a trait). It can also lead to a sustainable competitive advantage (Chand, and Katou, 2007; Hurley and Hult, 1998; Shaw and Williams, 2009).

The positive impact of all employees' personal IT innovativeness on the use of the Internet has been viewed as a trait, or way of thinking and acting. This trait alone may explain Internet use (Agarwal and Prasad, 1998b). Personal innovativeness in the IT domain has implications for both theory and practice. For practice, personal IT innovativeness promotes and may serve as a key agent of change for all employees' behavior in the organization or as an opinion leader to facilitate further dissemination of the use of the Internet or technology in general (Rogers, 1995). When implementation

resources are limited, the construct helps target scarce resources more fruitfully (Porter, 2001). From a theoretical perspective, although acceptance of the dominant models of technology provides insights into how adoption intentions form, the inclusion of personal IT innovativeness furthers understanding of this process by explaining the role of every individual traits in technology adoption (Agarwal and Prasad, 1998b), especially in the use of Internet (Buhalis, 2004).

In addition to explaining the construct of personal IT innovativeness, we must develop the concept of "Internet". No single definition can capture the full reality behind the term "Internet." On the one hand, one may conceptualize Internet in terms of its protocols, as a collection of circuits and routines, as a set of shared resources, or even as a willingness to communicate. Ultimately, Internet may be understood as a large network, a network of computer networks (Hoffman and Novak, 1996). However, from another perspective, perhaps more appropriate here, one can think of leading networks as the medium through which information is collected and sent (Hoffman and Novak, 1996). This second approach involves Internet information and services flowing through this network. In short, the Internet is a distributed system of information, a global network of computer networks, and each network is composed of thousands of computers (Buhalis, 1998).

As a set of communities and technologies whose success can be attributed to meeting basic community needs and whose resources can be used in an effective way to boost infrastructure, Internet represents an opportunity for worldwide distribution, a mechanism for the propagation of information, and a means of collaboration and interaction between individuals and their computers, regardless of geographical location (Hoffman and Novak, 1996). The Internet has proved to be an effective means of marketing, goods distribution and information services (Connolly et al., 1998).

Internet has radically changed tourist behavior (Mills and Law, 2004). Customers book flights, tickets and hotels and purchase online, instead of using travel agencies (Morrison et al., 2001). The popularization of Internet applications has forced most tourism organizations—e.g., hotels, airlines and travel agencies—to change part of their marketing and communication (Mills and Law, 2004). With the implementation and popularization of new technologies, Internet users will look for the cheapest flights that best fit their schedules. In this environment, Internet influences low-cost flights (Bhat and Milne, 2008).

A low-cost flight or airline involves a leadership strategy in cost, for both the airline company and its direct (e.g., travel agencies) or indirect customers (e.g., end-users) (Francis et al., 2007). As the name suggests, low-cost (or discount) airlines are companies offering low fares in exchange for eliminating many of the services traditionally enjoyed by passengers (Francis et al., 2007). Low-cost airlines are an important driver of tourism and have revitalized it in places far from the classic touristy locations in Spain (Martinez and Raya, 2008).

Low-cost flights are not a recent innovation; such flights have been operating since 1978, when Michael Bishop led the British Midland Company (the name under which the company became known after 1986) to become the first United Kingdom airline to offer an online booking service that enabled payments by Internet. The current success of low-cost airlines like Easy Jet or Ryanair has led many full-cost companies to create subsidiaries or affiliated entities that operate low-cost flights. This strategy has been followed by British Airways' creation of subsidiaries like Bmibaby and Go, and Lufthansa's of Germanwings. These airlines adopt this strategy to prevent their large, traditional, full-cost companies from definitively missing the rising market shares gained by low-cost companies (Harvey and Turnbull, 2006).

Low-cost flights are important to promote international tourism in a region and encourage the organizational performance of the hotels (Martinez and Raya, 2008). They motivate hotel occupancy and increase real estate value. Tourists are first attracted to local hotels through low-cost flights and may then acquire property in cities receiving cheap flights (Satterlee, 2003).

Studies by Goodrich (2002) and Papatheodorou (2002) assert a positive relationship between low-cost airlines and organizational performance. Goodrich demonstrated this relation as negative, arguing that the decrease in bookings on low-cost airlines after the September 11, 2001 attacks on the Twin Towers in New York led to fewer bookings in US hotels, despite hotels' reactions to increase their performance (Goodrich, 2002). A study in Europe by Papatheodorou (2002) also concludes that the higher the bookings of low cost airlines, the higher the bookings in Spanish hotels.

Other studies, such as those by Marshall (1990) and Turton and Mutambirwa (1996), advocate governments' financial support to the airlines, to ensure the reliability of low cost flights. Other scholars, such as Slattery and Litteljohn (1991), prove the great importance of air sector for hotel accommodation. Cockerell (1993) and Stewart (1992)

reinforce this idea but focus on the Spanish economy, underscoring the potential of low-cost airlines for Spanish hotels.

In addition to low-cost airlines, Internet also has a positive impact on organizational performance—specifically in hotels, perhaps via improved marketing or distribution. Better and more competitive organizations adopt Internet technologies faster than their lower-performing colleagues (Buhalis, D. 2003; Das, 2008; Scaglione et al., 2009). It is crucial for firms to incorporate Internet proactively to improve service quality, enabling dynamic specialization and differentiation by improving their products and services and thus their performance. Furthermore, redesigning processes and eliminating repetitive tasks reduces labor costs and could increase efficiency and improve results (Buhalis, 1998). This strategy has boosted the development of organizations that use Internet continuously in their operations and distribution, while pressuring organizations to reshape traditional operations.

Das (2008) has recognized that hotels must be able to promote their individual property websites and allow the Internet shopper to book directly without paying excessive distribution costs or supplying deeply discounted rates to third-party merchant sites. Hoteliers obtain incredible savings, from booking-fee savings to IT and support savings. Hotels can thus access more revenue than they did than before they used Internet. Internet use can improve the result in companies, specifically in hotels.

We should also underline the fundamental role of CEOs, who play a major role in informing and molding these variables by determining the types of behavior expected and supported (Baer and Frese, 2003). Although numerous actors may be involved in the management process, the CEO is ultimately responsible for plotting the firm's direction and plans, as well as for guiding the actions carried out to achieve them (Baer and Frese, 2003). The CEO's perception is fundamental. To make sense of the complex environment surrounding them, CEOs tend to form simplified internal cognitive representations (mental models). Using these mental models, managers focus on certain variables that they judge to be critical and make decisions and measure their organization's learning, performance, etc. based on these variables (Baer and Frese, 2003).

The shortage of academic research in tourism, the increasing influx of tourists who travel by low-cost flights booked on the Internet, and the general need to attract and retain foreign tourists to hotels justify our study's attempts to discover whether better

tourism organization management through management of organizational learning and personal IT innovativeness motivates Internet use, which in turn encourages the opportunity for growth in low-cost flights and improves organizational performance.

2.4 Hypotheses

2.4.1 Influence of Organizational Learning on Personal IT Innovativeness and Internet

The dimensions of learning culture are often found to be indicators of organizational learning and of learning organizations in studies on organizational outcomes (Calantone et al., 2002). However, one point is worth noticing. Measuring organizational learning from the perspective of the learning culture requires us to assume a positively reinforced relationship between organizational learning and the learning culture. That is, organizations characterized by a strong learning culture are better able to learn, while organizations with better learning processes find that these processes enhance their learning culture.

Learning capability, which mediates the relationship between emotional capability and innovativeness, influences innovativeness by improving the decision-making process (Akgün et al., 2007). Emotions should be harmonized, assimilated, and then utilized for effective product, processes, market, technologies or strategic planning. Emotion will influence the effectiveness of innovativeness and new product development activities (Langerak et al., 2007). Thus, learning capability helps organizations to channel and embed emotional capability in innovativeness process (Akgün et al., 2007). Furthermore, cultural differences have been linked to the dissemination of IT innovations (Straub, 1994).

Covin and Slevin (1991) articulate the importance of organizational culture for organizational innovation and innovativeness. They consider organizational culture to be a key determinant in fostering employees' innovative behavior. Since an organization's innovative capability can be seen as an outcome that, given the overlap in features of innovation and knowledge creation, is enhanced by organizational learning, it is reasonable to treat the learning culture as one contextual factor of organizational innovativeness. When an organization has a culture that encourages employees to express novel ideals and positively supports change and innovation, the organization's members embedded in this culture are more willing to keep open minds and accept

different ideas. This argument for a positive relationship between organizational learning and innovativeness has been affirmed by several empirical studies (Calantone et al., 2002).

Much innovation management literature emphasizes the importance of learning capability as a competency that impacts innovativeness (Llorens et al., 2005). Studies show that firms can only innovate if they have the competencies and capabilities to make use of their learning (Chipika and Wilson, 2006). Some authors (Hurley and Hult, 1998) view emotional and learning capabilities as imperative for successful innovativeness and performance. Innovativeness is thus a multidimensional construct involving several aspects, such as product, process, market, and technological and strategic planning. We will focus on technological innovativeness, specifically in personal IT innovativeness.

When considering the role of organizational learning in innovativeness, developing and enhancing a firm's learning capability to devise solutions to business problems and challenges provides the basis for the firm's survival and its success well into the future (Wang and Ahmed, 2004). The influence of the learning culture on personal IT innovativeness can thus be addressed in three ways (Wang and Ahmed, 2004). First, organizations committed to a learning culture tend to have frequent interaction with the external environment (Marsick and Watkins, 2003). Second, internally, organizations that embrace a learning culture encourage members to engage in dialogue and collaboration (Marsick and Watkins, 2003), which stimulate new ideas. Third, a learning organization promotes continuous individual learning (Marsick and Watkins, 2003).

We focus on the third aspect of these distinctions, members' ability in and mastery of specific IT area. This area will be enhanced through continuous learning opportunities. Consequently, the organization's members are better able to create new ideas, assimilate new technologies, and innovate, given up-to-date knowledge and capabilities. The organization's learning culture is essential for innovativeness that focuses on information technologies. Based on the previous literature, the following hypothesis is proposed:

Hypothesis 1*: Organizational learning will be positively associated with personal IT innovativeness in hotels*.

The relationship between organizational learning and IT has been analyzed by two related lines of research (Robey et al., 2000). Some researchers analyze organizational learning as a means of explaining and resolving the problems of implementing and using new IT–in this case, Internet–in organizations. Others focus on its application to support organizational learning processes. We follow Plessis and Boon (2004), who analyze how organizational learning can foster Internet use.

Lynn et al. (1999) find a positive relationship between organizational learning and successful development of Internet. Cegarra et al. (2007) define organizational learning as the development of new knowledge and insights that have the potential to influence organizations' behavior. Development occurs when the organization's members share associations, cognitive systems and memories. Nonaka and Takeuchi (1995) define the development as the process of continuous learning (dynamic focus) through which companies generate new technological knowledge and innovate. Internet has been recognized as a tool for managing a company's relationship with its customers (Real et al., 2006). This technological development may mean command of a competitive advantage (Real et al., 2006).

Liao, et al. (2003) demonstrate that Small and Medium-sized Enterprises (SMEs) with well-developed knowledge acquisition capabilities are more likely to adapt to technological advances than those that do not have well-developed capabilities.

Technological advances have been linked to organizational learning (e.g. Robey et al., 2000), thus representing a source of heterogeneity and potentially a sustainable competitive advantage, due to companies' different capabilities for learning and absorbing knowledge (Gilbert and Cordey-Hayes, 1996). Since organizational learning capacity may affect the degree to which technologies are adopted and used effectively (Robey et al., 2000), Cegarra et al. (2007) examine how organizational learning is linked to effective Internet use to obtain a positive result. However, the presence of Internet does not guarantee knowledge creation, knowledge distribution or knowledge use (Mercader, et al., 2006).

High growth and high technology firms appear more able and willing to seize the opportunities afforded by Internet. Their fast-growth tendencies are often associated with the entrepreneurial character of the owner, individual managers or operational teams (McCalman, 1998). Virtually every aspect of organizational learning has either direct or indirect relevance for entrepreneurial management. Therefore, enhanced entrepreneurship, innovative workplace cultures, knowledge management and organizational learning are often viewed as the main strategic factors associated with successful ICT—mainly Internet—adoption and usage in SMEs (Martin and Matlay, 2001). Based on previous literature, the following hypothesis is proposed:

Hypothesis 2*: Organizational learning will be positively associated with Internet in hotels*.

2.4.2 Influence of Personal IT Innovativeness on Internet

Strategic and operational dimensions of information communications technology (ICT) have been opening new paths in tourism (Jen-Hung and Chia-Yen, 2006). ICT should be developed for its direct impact on the competitiveness of enterprises, as it determines two fundamental sources of competitive advantage: differentiation and cost advantage (Porter, 2001). Low-cost flights seek to execute the latter strategy successfully.

ICT can become part of a business's strategic planning processes when organizational managers and personnel are fully involved in them (Law and Jogaratnam, 2005). Human capital factors, especially the managerial competency of the key decision makers, play an important role in ICT adoption (Martin and Matlay, 2001). Managerial perceptions and attitudes can influence the development of business strategies that result in ICT adoption and implementation for employees. Personal IT innovativeness is an important element within innovation in organizational settings. Agarwal and Prasad (1998b) define it as an individual's willingness to try out any new IT. Moreover, the construct of personal IT innovativeness may be used to identify individuals who can either serve as agents of change or be targeted specifically for adoption when resources are limited.

Degree of personal IT innovativeness may play a socioeconomic role in explaining Internet use (Rogers, 1995). Based on previous findings (Goldsmith, 2001), Larsen and Sorebo (Larsen and Sorebo, 2005) anticipated that personal IT innovativeness among employees would influence the level of organizational and personal Internet use. They indicated that employee willingness to try out new IT may be important for encouraging increased organizationally relevant use of the Internet. Managers should recognize personal IT innovativeness as a factor in fostering the use of new applications and ICT.

The incorporation of personal IT innovativeness, especially Internet, in business is crucial, particularly in those proactive organizations that, according to Laudon and Laudon (2007), seek differentiation through corporate innovativeness. Hotel management's attempt to improve the culture of innovation among its employees and thereby improve innovativeness can lead to innovation in all ways and areas, including Internet use as an innovative tool in hotel management. Based on previous literature, the following hypothesis is proposed:

Hypothesis 3*: Personal IT innovativeness will be positively associated with Internet in hotels.*

2.4.3 Influence of Internet on Low-Cost Airlines and Organizational Performance

New technologies, mainly Internet, have allowed tourism to develop innovatively (Mills and Law, 2004). Internet has influenced virtually all known sectors in the economy greatly, including tourism and the aviation sector. This technological revolution has enabled this sector's development into a safer and better way to book or purchase tickets (Morrison et al., 2001).

A significant challenge for management in exploiting the Internet is to realize that these fundamental changes are creating a situation where organizations operate in an increasingly global, technologically interconnected and information-driven world (Sampler, 1998). Particular attention should be paid to changes in the value chain and the integration of new value. Exploitation of the Internet at the customer interface is a key catalyst in transformation of the airline industry. Findings highlight the importance of information as a critical resource for airlines. It is argued that the use of Internet

technologies to integrate and leverage these resources in a more innovative and powerful way than competitors will become a significant source of value (McIvor et al., 2003).

In focusing on the airlines, we would stress that they have been using the Internet to provide more personalized service to customers (McIvor et al., 2003). In the past, consumers determined the value of a product or service based on some combination of quality and price (Treacy and Wiersema, 1993). Nowadays, the Internet transforms customers from passive participants to proactive, more sophisticated agents in their relationship with airlines (McIvor et al., 2003). Customers can set much more detailed search criteria, gaining immediate access to even richer information sources, such that airlines now deal with a "virtual tourist". While Internet technologies present major challenges for organizations' corporate decision makers, McIvor et al. (2003) argue that the source of value creation resides in networks of product and service providers.

Customers also benefit from having access to more perfect (up-to-date) information and speedier and more flexible on-line decision making, as well as lower search and other significant transaction costs. Indeed online tickets reduce transaction costs significantly (McIvor et al., 2003), enabling online buyers to benefit from better selection in terms of choice (of airlines, flights, schedules, destinations, levels of service and complementary services), speed (time, convenience of access capabilities on Internet), and reduced transaction costs (money, effort, and mistakes).

It is clear that the Internet has played a major role in providing low-cost entrants with market growth and expansion opportunities (Porter, 2001). Improvements in efficiency via Internet technologies create the potential to exploit complementary products and services (Porter, 2001). Low-cost airlines have integrated these technological benefits of the Internet with existing and new technologies.

In fact, Internet has become central to the strategic development of the airline companies analyzed (McIvor et al., 2003). Internet sales of flight tickets have been growing (Morrison et al., 2001) and new consumers have emerged, consumers who know very well what they want and can do on their own in reserving flights (Buhalis, 2003). Any Internet user will try to find the cheapest flight. Low-cost airlines have attracted millions of consumers because of their low prices and have transported them in a way very similar to flights that do not offer low cost (Buhalis, 2003). Internet and low-cost airlines could provide a very good way to face the current crisis.

Low-cost flights thus enable hotel managers to intensify Internet use to attract more customers (Harvey and Turnbull, 2006). Our analysis of the relationship between the hotel managers' perceptions of the opportunity presented by the influx of tourists from low-cost flights and the use of Internet as a management tool leads to the following hypothesis:

Hypothesis 4*: Internet will be positively associated with low-cost airlines*.

Starting in the last century, academics have discussed the fit between tourism and IT. Information-intensive industries are ideal candidates for Internet transformation (Olsen and Connolly, 2000). Continuous improvement and high performance in Internet applications such as e-mail correspondence, website effectiveness and online marketing and bookings are growing as a critical competitive factor (Olsen and Connolly, 2000). But industry and academics suggest that the lodging industry lags behind other industries in IT implementation (Buhalis and Main, 1998). Low IT use among small hospitality enterprises may stem from lack of training, traditional ownership, lack of rational management and marketing functions, and management's short-term operational focus (Buhalis and Main, 1998). Consistent and efficient management has been a formula for past hotel success, but global competition demands innovation and flexibility in today's dynamic marketplace (Porter, 2001; Sigala et al., 2001). Successful Internet use is the ideal response to this dynamic market-place.

While many investigations laud the Internet's potential, few papers examine the relationships between Internet adoption and success in the hospitality industry (Scaglione et al., 2009). In hospitality, the Internet is an important interface between customers and hotels. It enables information exchange, business transactions and relationship management and may improve hotel performance through cost reduction in the distribution process, increased revenues, improved guest loyalty and improved marketing and market access (Sigala et al., 2001).

Scaglione et al. (2009) have investigated the economic impact of website adoption through Revenue per Available Room (RevPAR) and find a positive relationship between Internet use and the performance of Valais hotels (Switzerland). These authors show that hotels with no web presence experience a negative trend in revenues. Das

(2008) recognizes that hotels must be able to promote their individual property websites and allow the Internet shopper to book directly without paying excessive distribution costs or by supplying deeply discounted rates to third-party merchant sites. In this way, hoteliers obtain incredible savings, from booking-fee savings to IT and support savings (Satterlee, 2003). Hotels can thus access more revenue than they did without using the Internet. Konings and Roodhooft (2002) suggest that Internet technologies may have a positive impact on hotel performance, perhaps via improved marketing and distribution. These results may simply reflect that better, more competitive hotels are faster in adopting Internet technologies than their lower-performing colleagues.

Currently, the firm must recognize the great importance of the Internet for consumers, who may travel using low cost flights, thus easily reaching any hotel for a low price and increasing their savings capacity (Oorni and Klein, 2003). Hotels have thus managed to incorporate the Internet as they seek to differentiate and gain competitive advantage by attracting new customers, even though they are far away or in other countries, because the Internet reaches everybody. Based on previous literature, the following hypothesis is proposed:

Hypothesis 5: Internet will be positively associated with organizational performance in hotels.

2.4.4 Influence of Low-Cost Airlines on Organizational Performance

Tourism and low-cost tourism (Martinez-Garcia and Raya, 2008) are an essential part of the economy but must sometimes be controlled by the government, as occurred in Zimbabwe (Africa), where Air Zimbabwe (Zimbabwe's main airline operator) was unable to provide a sufficient fleet of aircraft for its internal tourist routes or to supply vehicles to transport tourists between airports and hotels and on game park tours. The government thus created the Zimbabwe Tourism Authority (ZTA), which was responsible for marketing, training of workers in the tourist industry, registration and regular inspection of accommodation and restaurants used by tourists as required by the 1995 Tourism Act, and data collection (Turton and Mutambirwa, 1996). However, Air Zimbabwe’s contribution to the promotion of tourism has been seriously restricted by

the rigidity of state control over finance, aircraft acquisition, pricing and operational policies (Turton and Mutambirwa, 1996).

According to Marshall (1990), governments wish to invest in order to increase their business prospects, but evidence shows that very few regional airports achieve reasonable financial performance. According to Fitzpatrick and Mottram (1992), many key influences of the single European market on air travel will make this worse.

Worse financial performance in airports could translate into worse performance in hotels, as Slattery and Litteljohn (1991) suggest in their study of demand for hotel accommodation in Europe. They proved theoretically that the structure of economies influences the demand for accommodation, and the greater the importance of the service sector (e.g., the air sector), the greater the demand from business tourists. In the case of leisure travel, Spain, with its good economic performance and growing familiarity with the international leisure travel, is becoming one of Europe's strongest growth markets (Stewart, 1992)—and mainly for low-cost tourism (Martinez-Garcia and Raya, 2008). Stewart (1992) observes that, in the future, long-haul travel is likely to be a very strong growth sector in the Spanish outbound market.

(Kerpel (1990) highlight some issues that may be key to countries' future success, among them ethnic diversity, good climate range (sun) and cultural richness, transportation, sensitive environment, beaches (coast), and lakes and mountains. Spain possesses all of the characteristics that support tourism, and these characteristics could translate into more hotel bookings from foreign countries, mainly of tourists arriving by plane. These bookings could benefit Spain, primarily Andalusia, as it is the community with the most sun and beaches in Spain, and Spain is the country with the most beaches and sun in Europe. A great deal of tourism may be attracted by following this rule (Kerpel, 1990). In addition, if the tourists like this destination and enjoy themselves there, they may revisit it another year (Campos et al., 2010).

According to a study by Hubbard (1989), one of the main reasons for undersupply was the collapse of the world commodity markets in the 1980s, which led to a general slowdown affecting the airline business sector and subsequently the hotels operating with this sector. Many state-owned hotels were subject to privatization programs, and countries without tourism potential seemed to have few opportunities to develop, compared to those with this potential. We can thus see that the airline sector affects the hospitality sector by low-cost tourism (Martinez-Garcia and Raya, 2008). Fewer

bookings because of the time period, crisis or bad feeling can thus translate into fewer hotel bookings (worse performance).

International tourism has not always been successful. For example, 1992 was a difficult year for the international travel and tourism industry as a result of the Gulf War, which depressed travel in 1991, according to Costa (1995). Costa's study shows that the world's airlines continued to suffer losses, making 1992 a poor financial year for many hotel operators. The same occurred after the 2001 September 11th attacks. The airlines were shocked at the great number of losses (Goodrich, 2002). "The hotel industry also felt the brunt of the tragedy. During the first three months or so after the attacks, hotel bookings in the USA declined by some 20–50% as individuals and groups cancelled vacation plans, and firms cancelled or postponed conventions, corporate meetings, seminars, and trade shows" (Goodrich, 2002:576).

However, hotels and other types of tourism companies examined their operations critically to reassess strategies for gaining competitive advantage in this economic sector, attracting low cost flights and increasing their performance (Goodrich, 2002). Low cost airlines and airlines in general, influence the lodging industry. Following Papatheodorou (2002), we conclude that low-cost airlines can improve occupancy in Andalusian hotels. Based on previous literature, the following hypothesis is proposed:

Hypothesis 6: Low-Cost Airlines will be positively associated with organizational performance in hotels.

2.5 Research Methodology

2.5.1 Sample and Procedure

The population for this study consisted of the main hotels, in the region of Andalusia in southern Spain, according to the Tourism from Andalusia database (2003). We chose this sector because it represents the greatest percentage, billing volume and employment volume in the Spanish economy. Choosing a sample of firms located in a relatively homogeneous geographical, cultural, legal and political space enables us to minimize the impact of the variables that cannot be controlled in the empirical research (Hofstede, 1980).

We have cited some of the characteristics of excellent tourist destinations highlighted by Kerpel (1990)—ethnic diversity, climate range, cultural richness and beaches. Spain has all of these characteristics, and some regions in Spain have them more than others (Stewart, 1992; Costa, 1995). We focus on southern Spain (Andalusia) because (in addition to these features) it has low prices and excellent facilities and, more importantly, because Andalusia is the most important region for tourism in Spain. The Spanish market is relatively well developed and wholly integrated in the European Union. It has had a slightly better rate of growth in recent years than the European market overall (Cockerell, 1993; Costa, 1995). However, Spain is in a geographical area that has received relatively little attention from organizational researchers.

Drawing on our knowledge about key dimensions of this research, previous contacts with interested CEOs and scholars, and new interviews with five CEOs and six academics interested in the topic and familiar with the Spanish market, we developed a structured questionnaire to investigate how tourist firms face these issues. These developmental interviewees did not provide data for the empirical investigation.

We decided to use CEOs as our key informants, since they receive information from a wide range of departments and are therefore a very valuable source for evaluating the different variables of the firm (Baer and Frese, 2003). In addition, the same types of informant were chosen; since this means that the level of influence among the firms is constant, increasing the validity of the variables' measurements (Glick, 1985). Surveys were mailed to the CEOs of the 1621 firms along with a cover letter. To reduce possible desirability bias, we promised that we would keep all individual responses completely confidential and confirmed that our analyses would be restricted to an aggregate level to prevent identification of any firm.

We mailed each CEO who had not yet responded two reminders. 327 CEOs finally answered the questionnaire. The approximate response rate was 20% (Table 1).

A series of t-statistics, ANOVAs and chi-squares revealed no significant differences in type of hotel, between either the respondents and the sample or between early and late respondents. Since all measures were collected in the same survey instrument, the possibility of common method bias was tested using Harman's one-factor test (see Konrad and Linnehan, 1995). A principal components factor analysis of the questionnaire measurement items yielded four factors with Eigenvalues greater than 1.0, which accounted for 68% of the total variance. Since several factors, as opposed to one

single factor, were identified, and since the first factor did not account for the majority of the variance, a substantial amount of common method variance does not appear to be present (Podsakoff and Organ, 1986).

TABLE 2.1: Technical Details of the Research

Sector	Tourism sector (hotels)
Geographical location	Andalusia (Spain)
Methodology	Structured questionnaire
Procedure	Stratified sample with proportional allocation (size)
Sample size	1621 hotels
Response size	327 hotels
Sample error	5.4%
Confidence level	95 percent, *p*-*q*=0.50; *Z*=1.96
Period of collecting data	April 2007 – January 2008

Source: Own elaboration

2.5.2 Measures

Scales are important in designing a survey instrument in management research. As no single measure can precisely capture behavior, researchers usually combine two or more measures into a scale to gauge each variable. Given that developing new scales is a complex task, wherever possible we used pretested scales from past empirical studies to ensure their validity and reliability.

Organizational Learning. Various studies have measured learning within organizations. Due to the fact that there is a closer link with our research, that they reflected the different prior trends well and that the scale's validity was verified in detail, we used the first two items from the scale developed by Kale, Singh, and Perlmutter (2000) and added two items based on Edmondson's (1999) research. We developed a confirmatory factor analysis to validate our scales (χ_{22}=7.62, NFI=.99, GFI=.99, CFI=.99, IFI=.99) and showed that the Likert-type 7-point scale (1 "totally disagree", 7 "totally agree") of 4 items (see questionnaire) was unidimensional and had high reliability (α=.895).

Personal IT Innovativeness. Based on work by Agarwal and Prasad (1998b) and Thatcher et al. (2003), we developed a Likert-type 7-point scale (1 "totally disagree", 7 "totally agree") of 2 items (see questionnaire). Using a confirmatory factor analysis we validated our scale and then verified the scale's unidimensionality and its validity and reliability (α=.838).

Internet. Based on work by Das (2008), we developed a Likert-type 7-point

scale (1 “totally disagree”, 7 “totally agree”) of 2 items (see questionnaire). Using a confirmatory factor analysis, we validated our scale and then verified the scale’s unidimensionality and its validity and reliability (α=.715).

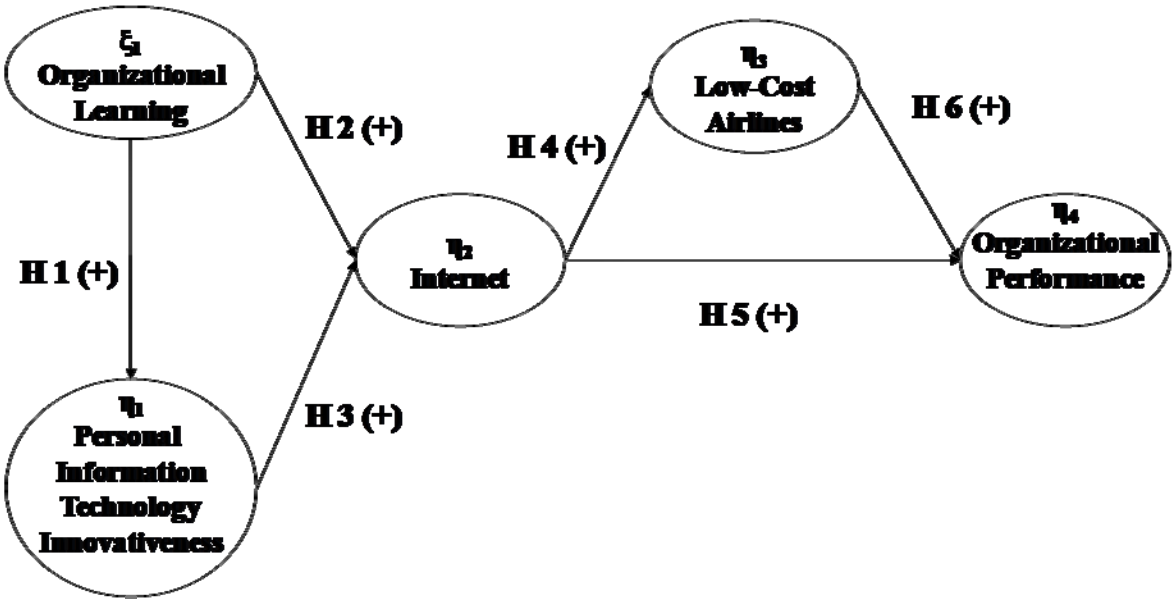
Low-Cost Airlines. Based on work by Gilbert and Morris (1995), Goodrich (2002) and Papatheodorou (2002), we developed a Likert-type 7-point scale (1 “totally disagree”, 7 “totally agree”) of 3 items (see questionnaire). Using a confirmatory factor analysis, we validated our scale and then verified the scale’s unidimensionality and its validity and reliability (α=.774).

Organizational Performance. Based on work by Gilbert and Morris, (1995) and Tse et al., (2005), we asked CEOs to indicate the evaluation they received that year, focusing on average occupancy in the hotel (1 “very bad” 7 “very good”) and the percentage of average occupancy and international tourists (see questionnaire). Using a confirmatory factor analysis, we validated our scale and then verified the scale’s unidimensionality and its validity and reliability (α=.741).

2.5.3 Model and Analysis

The LISREL 8.30 program was used to test the theoretical model. Figure 1 shows the basis of the model proposed, together with the hypotheses to be tested. We used a recursive non-saturated model, taking organizational learning (ξ1) as the exogenous latent variable; personal IT innovativeness (η1) as a first-grade endogenous latent variable; and Internet (η3), low-cost airlines (η4) and organizational performance (η5) as second-grade endogenous latent variables. Through flexible interplay between theory and data, this structural equation model approach bridges theoretical and empirical knowledge to allow better understanding of the real world. Such analysis allows for modeling based on both latent and manifest variables, a property well suited to the hypothesized model, where most of the represented constructs are abstractions of unobservable phenomena. Further, structural equation modeling takes into account errors in measurement, variables with multiple indicators, and multiple-group comparisons.

FIGURE 2.1. Hypothesized Model



Source: Own elaboration

2.6 Results

This section presents the main results of our research. Table Two reports the inter-factor correlations matrix for the study variables to evaluate the significance level of existing relationships. A series of tests (e.g. tolerance, variance inflation factor) demonstrated the absence of multicolinearity (Hair et al., 1999).

TABLE 2.2: Means, Standard Deviations and Correlations

Variable	Mean	S.D.	1	2	3	4	5
1. Organizational learning	4.91	1.32	1.000				
2. Pers. Inf. Tech. Innovativeness	4.95	1.40	.480***	1.000			
3. Internet	4.99	1.42	.287***	.417***	1.000		
4. Low-Cost Airlines	4.88	1.39	.077	.188***	.353***	1.000	
5. Organizational Performance	4.96	1.16	.154**	.148**	.263***	.280***	1.000

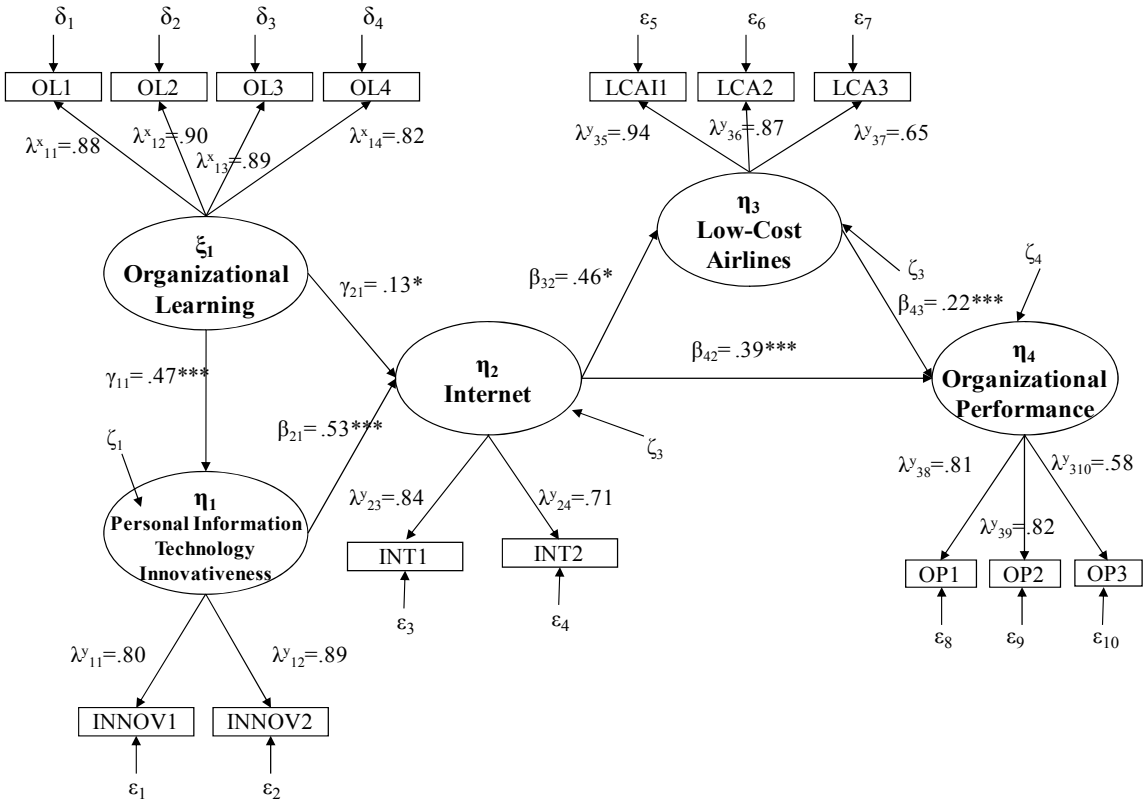
Note: *p<.05;**p<.01;***p<.001(two-tailed). n=327.

Source: Own elaboration

Second, we performed structural equation modeling to estimate direct and indirect effects using LISREL with the correlation matrix and asymptotic covariance matrix as input (Bollen, 1989). This type of analysis has the advantage of correcting for unreliability of measures and provides information on the direct and indirect paths

between multiple constructs after controlling for potentially confusing variables. Figure 2 shows the standardized structural coefficients. The relative importance of the variables is reflected by the magnitude of the coefficients.

***FIGURE** 2.2. Results of Structural Equation Model*



Source: Own elaboration

As to the quality of the measurement model for the sample, the constructs display satisfactory levels of reliability, as indicated by composite reliabilities ranging from 0.75 to 0.92 and shared variance coefficients ranging from 0.59 to 0.76 (Table 3). Convergent validity–the extent to which maximally different attempts to measure the same concept agree–can be judged by examining both the significance of the factor loadings and the shared variance. The amount of variance shared or captured by a construct should be greater than the amount of measurement error (shared variance >0.50). All of the multi-item constructs meet this criterion, each loading (λ) being significantly related to its underlying factor (t-values greater than 10.12) in support of convergent validity. Likewise, a series of chi-square difference tests on the factor correlations show that discriminant validity–the degree to which a construct differs from others–is achieved among all constructs (Anderson and Gerbin, 1988). In particular, discriminant validity was established between each pair of latent variables by

constraining the estimated correlation parameter between them to 1.0 and then performing a chi-square difference test on the values obtained for the constrained and unconstrained models (Anderson and Gerbin, 1988). The resulting significant differences in chi-square indicate that the constructs are not perfectly correlated and that discriminant validity is achieved.

TABLE 2.3: Validity, reliability and internal consistency

Variable	Item	Parameter	Validity, reliability and internal consistency		
			λ*	R^2	A. M.
Organizational Learning	OL1	λ^x_{11}	0.88(f.p.)	0.77	α=0.895; C.R.=0.927; S.V.=0.762
	OL2	λ^x_{12}	0.90***(33.79)	0.81	
	OL3	λ^x_{13}	0.89***(33.10)	0.80	
	OL4	λ^x_{14}	0.82***(33.59)	0.67	
Pers. Inf. Tech. Innovativeness	INNOV1	λ^y_{11}	0.80(f.p.)	0.64	α=0.838; C.R.=0.836; S.V.=0.718
	INNOV2	λ^y_{12}	0.89***(14.08)	0.80	
Internet	INT1	λ^y_{23}	0.84(f.p.)	0.70	α=0.715; C.R.=0.752; S.V.=0.604
	INT2	λ^y_{24}	0.71***(10.39)	0.51	
Low-Cost Airlines	LCA1	λ^y_{35}	0.94(f.p.)	0.89	α=0.774; C.R.=0.879; S.V.=0.713
	LCA2	λ^y_{36}	0.87***(17.84)	0.76	
	LCA3	λ^y_{37}	0.65***(15.29)	0.52	
Organizational Performance	OP1	λ^y_{48}	0.81(f.p.)	0.65	α=0.741; C.R.=0.810 S.V.=0.593
	OP2	λ^y_{49}	0.82***(11.06)	0.67	
	OP3	λ^y_{410}	0.58***(10.12)	0.54	

Notes: λ*=Standardized structural coefficient; R^2=Reliability; α=Alpha Cronbach; C.R.=Compound Reliability; S.V. = Shared Variance; f.p.=fixed parameter; A.M.=Adjustment Measurement; $^{\dagger}p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.
Pers. Inf. Tech. Innovativeness.

Source: Own elaboration

The overall fit measures, multiple squared correlation coefficients of the variables (R^2s), and signs and significance levels of the path coefficients all indicate that the model fits the data well (χ^2_{71}=173.24, p>.001; χ^2ratio=2.44; RMSEA=.070; NFI=.95; NNFI=.96; CFI=.97; PGFI=.66). The hypothesized model was a significantly better fit than the null model (χ^2_{91}=3227.10, p>.001; $\Delta\ \chi^2_{20}$=3053.86, p>.001). All modification indices for the beta pathways between major variables were small, suggesting that adding additional paths would not significantly improve the fit. The residuals of the covariances were also small and centered around zero.

The standardized parameter estimates (Table 4) show that organizational learning is highly related to and affects personal IT innovativeness (γ_{11}=.47, p<.001,R^2=.22), as predicted in Hypothesis One. Internet appears to be influenced strongly by organizational learning (γ_{21}=.13, p<.05) and personal IT innovativeness (β_{21}=.53, p<.001), supporting Hypotheses Two and Three, respectively. We also show an indirect effect (.25, p<.001) of organizational learning on Internet due to personal IT innovativeness (.47x.53; see, for instance Bollen, 1989 for calculation rules). The global

influence of organizational learning on Internet is thus 0.72 (p<.001). Comparing the magnitudes of these effects indicates that the effect of personal IT innovativeness on Internet is larger than the total effect of organizational learning on Internet. Globally, Internet is explained well by the model (R^2=.36).

As predicted in Hypothesis Four, low-cost airlines appear to be influenced strongly by Internet (β_{32}=.46, p<.001). Low-cost airlines are explained well by the model (R^2=.22). Internet has a positive, statistically significant, direct association with organizational performance (β_{42}=.39, p<.001) and an indirect relationship (.10, p<.001) through low-cost airlines (.46x.22). The total effect (direct and indirect) of Internet on organizational performance shows a significant, positive relationship (0.49, p<.001) overall, supporting Hypothesis Five. Finally, Hypothesis Six relates low-cost airlines to organizational performance (β_{43}=.22, p<.001). Organizational learning is explained well by the model (R^2=.28). In addition to these effects, we have shown indirect effects of organizational learning and personal IT innovativeness on low-cost airlines and organizational performance (Table 4).

TABLE 2.4: Structural Model Result (Direct, Indirect and Total Effects)

Effect from		To	Direct Effects [a]	*t*	Indirect Effects [a]	*t*	Total Effects [a]	*t*
Organizational Learning	→	Pers. Inf. Tech. Innovativeness	0.47***	9.57			0.47***	9.57
Organizational Learning	→	Internet	0.13*	2.08	0.25***	6.48	0.38***	6.55
Organizational Learning	→	Low-Cost Airlines			0.18***	5.74	0.18***	5.74
Organizational Learning	→	Organizational Performance			0.19***	5.20	0.19***	5.20
Pers. Inf. Tech. Innovativeness	→	Internet	0.53***	8.70			0.53***	8.70
Pers. Inf. Tech. Innovativeness	→	Low-Cost Airlines			0.25***	6.18	0.25***	6.18
Pers. Inf. Tech. Innovativeness	→	Organizational Performance			0.26***	5.92	0.26***	5.92
Internet	→	Low-Cost Airlines	0.46***	7.91			0.46***	7.91
Internet	→	Organizational Performance	0.39***	5.20	0.10***	3.31	0.49***	7.76
Low-Cost Airlines	→	Organizational Performance	0.22***	3.36			0.22***	3.36
Goodness of Fit Statistics	χ^2_{71}=173.24 (*P*>0.01) GFI=0.98 AGFI=0.97 ECVI=0.81 AIC=241.24 CAIC=400.94 CN=175.23 NFI=0.95 NNFI=0.96 IFI=0.97 PGFI=0.66 PNFI=0.74 NCP=102.24 RFI=0.93 CFI=0.97 RMSEA=0.07							

Notes: [a] Standardized Structural Coefficients; $^{\dagger}p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.
Source: Own elaboration

In testing the theoretical framework, we fit several nested models, each incorporating different assumptions about parameters. Comparisons with reasonable alternative models are recommended as means of showing that a hypothesized model is the best representation of the data. Comparison is an important part of assessing model fit (Bollen and Long, 1993). The summary statistics in Table 5 indicate that Model 1 was preferred to the others, supporting the inclusion of a model with these relationships among the analyzed constructs.

TABLE 2.5: Parameter, relationship and goodness of fit statistics

Model	Description	χ^2	*df*	$\Delta\chi^2$	RMSEA	NFI	NNFI	GFI	CFI	AGFI	ECVI	AIC	PGFI	NCP
1	Theoretical	173.24	71		0.070	0.95	0.96	0.98	0.97	0.97	0.81	241.24	0.66	102.24
2	W.R. Org. learning →Internet	177.12	72	3.88	0.070	0.95	0.96	0.98	0.97	0.97	0.82	243.12	0.67	105.12
3	W.R. Internet→Org. Performance	196.43	72	23.19	0.076	0.94	0.95	0.97	0.96	0.96	0.88	262.43	0.67	124.43
4	W.R. Low-Cost Airlines→Org. Performance	181.67	72	8.43	0.072	0.94	0.96	0.98	0.97	0.96	0.83	247.67	0.67	109.67

Notes: W.R. = Without Relationship; n=327.

Source: Own elaboration

If we compare the theoretical model (Model 1) to a model that does not consider the relationship between Internet and organizational performance (Model 3), we see that the latter has a worse Root Mean Square Error of Approximation (>RMSEA=.006), Normed Fit Index (<NFI=.01), Non-Normed Fit Index (<NNFI=.01), Goodness of Fit Index (<GFI=.01), Comparative Fit Index (<CFI=.01), Adjusted Goodness of Fit Index (<AGFI=.01), Expected Cross-Validation Index (>ECVI=.07), Akaike Information Criterion (>AIC=21.19), Parsimony Goodness of Fit Index (<PGFI=.01) and Estimated Non-Centrality Parameter (>NCP=22.19). Hence, results show that Internet affects organizational performance and that Model One is preferred to Model Three ($\Delta\chi^2$=23.19, Δdf=1). The theoretical model is also preferable to the other models formulated (Table 5). Length restrictions prevent detailed discussion of each model and of other models. (A full report is available from the authors.) In sum, the proposed theoretical model (Figure 2) represents the preferred, i.e. the most acceptable and parsimonious, model.

2.7 Conclusions

It is advisable to reflect on the importance of Internet as technological progress. This factor and the tourist sector have been connected for decades (Poon, 1993). Our research highlights this connection, and all assumptions are related to it and indirectly to organizational performance. Computer technology has had great impact on every concept we have studied, especially on sales results in the hospitality sector (Scaglione et al., 2009), as some items had no direct relationship but show a high indirect correlation with the results through the Internet links that have helped to streamline the distribution of hotel information.

The importance of the Internet in the tourism sector has long been recognized (e.g. Poon, 1993; Scaglione et al., 2009). The impacts of e-tourism may be even more important for future accommodations than they are now (Buhalis, 2003). Wider use of Internet in Andalusian hotels has been motivated by organizational learning and the introduction of an innovation culture or innovativeness among the hotel's employees. For Chipika and Wilson (2006), the more training people the organization has, the more innovative the organization will be, and organizations that learn have a structure that satisfies the requirements for competitive advantage, making the firm a centre for continuous improvement (Slater and Narver, 1995). Thus, the more organizational learning occurs, the more personal IT innovativeness develops (Akgün et al., 2007; Covin and Slevin, 1991).

The Spanish hospitality sector seeks to maintain its prestigious image and trade names by adopting formulas that imply greater investment of resources and more direct supervision of standards. In contrast to the international hotel industry, Spanish hotels maintain a strong dose of tacit knowledge in their "know-how" and lack easily replicable assets, due mainly to their holiday-resort orientation and relatively recent international experience.

This quality causes difficulties involving both the definition of the standards to be followed and the industry's total dependence on foreign tour agents in distributing and marketing their products. These factors contribute to the difficulty experienced in the transmission of knowledge to third parties through contracts, which will only decrease as the industry consolidates its international expansion and applies new technology aimed at information and marketing, simultaneously exploiting Spain's potential as a source of holiday markers. Indeed, the significant presence of foreign tourists has been remarkable in recent years on Spain's beaches, even for real estate (Martinez-Garcia and Raya, 2008; Satterlee, 2003).

As stated above, some researchers analyze organizational learning as a mean of explaining and resolving the problems of implementing and using new IT in organizations (Robey et al., 2000). Although organizational learning is considered an effective and efficient mean of improving the competitiveness of organizations, few studies consider the relationship between organizational learning and Internet from an SME's perspective (Cegarra et al., 2007).

This finding is consistent with the conceptualization by Gilbert and Cordey-Hayes (1996) of knowledge acquisition as the facilitator of successful technological innovation. Consequently, these companies should have many incentives to implement Internet, which should constitute a new source of relevant knowledge to generate innovations.

Many methods exist for implementing Internet applications, but managers still over-invest in the development of homepages, websites, etc., rather than investing in mechanisms to facilitate the learning process. Consequently, the implications for management practice are that the learning process is a desirable capacity that business units must develop to implement e-business (Curry and Stancich, 2000).

Better hotel management through increased use of ICTs (mainly Internet) is motivated by the introduction of an innovative culture (Straub, 1994). The structure of the Andalusian hospitality industry, and the hospitality industry overall, is changing with the continuing process of globalization. The industry's structure has become increasingly complex in scope (products offered), ownership, management and affiliation. Andalusian hotel managers must therefore innovate in all areas, but primarily in the hotel's employees, so that the hotel can obtain a competitive advantage (Larsen and Sorebo, 2005; Laudon and Laudon, 2007). The ability to innovate effectively in the context of new technology-based services depends on the extent of employees' involvement (in our case, in the hospitality or low-cost companies).

Nonetheless, innovativeness among employees cannot explain the percentage of foreign tourists' occupancy in Andalusian hotels. This may be because innovativeness is not as important for tourism as are ICTs (Internet) and weather (Kerpel, 1990). We can thus conclude that foreign tourists prefer to spend their leisure time in Andalusia for these reasons rather than in a place with bad weather or no proficiency in Internet use, despite very innovative employees. We thus find no direct relationship between innovativeness and firm performance like many authors indicate (Kenneth, 2002; Porter, 2001).

As to the influence of the Internet, we can assert that the influx of tourists on low-cost flights requires Andalusian hotel managers to use Internet more extensively than they currently do, since Internet is a tool to manage, promote and attract tourists, mainly international tourists (Papatheodorou, 2002). In this current crisis period, Internet may well be becoming the best way to save money, since customers can look for the

cheapest offers by themselves, for both flight and hotel (Das, 2008; Oorni and Klein, 2003). Low-cost airlines influence firm performance.

Building on some scholars (Costa, 1995; Goodrich, 2002; Papatheodorou, 2002), we assert the influence of low-cost airlines on tourism, and, consequently, on hotel performance in each country. Goodrich (2002) indicates the same for the United States, showing that in the aftermath of September 11th, airlines all over the world, not only in United States, lost over $100 million in sales revenue and thousands of jobs from their workforce (Goodrich, 2002). Airlines continued to suffer millions of dollars in lost revenue as the traveling public was generally scared to fly, and planes flew half-empty three months after the tragedy.

Hotel bookings suffered during the same time period, declining about 20–50% in the US alone, as individuals and groups cancelled vacation plans (Goodrich, 2002). US losses reached at least two billion dollars in the first month after the tragedy (Tan, 2001).

In our study, Internet was the main variable that influenced and indirectly caused other variables–personal IT innovativeness and organizational learning—to influence hotel performance. This result is consistent with Das (2008), who finds evidence that, if a company can promote its individual property on websites and allow the Internet shopper to book directly without paying excessive distribution costs or supplying deeply discounted rates to third-party merchant sites, bookings increase considerably. On checking this experiment, Das found that, "in 2007 total revenue increased by more than $1 million from $2.4 million to $3.5 million. An impressive 43% increase from 2006" (Das, 2008:30).

To sum up, our study confirms that organizational learning is a motivator of personal IT innovativeness in the firm. Based on some authors (Daft, 1983; Thatcher et al., 2003), we hypothesized that firms that focus on organizational learning may have a more innovative organizational climate and that this strong innovative capability can further enhance their employees' ability to solve problems daily. In addition, we have tried to link the new technologies to organizational learning, specifically to the Internet, which with organizational learning can help the organization to gain competitive advantage (Cegarra et al., 2007). Developing an organizational learning process may provide the company with customer knowledge and development solutions and offer new products and services through the Internet (Langerak et al., 2007).

Matthing et al. (2006) discussed the influence of new technology-based services on customers. We extend their affirmation to hotel employees, specifically to employees in the low-cost company. As discussed earlier, the ability to innovate effectively in the context of new technology-based services depends on the extent of employees' involvement. Managers can give employees the possibility of innovating, since they are recruited to the firm, motivating innovative culture in the company (Straub, 1994).

Consequently, Andalusian hotel managers must innovate in all areas to improve their results, but primarily in the hotel's employees, so that the hotel can gain competitive advantage (Larsen and Sorebo, 2005; Laudon and Laudon, 2007). Hotel managers should promote personal IT innovativeness through knowledge of new technologies, especially through the Internet. The structure of the Andalusian hospitality industry, and of the hospitality industry overall, is changing with the continuing process of globalization. This structure has become increasingly complex in scope (products offered), ownership, management and affiliation. Hotel managers ought therefore to motivate employees to be open-minded so that hotel personnel can obtain contact with foreign tourists through Internet and adapt the hotel properly to them.

Airlines, specifically low-cost airlines, are important in this matter (Martinez-Garcia and Raya, 2008). They must promote their bookings through the Internet, underscoring their advantages compared to full-cost companies. Since low-cost airlines are much cheaper, they provide a good way to save money, helping people to avoid the crisis. Low-cost airlines should also stress that they have airports and gateways with similar facilities to those of the full cost airlines and good travel timetables. For northern European countries, they should stress Spain's proximity by plane. Under these conditions, low-cost tourism may be well developed (Martinez-Garcia and Raya, 2008).

If we focus on our results for the tourism sector, we highlight this paper's continuous recognition of the importance of the Internet (Poon, 1993). The impacts of e-tourism may be more important for future accommodation than they are now (Campos et al., 2010; Costa, 1995; Goodrich, 2002). Personal IT innovativeness and organizational learning indirectly influence hotels' performance.

Finally, the influx of tourists on low-cost flights must be attracted from other countries, mainly from countries in Europe (Kerpel, 1990; Papatheodorou, 2002). If hotel managers wish to influence and improve hotel performance, they must use Internet

more extensively than they currently do, since Internet is likely to attract tourists, mainly international tourists (Buhalis, D. 2003; Papatheodorou, 2002).

Hotel managers and low-cost companies should learn or have proficiency in technologies and motivate a firm culture of learning and innovation in new technologies, specifically Internet. In the current crisis period, Internet may be becoming the best way to save money, as customers can look for the cheapest offer by themselves, for both flights and hotels (Das, 2008; Oorni and Klein, 2003).

2.7.1 Limitations and future research

This investigation has several limitations that suggest further possibilities for empirical research. First, survey data based on self-reports may be subject to social desirability bias (Podsakoff and Organ, 1986). However, an assurance of anonymity can reduce such bias even when responses are related to sensitive topics (Konrad and Linnehan, 1995). The low risk of social desirability bias in this study was indicated by several managers who commented that it made no sense at all for their companies to go beyond regulatory compliance. Still, the responses are subject to interpretation by individual managers.

Second, the absence of objective measures is a limitation. However, external validation of this variable from the archival data of a subset of respondents increased confidence in self-reports and reduced the risk of common method variance. Further, the possibility of common method bias was tested using Harman's one-factor test and other methods. We also used objective data and randomized the order of presentation of the survey items across the subjects. Common method bias does not appear to be present (Konrad and Linnehan, 1995; Podsakoff and Organ, 1986).

Third, the cross-sectional nature of the research into a series of dynamic concepts (personal IT innovativeness, organizational learning) allows us to analyze only a specific situation in time of the organizations studied, not their overall conduct through time. Our approach has reduced the magnitude of this problem, since dynamic characteristics and causal affirmations can be made if the relationships are based on theoretical rationales (Hair et al, 1999). For this reason, we began with a theoretical effort that would allow us to identify and check the formal existence of the different cause-effect relationships. Nonetheless, future research should focus on longitudinal study. Longitudinal research can approach these variables with greater precision and

study their determinants, processes, and results systematically, for it allows us to analyze the evolution of variables over time and to draw more reliable conclusions about their activity.

Fourth, the use of a single respondent may have influenced the accuracy of some measurements. However, difficulties in obtaining sponsorship for research based on a multiple views for each hotel, the value of CEOs' knowledge of their hotels, and common practice in organizational research all supported the use of CEOs as respondents. Fifth, we have concentrated on the hotel sector. In other firms from the tourism sector, the results may be different.

Finally, our model analyzes only the direct and indirect relation between Internet, low-cost airlines and organizational performance, analyzing previous influences such as organizational learning and personal IT innovativeness. Other factors could be analyzed (Bhat and Milne, 2008; Campos et al., 2010; Hurtado et al., 2007). However, it should be noted that the strategic variables we chose (low-cost airlines and Internet) explain a significant amount of variance of organizational performance. More attention to the influence of specific strategic factors on organizational performance is needed in further research. Empirical papers supporting (or rejecting) our results in different contexts would be welcomed (especially longitudinal studies). Future studies should be based on a larger sample and might well explicitly integrate the influence of external factors. It would also be interesting to study similar characteristics with information provided by lower levels of management and employees in the organization. Development of a collaborative scheme between academics and practitioners would allow generation of an organizational strategy around the tourism sector.

In addition to these limitations, we must also indicate that, although most hotels are thought to have webpage and to use Internet, only 7% of the Andalusian hotels responded our initial questionnaire, and we were obliged to send it again by post. Internet is not, then, as common as we supposed, and for this reason we have used Internet as the main variable.

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2.9 References

Agarwal, R. and Prasad, P. (1998a), "The antecedents and consequences of user perceptions in information technology adoption", *Decision Support Systems*, Vol. 22 No.4, pp. 15-29.

Agarwal, R. and Prasad, P. (1998b), "A conceptual and operational definition of personal innovativeness in the domain of information technology", *Information Systems Research*, Vol. 9, pp. 204-215.

Akgün, A.E., Keskin, H., Byrne, J.C. and Aren, S. (2007), "Emotional and learning capability and their impact on product innovativeness and firm performance", *Technovation*, Vol. 27, pp. 501-513.

Anderson, J.C. y Gerbin D.W. (1988), "Structural equation modelling in practice: A review and recommended two-step approach", *Psychological Bulletin*, pp. 103, Vol. 411-423.

Argyris, C. and Schön, D.A. (1996), *Organizational learning II: Theory, method, and practice*, Addison-Wesley: London.

Baer, M. and Frese, M. (2003), "Innovation is not enough: Climate for initiative and psychological safety, process innovations, and firm performance", *Journal of Organizational Behavior*, Vol. 24, pp. 45-68.

Bhat, S.S. and Milne, S. (2008), "Network effects on cooperation in destination website development", *Tourism Management*, Vol. 29 No. 6, pp. 1131–1140.

Bollen, K.A. (1989), *Structural equations with latent variables,* Wiley-Interscience Publication: USA.

Bollen, K.A. and Long, J.S. (1993), *Testing structural equation models*, Sage: Newbury Park, CA.

Buhalis, D. (1998), "Strategic use of information technologies in the tourism industry", *Tourism Management*, Vol. 19 No. 5, pp, 409–421.

Buhalis, D. (2003), *eTourism: Information technology for strategic tourism management*. Prentice-Hall: New Jersey.

Buhalis, D. (2004), "e-Airlines: Strategic and tactical use of ICTs in the airline industry", *Information & Management*, Vol. 41 No. 7, pp. 805–825.

Buhalis, D. and Main, H. (1998) "Information technology in peripheral small and medium hospitality enterprises: Strategic analysis and critical factors", *International Journal of Contemporary Hospitality Management*, Vol. 10 No. 5, pp. 198-202.

Calantone, R.J., Cauvsgil, S.T. and Zhao, Y. (2002), "Learning orientation, firm innovation capability, a firm performance", *Industrial Marketing Management*, Vol. 31, pp. 515-524.

Campos Martinez, S, Garau Vadell, J. B. and Martinez Ruiz, M. P. (2010), "Factors influencing repeat visits to a destination: The influence of group composition", *Tourism Management,* Vol. 31 No. 6, pp. 862–870.

Cegarra Navarro, J.G., Jiménez Jiménez, D. and Martinez Conesa, E.A. (2007), "Implementing e-business through organizational learning: An empirical investigation in SMEs", *International Journal of Information Management*, Vol. 27, pp. 173-186.

Chand, M. and Katou, A. (2007), "The impact of HRM practices on organisational performance in the Indian hotel industry", *Employee Relations*, Vol. 29 No. 6, pp. 576-594.

Chipika, S. and Wilson, G. (2006), "Enabling technological learning among light engineering SMEs in Zimbabwe through networking", *Technovation*, Vol. 26, pp. 969-979.

Cockerell, N. (1993), "Germany outbound", *Travel and Tourism Analyst*, Vol. 2, pp. 19-34.

Connolly, D.J., Olsen, M.D. and Moore, R.G. (1998), "The Internet as a distribution channel", *The Cornell Hotel and Restaurant Administration Quarterly*, Vol. 39 No. 4, pp. 42-54.

Costa, J. (1995), "International perspectives on travel and tourism development", *International Journal of Contemporary Hospitality Management*, Vol. 7 No. 7, pp. 10-19.

Covin, J.G. y Slevin, D.P. (1991), "A conceptual model of entrepreneurship as firm behavior", *Entrepreneurship: Theory and practice*, Vol. 16, pp.7-25.

Curry, A. and Stancich, L. (2000), "The Intranet - an intrinsic component of strategic information management", *International Journal of Information Management*, Vol. 20 No. 4, pp. 249-268.

Daft, R.L. (1983), "Learning the craft of organizational research", *Academy of Management Review*, Vol. 8 No. 4, pp. 539-546.

Damanpour, F. (1991), "Organizational innovation: A meta-analysis of effects of determinants and moderators", *Academy Management Journal*, Vol. 34 No. 3, pp. 555-590.

Das, A.K. (2008), "Internet service marketing in the hospitality sector – A case study of Vizergy hotels", *Management Science and Engineering*, Vol. 2 No. 2, pp. 27-31.

Delbecq, A.L. and Mills, P.D. (1985), "Managerial practices that enhance innovation", *Organizational Dynamics*, Vol. 14 No. 1, pp. 24-34.

DiBella, A., Nevis, E. and Gould, J. (1996), "Understanding organizational learning capability", *Journal of Management Studies*, Vol. 33, pp. 361-379.

Edmondson, A. (1999), "Psychological safety and learning behavior in work teams", *Administrative Sciences Quarterly*, Vol. 44, pp. 350-383.

Fitzpatrick, J. and Mottram, N. (1992), "Prospects for Europe's smaller regional airports", *Travel and Tourism Analyst, Vol.* 2, pp. 5-26.

Flynn, L.R. and Goldsmith, R.E. (1993), "A validation of the Goldsmith and Hofacker innovativeness scale", *Educational and Psychological Measurement*, Vol. 53, pp. 1105-1116.

Francis, G., Dennis, N., Ison, S. and Humphreys, I. (2007), "The transferability of the Low-Cost Model to long-haul airline operations", *Tourism Management*, Vol. 28, pp. 391-398.

Frew, A. (2000), "Information and communications technology research in the travel and tourism domain: Perspective and direction", *Journal of Travel Research*, Vol. 39, pp. 136-145.

Gilbert, D.C. and Morris, L. (1995), "The relative importance of hotels and airlines to the business. *International Journal of Contemporary Hospitality Management"*, Vol. 7 No. 6, pp. 19-23.

Gilbert, M. y Cordey-Hayes, M. (1996), "Understanding the process of knowledge transfer to achieve successful technological innovation", *Technovation*, Vol. 16 No. 6, pp. 301-312.

Glick, W.H. (1985), "Conceptualizing and measuring organizational and psychological climate: Pitfalls in multilevel research", *Academy of Management Review*, Vol. 10, pp. 601-616.

Goldsmith, R.E. (2001), "Using the domain specific innovativeness scale to identify innovative Internet consumers", *Internet Research-Electronic Networking Applications and Policy*, Vol. 11 No. 2, pp. 149-158.

Goldsmith, R.E. and C.F. Hofacker (1991), "Measuring consumer innovativeness", *Journal of the Academy of Marketing Science*, Vol. 19, pp. 209-221.

Goodrich, J.N. (2002), "September 11, attack on America: A record of the immediate impacts and reactions in the USA travel and tourism industry", *Tourism Management*, Vol. 23, pp. 573-580.

Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (1999), *Análisis Multivariante*, Prentice Hall: Madrid.

Harvey, G. and Turnbull, P. (2006), "Employment relations, management style and flight crew attitudes at low cost airline subsidiaries: The cases of british airways/Go and bmi/bmibaby", *European Management Journal*, Vol. 24 No. 5, pp. 330-337.

Hoffman, D.L. and Novak, T.P. (1996), "Marketing in hypermedia computer-mediated environments: conceptual foundations", *Journal of Marketing*, Vol. 60, pp. 50-68.

Hofstede, G. (1980), "Motivation, leadership, and organization: Do American theories apply abroad?", *Organizational Dynamics*, Vol. 9, pp. 42-63.

Hubbard, D. (1989), "The hotel industry in sub-Saharan Africa and the Indian ocean", *Travel and Tourism Analyst*, Vol. 6, pp.19-39.

Hurley, R. and Hult, G.T. (1998), "Innovation, market orientation, and organizational learning: An integration and empirical examination", *Journal of Marketing*, Vol. 62, pp. 42-54.

Hurtado Torres, N. E., Cordón Pozo, E. and Senise Barrio, E. (2007), "Efectos de la cultura nacional en la relación entre orientación emprendedora y el resultado de la innovación de producto: el caso del sector farmacéutico", *Cuadernos Económicos del ICE*, Vol. 73, pp. 135-149.

Jen-Hung, H. and Chia-Yen, L. (2006), "Empower Internet services in hotel industry - A customer service life cycle concept", *Journal of American Academy of Business*, Vol. 9 No. 1, pp. 99-103.

Kale, P., Singh, H. and Perlmutter, H. (2000), "Learning and protection of proprietary assets in strategic alliances: building relational capital", *Strategic Management Journal*, Vol. 21, pp. 217-317.

Kenneth, W.T. (2002), *La motivación intrínseca en el trabajo*. Editorial Universitaria Ramón Areces: Madrid.

Kerpel, E. (1990), "Tourism potential in Eastern Europe", *Travel and Tourism Analyst*, Vol. 1, pp,68-86.

Konings, J. and Roodhooft, F. (2002), "The effect of e-business on corporate performance: Firm level evidence for Belgium", *De Economist*, Vol. 15 No. 5, pp. 569-581.

Konrad, A.M. and Linnehan, F. (1995), "Formalized HRM structures: Coordinating equal employment opportunity or concealing organizational practice?", *Academy of Management Journal*, Vol. 38, pp. 787-820.

Kundo, S.C. and Vora, J.A. (2004), "Creating a talented workforce for delivering service quality", *Human Resource Planning*, Vol. 27,pp. 40-51.

Langerak, F., Huntilk, E.J. and Robben, H.S.J. (2007), "The mediating role of new product development in the link between market orientation and organizational performance", *Journal of Strategic Marketing*, Vol. 15, pp. 281-305.

Lant, T.K. and Montgomery, D.B. (1987), "Learning from strategic success and failure", *Journal of Business Responsibility"*, Vol. 15, pp. 503-517.

Larsen, T.J. and Sorebo, O. (2005), "Impact of personal innovativeness on the use of the Internet among employees at work", *Journal of Organizational and End User Computing*, Vol. 17, pp. 43-63.

Laudon, K., and Laudon, J. (2007), *Management information systems*. Prentice-Hall: New Jersey.

Law, R. and Jogaratnam, G. (2005), "A study of hotel information technology applications", *International Journal of Contemporary Hospitality Management*, Vol. 17 No. 2, pp. 170–180.

Leonard-Barton, D. and Deschamps, I. (1988), "Managerial influence on the implementation of new technology", *Management Science*, Vol. 34, pp. 1252-1265.

Liao, J., Welsch, H. and Stoica, M. (2003), "Organizational absorptive capacity and responsiveness: An empirical investigation of growth-oriented SMEs", *Entrepreneurship: Theory & Practice*, Vol. 28 No. 1, pp. 63–85. ,

Llorens-Montes, F.J., Ruiz-Moreno, A., and Garcia-Morales, V.J. (2005), "Influence of support leadership and teamwork cohesion on organizational learning innovation and performance: An empirical examination", *Technovation*, Vol. 25, pp. 1159–1172.

Lynn, G.S., Skov, R.V. and Abel, K.D. (1999), "Practices that support team learning and their impact on speed to market and new product success", *Journal of Product Innovation Management*, Vol. 16, pp. 439–454.

Marshall, C. (1990), "Practical solutions to European air traffic congestion", *Travel and Tourism Analyst*, Vol. 4, pp. 64–73.

Marsick, V.J. and Watkins, K.E. (2003), "Demonstrating the value of an organization's learning culture: The dimensions of the learning organization questionnaire", *Advances in Developing Human Resources*, Vol. 5, pp. 132–151.

Martin, L.M. and Matlay, H. (2001), "Blanket's approaches to promoting ICT in small firms: Some lessons from the DTI ladder adoption model in the UK", *Journal of Internet Research*, Vol. 11, pp. 399-410.

Martinez Garcia, E. and Raya, J.M. (2008), "Length of stay for low-cost tourism", *Tourism Management*, Vol. 29, pp. 1064–1075.

Matthing, J., Kristensson, P., Gustafsson, A. and Parasuraman, A. (2006), "Developing successful technology-based services: The issue of identifying and involving innovative users", *Journal of Services Marketing*, Vol. 20 No.5, pp. 288–297.

McCalman, J. (1998), "Self-managing teams in high technology manufacture: overcoming technological barriers", *Team Performance Management*, Vol. 4 No. 3, pp. 93-112.

McIvor, R., O'Reilly, D. and Ponsonby, D. (2003), "The impact of Internet technologies on the Airline industry: Current Strategies and Future Developments", *Strategic Change*, Vol. 12 No. 1, pp. 31-47.

Mercader, J., Meroño, A.L. and Sabater, R. (2006), Information technology and learning: Their relationship and impact on organizational performance in small Business, *International Journal of Information Management*, Vol. 26 Vol. 1, pp. 16-29.

Midgley, D.F. and Dowling, G.R. (1978), "Innovativeness: The concept and its measurement", *Consumer Responsibility*, Vol. 4, pp. 229-242.

Mills, J. and Law, R. (2004), *Handbook of consumer behaviour, tourism and the Internet*, Harworth Hospitality Press: New York.

Morrison, A.M., Jing, S., O'Leary, J.T. and Lipping, A.C. (2001), "Predicting usage of the Internet for travel bookings: An exploratory study", *Information Technology & Tourism*, Vol. 4 No. 1, pp. 15–30.

Nonaka, I. and Takeuchi, H. (1995), *The Knowledge-Creating Company*, Oxford University Press: New York.

Olsen, M.D. and Connolly, D.J. (2000), "Experience-based travel", *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 41 No. 1, pp. 30-40.

Oorni, A. and Klein, S. (2003), "Electronic travel markets: Elusive Effects on Consumer Behaviour", In A. J. Frew, M. Hitz, and P. O'Connor, (Eds.), *Information and communication technologies in tourism*, Springer Wien: New York, pp. 29-38.

Papatheodorou, A. (2002), "Civil aviation regimes and leisure tourism in Europe", *Journal of Air Transport Management*, Vol. 8, pp. 381-388.

Plessis, M.D. and Boon, J.A. (2004), "Knowledge management in e-business and customer relationship management: South African case study findings", *International Journal of Information Management*, 27, 73-86.

Podsakoff, P.M. and Organ, D.W. (1986), "Self-reports in organization research: problems and prospects", *Journal of Management*, Vol. 12, pp. 531-544.

Poon, A. (1993), *Tourism, technology and competitive strategies*, CAB International: Oxford.

Porter, M. (2001), "Strategy and the Internet", *Harvard Business Review*, Vol. 79 No. 3, pp. 63–78.

Real, J.C., Leal, A. and Roldan, J.L. (2006), "Information technology as a determinant of organizational learning and technological distinctive competencies", *Industrial Marketing Management*, Vol. 35, pp. 505–521.

Robey, D., Boudreau, M.C. and Rose, G.M. (2000), "Information technology and organizational learning: A review and assessment of research", *Accounting Management and Information Technologies*, Vol. 10, pp. 125–155.

Rogers, E.M. (1995), *Diffusion of Innovations*, Free Press: New York.

Sampler, J.L. (1998), "Redefining industry structure in the information age", *Strategy Management Journal*, Vol. 19, pp. 345-355.

Satterlee, S. (2003), "The impact of low cost flights: Enter the cut-price jet set", *Financial Times*, April 15, pp. 1, available at <http://www.ft.com/home/europe> FT.com (accesed February 2008).

Scaglione, M., Schegg, R. and Murphy, J. (2009), "Website adoption and sales serformance in Valais' hospitality industry", *Technovation*, Vol. 29, pp. 625-631.

Senge, P., Roberts, C., Ross, R.B., Smith, B.J. and Kleiner, A. (1994), *The fifth discipline*, Doubleday Publ: Fieldbook, New York.

Shaw, G. and Williams, A. (2009), "Knowledge transfer and management in tourism organisation: An emerging research", *Tourism Management*, Vol. 30, pp. 325-335.

Sigala, M., Lockwood, A. and Jones, P. (2001), "Strategic implementation and IT: Gaining competitive advantage from the hotel reservations process", *International Journal of Contemporary Hospitality Management*, Vol. 13 No. 7, pp. 364-371.

Simpson, P.M., Siguaw, J.A. and Enz, C.A. (2006), "Innovation orientation outcomes: The good and the bad", *Journal of Business Research*, Vol. 59, pp. 1133-1141.

Slater, S.F. and Narver, J.C. (1994), *Market orientation isn't enough: Build a learning organization*, Marketing Science Institute: Cambridge (MA).

Slater, S.F. and Narver, J.C. (1995), "Market orientation and the learning organization", *Journal of Marketing*, Vol. 59, pp. 63-74.

Slattery, P. and Litteljohn, D. (1991). The structure of Europe's economies and demand for hotel accommodation. *Travel and Tourism Analyst*, 4, 20-37.

Stewart, T. (1992), "Spain outbound", *Travel and Tourism Analyst*, Vol. 2, pp.53-71.

Straub, D.W. (1994), "The effect of culture on IT diffusion: Mail and fax in Japan and the U.S." *Information System Research*, Vol. 5 No.1, pp. 23-47.

Tan, J. (2001), "Innovation and risk-taking in a transitional economy: A comparative study of Chinese managers and entrepreneurs", *Journal of Business Venturing*, Vol. 16 No. 4, pp. 359-376.

Thatcher, J.B. Srite, M., Stepina, L.P. and Liu, Y. (2003), "Culture, overload and personal innovativeness with information technology: Extending the nomological net", *Journal of Computer Information Systems*, Vol. 44 No. 1, pp. 74-81.

Treacy, M. and Wiersema, F. (1993), "Customer Intimacy and Other Value Disciplines", *Harvard Business Review*, Vol. 71, pp. 84-94.

Tse A., Sin, L., Yim, F. and Heung, V. (2005), "Market orientation and hotel performance", *Annals of Tourism Research*, Vol. 32 No. 4, pp. 1145-1147.

Turton, B.J. and Mutambirwa, C.C. (1996), "Air transport services and the expansion of international tourism in Zimbabwe", *Tourism Management*, Vol. 17 No. 6, pp. 453-462.

Wang, C.L. and Ahmed, P.D. (2004), "The development and validation of the organizational innovativeness Construct using confirmatory factor analysis", *European Journal of Innovation Management*, Vol. 7 No.4, pp. 303-313.

Capítulo 3

3 THE INFLUENCE OF TECHNOLOGICAL DISTINCTIVE COMPETENCIES AND TOP MANAGEMENT SUPPORT OF CORPORATE ENTREPREURSHIP ON TECHNOLOGICAL COMPANIES

3.1 Abstract

Purpose – The aim of this paper is to highlight the importance of different technological aspects of organizations on high technology Spanish firms´ performance.

Methodology – The studied relationships are empirically confirmed by using a structural equation model to demonstrate our hypotheses. The sample was selected from the database Dun & Bradstreet España in 2003, obtaining 201 Spanish firms. Finally, CEOs were our main informants.

Findings – The results obtained show that the proactive character adopted by top managers will directly influence the organizational learning process, technological distinctive competencies and corporate entrepreneurship. Technological Distinctive Competencies are also supported by organizational slack resources, skilled managers and a technological infrastructure. Finally, corporate entrepreneurship influences the technological organizational performance by.

Research limitations/implications – The paper is exploratory in character, and its goal is to show whether interrelations exist between the variables. The main limitations are: The chosen sectors refer only to Spain; the cross-sectional character of the analysis performed; the use of a single method and of self-reports.

Practical implications – To obtain perfect adaptation of the firm to its environment, it is crucial that managers develop the corporate entrepreneurship to improve high technology sector firms´ performance. The paper shows the important role of top manager's support, technological distinctive competencies and organizational learning. Success in this kind of aspects is of vital importance to the corporate entrepreneurship in the firm.

Originality/value – The paper seeks to stimulate new lines of research regarding one variable (technological distinctive competencies) and relate it to other constructs, observing their repercussions for the firm.

Keywords Technological Distinctive Competencies, technological skills, technological infrastructure, top management support, organizational slack, organizational learning, corporate entrepreneurship, organizational performance.

Category for the paper – Research paper.

3.2 Introduction

One of the most important strategic decisions management faces in today's globally competitive environment surrounds the issue of technology development (Jones *et al*., 2000). The 1990s might well be considered the beginning of the era called the new or e-economy because of the appearance of the Internet in the economy and a tremendous expansion in technology for business and rapid growth in investments (Skerlavaj and Dimovski, 2006). Decisions concerning technological variables are essentials for a firm's overall competitive strategy and positioning (Zahra, 1991).

Assessing the value of technology has never been easy. However, with technology, firms can introduce some systems to reduce costs and evaluate these systems in terms of their success (Ross *et al*., 1996). The value of these initiatives lies in their contribution to a firm's competitiveness, which is often unquantifiable and uncertain (Ross *et al*., 1996). This application of technology throughout the company (Andreu and Ciborra, 1996; Giarratana and Torrisi, 2010; Leonard-Barton, 1992) has increased the importance of Technological Distinctive Competencies (T.D.Cs.), which permit exploitation of the technological opportunities for the development of corporate entrepreneurship and the generation of competitive advantage in the firm (Alvarez and Barney, 2007; Autio *et al*., 2000; Real *et al*., 2006; Woolley, 2010).

Differences exist in the literature on the defining characteristics of this core competency. In this research, T.D.Cs. represent "the organization's expertise in mobilizing various scientific and technical resources through a series of routines and procedures which allow new products and production processes to be developed and

designed" (Real *et al*., 2006, p. 508). The study of T.D.Cs. has been encouraged in technology research using some prior technological and strategic variables en the literature (Autio *et al*., 2000; Banerjee, 2003; Giarratana and Torrisi, 2010; Real *et al*., 2006).

Our study seeks first to analyze empirically the influence on T.D.Cs. of some of the technological variables, including organizational slack (e.g., Dehning, *et al*., 2004), technological skills (e.g., Leonard-Barton, 1992), technological infrastructure (e.g., Byrd and Turner, 2001) and Top Management Support for technology (e.g., Byrd and Davidson, 2003). Secondly, we seek to analyze how these T.D.Cs. and Top Management Support of technology (briefly T.M.S.) influence corporate entrepreneurship directly and indirectly through organizational learning (Alvarez and Barney, 2007; Autio *et al*., 2000; Leonard-Barton, 1992; Shane and Venkataraman, 2000; Teece, 1986; Woolley, 2010). Organizations that engage in entrepreneurial activities achieve higher levels of growth and profitability than organizations that do not, thus also achieving higher organizational performance (Antoncic and Hisrich, 2001). Corporate entrepreneurship is a process of organizational renewal (Zahra, 1993) that refers to the organizational process of risk taking, innovativeness, and proactiveness (Covin and Slevin, 1991). Corporate entrepreneurship involves "extending the firm's domain of competency and corresponding opportunity set through internally generated new resource combinations" (Covin and Slevin, 1991, p. 1). Thus, corporate entrepreneurship refers to ''the process by which firms notice opportunities and act to creatively organize transactions between factors of production so as to create surplus value'' (Jones and Butler, 1992, p. 735).

T.D.Cs. are influenced by organizational slack, which is defined as "that cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy, as well as to initiate changes in strategy with respect to the external environment" (Bourgeois, 1981, p. 30). Cyert and March (1963) define organizational slack as the difference between the resources available to an organization and the necessary payments required to maintain the organization. In essence, both concepts are similar as far as available resources are concerned; they satisfy pressures or payments in/to the company. The concept itself is a powerful tool and is intuitively appealing, since it conveys the notion of a cushion of excess resources (technological resources) available in an organization

that will either solve many organizational problems or facilitate the pursuit of goals outside the realm of those dictated by optimization principles and focus mainly on new technology based-firms (Bourgeois, 1981; Bradley *et al*., 2010).

These available technological resources cannot be studied in isolation. They must be analyzed by people whose high technological skills define the roots of a firm's sustainable competitive advantage (Lee *et al*., 2001). In this sense, Leonard-Barton (1992, p. 113) defines skills as "one of four dimensions that distinguishes and provides the knowledge set needed to produce/enable a core capability. This skills dimension encompasses both firm-specific techniques and scientific understanding". It provides the basis for a firm's competitive capacities/competencies and sustainable advantage in a particular business (Teece et al., 1986). If we apply this understanding to technological issues, Leonard-Barton (1992) emphasizes that technological skills constitute the entire technical system, which usually traces its roots back to the firm's first products.

In addition, the organization must have a robust technological infrastructure on which the frequently changing strategy and tactics of a contemporary company can be built quickly (Byrd and Turner, 2001). This technological infrastructure is defined as "the enabling foundation of shared technology capabilities upon which the entire business depends" (Byrd and Turner, 2001, p. 42). Davenport and Linder (1994) affirm that it is that this part of the organization's capacity that is intended to be shared. Thus, a flexible technological infrastructure is the new competitive weapon crucial to developing sustained competitive advantage (Byrd and Turner, 2001). An effective infrastructure is a pre-requisite for doing business globally, where the sharing of information and knowledge is vital (Rockart *et al*., 1996).

All of these technological variables demand strong and committed top management to guide the initiative and develop a working environment that supports technology (Ghosh *et al*., 2001). T.M.S. is one of the most often-cited concepts in the technology literature (Davenport and Linder, 1994; Ghosh *et al*., 2001). It "reflects, in many ways, the importance that top management executives place on technology" (Byrd and Davidson, 2003, p. 246). For Leonard-Barton and Deschamps (1988, p. 1254), T.M.S. is a "perceived powerful source".

T.D.Cs. and T.M.S. influence corporate entrepreneurship, improving organizational performance. T.D.Cs. impact corporate entrepreneurship directly because distinctive

competencies incorporate unusual blends of skills and foster beneficial entrepreneurial behaviour not observed in competitors firms. T.D.Cs permit entrepreneurs to earn their status by demonstrating excellence in technological and professional skills and knowledge (Leonard-Barton, 1992). Corporate entrepreneurship is also encouraged by the existence of T.M.S. (Byrd and Davidson, 2003; Byrd and Turner 2001), which will motivate and lead to the development of complete projects according to specifications without high time and budgetary constraints (Ray *et al*., 2005). Such projects will also play a key role in the continuous transformation of the business to generate a renewal context in which new ideas are developed and new clients constantly attracted (Benitez *et al*., 2010), increasing organizational performance (Leonard-Barton, 1992). T.M.S. has been closely linked to both T.D.Cs. and corporate entrepreneurship over time (Byrd and Davidson, 2003; Byrd and Turner, 2001; Ghosh *et al*., 2001; Leonard-Barton and Deschamps, 1988).

Although corporate entrepreneurship is directly influenced by T.D.Cs. and T.M.S., the latter may also influence it indirectly through organizational learning (Benitez *et al*., 2010; Chenhall, 2005; González and Nieto, 2005; Leonard-Barton, 1992; Omerzel and Antoncic, 2008), since organizational learning disseminates and uses the learnt knowledge to encourage entrepreneurial behaviour (García *et al*., 2006; Senge *et al*., 1994). Organizational learning influences corporate entrepreneurship (Rerup, 2005), and organizational learning models are usually used for the study of corporate entrepreneurship (García *et al*., 2006). Organizational learning refers to the process by which organizations acquire and develop knowledge (Huber, 1991). Organizational learning can be considered a process whereby members in an organization are stimulated to strive continually for new approaches and acquire, as well as to share knowledge consequential to interactions with environments (Argyris, 1993; Nonaka *et al*., 2001).

In the section on hypotheses, we draw on prior research to develop a number of testable hypotheses concerning the influence of organizational slack, technological skills, organizational infrastructure and T.M.S. on T.D.Cs., the influence of T.M.S. and T.D.Cs. on organizational learning, the influence of T.M.S., T.D.Cs. and organizational learning on corporate entrepreneurship, and the way corporate entrepreneurship improves organizational performance. That section serves as the theoretical foundation for the paper. The next sections present the research methodology and discuss the

results. The final section makes some concluding observations and points out some of the study's limitations and lines for future research.

3.3 Hypotheses

3.3.1 The influence of organizational slack, technological skills and technological infrastructure on T.D.Cs

Organizations with slack resources have a great capacity to deal with competitors (Bourgeois, 1981). Firms in highly technologically competitive industries use their slack resources to produce new technological competencies (Rebentisch and Ferretti, 1995). That is, firms with slack resources support their existing technologies to allow adaptation to competitors and to spend their slack resources on exploiting the firm's T.D.Cs. (Bourgeois, 1981). Organizations thus use slack resources to adapt to a new technology (Rebentisch and Ferretti, 1995) to make T.D.Cs. appear. They also involve discovering new market opportunities (Bradley *et al*., 2010) to achieve an extra advantage. Implementation of organizational slack is subject to a political process that affects the decisions and outcomes of efforts and contributes to an organization's ability to adopt T.D.Cs. successfully (Rebentisch and Ferretti, 1995).

The creation of organizational slack strengthens the effect of T.D.Cs. in obtaining competitive advantage to improve firm performance that would otherwise be extremely difficult to obtain (Dehning, *et al*., 2004). One of the strategic functions of organizational slack is to provide resources such as T.D.Cs. for creative and innovative experimentation so as to obtain competitive advantage (Bourgeois, 1981). T.D.C. management has a positive effect on organizational growth and development, because such an approach focuses on taking advantage of new opportunities of resources obtained—slack (Bradley *et al*., 2010).

Other empirical studies have linked slack to organizational innovation (e.g., Bourgeois, 1981; Cyert and March, 1963; Damanpour, 1987; Dehning *et al*., 2004; Miller and Friesen, 1982) as a surrogate measure for the creation of an organizational environment that enhances a company's technological innovation investments and T.D.Cs., increasing its chances of sustaining a technological enabled-competitive advantage (Dehning *et al*., 2004).

The business environment in the organizational slack construct is extremely important to the enterprise, since organizational slack produces more distinctive competencies in highly competitive environments. When coupled with the dramatic increase in technological capability, these competencies lead to an incremental approach of investing in technology, creating T.D.Cs. (Dehning *et al*., 2004). In common environments, enterprises that do not develop slack have much more difficulty developing T.D.Cs. (Dehning *et al*., 2004). Bourgeois (1981) argues that the absence of slack resources leads to the absence of T.D.Cs., whereas the presence of slack resources allows an organization to interact with or compete in its environment more boldly through T.D.Cs. that others companies lack (Andreu and Ciborra, 1996; Bourgeois, 1981). Based on the prior literature discussed here, we propose the following hypothesis:

Hypothesis 1: Organizational slack will be positively related to T.D.Cs. in technological organizations

Distinctive competencies have been created by a reservoir of complementary skills and interests outside the projects. These competencies are composed by technically skilled people who help to shape new products with skilled criticism. Since managers' possession of certain skills is a necessary condition for exploiting the competitive advantages (Porter, 1980), T.D.Cs. represent a significant advantage over competitors trying to enter the same market without access to such technologically sophisticated personnel (Danneels, 2007). Thus, if the employees are trained to obtain skills (Antoncic, 2007; Kanter, 1984) that are complex, tacit and difficult to copy because they remain largely embedded in the routines and practices of the firm (Lee *et al*., 2001), organizations may benefit from T.D.Cs. (Leonard-Barton, 1992) and obtain competitive advantage (Lee *et al*., 2001; Tushman and Anderson, 1986).

For Leonard-Barton (1992), distinctive competencies are related to managerial technological skills. One of the most necessary elements in a distinctive competency is excellence in technological and professional skills and the knowledge base underlying major products. The professional elite in these companies earns its status by demonstrating remarkable skills that enable them to obtain technological distinctive competencies. Managers must incorporate unusual blends of skills and foster beneficial behaviour not observed in competitive firms to create new businesses with specific distinctive competencies.

New technologically advanced businesses should also have managers with valuable technological management skills who are able to generate and develop a working environment that reaches and attracts technological distinctive competencies (Benitez *et al*., 2010). Nevertheless, the acts of realigning skills through new businesses involves incremental changes that seem to be difficult, sometimes even unfeasible (Banerjee, 2003). For this reason, the firm must be able to develop new technological competencies starting from those skills. An emphasis on T.D.Cs. would indicate the desire of top management to nurture strengths in technological knowledge and production routines to exploit potential outcomes, create potential markets and beat potential competition (Banerjee, 2003). Consequently, technological managers could bring about reorganization, restructuring, or even outsourcing of the technology department. That is, the influence of the managers on the supply chain should be profound so that the entire company may obtain T.D.Cs. (Byrd and Davidson, 2003).

In addition, Byrd and Turner (2000) found that technology managers with high technological skills achieved better technological infrastructure flexibility, a feature of strategic importance to technology and business managers. Andreu and Ciborra (1996) and Byrd and Turner (2000) also discovered that managers with high technological skills increased competitive advantage in key business management areas, as these skilful managers taught and improved T.D.Cs. in the firm. Byrd and Davidson (2003) also found evidence that the skilled managers were associated with more capabilities—distinctive competencies—and services, and ultimately more valuable business applications.

In their in-depth case analysis of Bell Atlantic, Clark *et al*. (1997) reported that building change-ready T.D.Cs. required a highly skilled, empowered, and energized technological workforce with an entrepreneurial orientation toward leveraging technological knowledge in business applications. In fact, the importance of technological skills to the development of T.D.Cs. in all areas of an organization has been found, from early studies of technology departments (Cheney and Lyons, 1980) to more recent studies (Danneels, 2007). High quality in a technology department should be just as important in its effect on technological applications in the supply chain. All of these arguments lead us to the following hypothesis:

Hypothesis 2: Technological skills will be positively related to T.D.Cs. in technological organizations

Weill and Broadbent (1998) found that base-level technological components were converted into useful technological infrastructure capabilities and these into business applications with T.D.Cs. in their study of 26 firms. They also found some evidence that the higher skilled technology department was associated with technological infrastructures with more capabilities and services, and ultimately more valuable T.D.Cs. Similarly, Andreu and Ciborra (1996) found that the communications infrastructure and systems, once put in place, constitute a central ingredient of the company's T.D.Cs. Thus, technology-based infrastructure not only shapes the firm's T.D.Cs., but is also effective incorporating them into the firm's organizational context, making them apparent on all organizational levels and giving meaning to all learning processes (Ciborra and Lanzara, 1990). Byrd and Turner (2000) affirmed that the infrastructure influences the way technological competencies are made effective. The development and use of many T.D.Cs. depends on technological infrastructure, which neutralizes threats and avoids internal weaknesses (Byrd and Turner, 2001). Furthermore, technological infrastructure is related not only to technological knowledge but to more in-depth technological competencies (Byrd and Turner, 2000).

Henderson and Venkatraman (1993) suggest that technological infrastructure flexibility affects the organization's technological capacities to plan effectively (Byrd and Turner, 2000). This type of flexible infrastructure necessitates a new type of adaptable employee who can easily handle technological competencies and boundary issues (Byrd and Turner, 2000). Harkness *et al*. (1996) found that an increase in the depth and scope of the skills of its technological personnel results in an effective integrated technological infrastructure and that this infrastructure can be developed (Byrd and Davidson, 2003). The development and utilization of long-term internal technological plans were beneficial to the effective use of T.D.Cs. (Byrd and Davidson, 2003; Byrd and Turner, 2001). The content of technological plans includes the dominant types of T.D.Cs. in the firm and integrative concepts surrounding the firm's technological infrastructure (Duncan, 1995).

In addition, some authors (Byrd and Turner, 2000, 2001; Duncan, 1995) assert that T.D.Cs. are developed better and more easily in a framework where the corporate infrastructure is flexible. In this context, Duncan (1995) argues that a flexible technological infrastructure can support a wide variety of technological competencies and can easily support the design, development, and implementation of T.D.Cs. The

foregoing implies the maintenance of a flexible infrastructure that focuses on those technological competencies that will achieve differentiation from the organization's competitors (Haro *et al*., 2010). A strong and flexible infrastructure is required to develop new technological competencies in order to obtain competitive advantage, as the infrastructure developed internally will be a source of sustainable competitive advantage whenever these competencies are difficult for competitors to imitate and replace (Haro *et al*., 2010). As T.D.Cs. are truly difficult to replace and imitate (e.g., Lee *et al*., 2001; Leonard-Barton, 1992), the infrastructure strengthens T.D.Cs. to achieve superior competitive status in the market and obtain competitive advantage (González and Nieto, 2005). Taking the argument developed above into account, we propose the following hypothesis:

Hypothesis 3: Technological infrastructure will be positively related to T.D.Cs. in technological organizations

3.3.2 The influence of T.M.S. on T.D.Cs., organizational learning and corporate entrepreneurship

T.M.S. has been investigated in several areas of technological implementation and technological value research (Leonard-Barton and Deschamps, 1988). In fact, it has long been recognized as one of the most important factors for ensuring successful implementation of distinctive competencies (Byrd and Davidson, 2003; Ghosh *et al*., 2001; Hambrick and Mason, 1984; Petroni and Panciroli, 2002). It reflects the importance that the top management executives place on technology competencies (Byrd and Davidson, 2003).

Support from top technological managers helps the firm to obtain more T.D.Cs. and competitive advantage in key business areas (Byrd and Davidson, 2003). An innovation-supportive culture from top managers can generate business value (Petroni and Panciroli, 2002), which is translated into higher T.D.Cs. in the firm (Benitez *et al*., 2010).

In the technological innovation literature, management support is seen as an important power-tool to promote T.D.Cs. (Kanter, 1984). Zmud (1984) finds that managerial influence is stronger for technological innovations, because they require more skilled individuals who may achieve excellence in technology (Leonard-Barton and Deschamps, 1988). The complexity of a new technology also requires more support from top managers, since complex technological projects require more training, a higher

level of champions, and more supplier involvement (Leonard-Barton and Deschamps, 1988).

Torkkeli and Tuominen (2001) found T.M.S. to be an effective tool for promoting technological competencies. T.M.S. can be seen as very advantageous and appropriate to core competency-based technology because it offers many potential benefits for supporting core distinctive competency-based technology, such as skilled technological entrepreneurs (Antoncic, 2007), exceptional skills managers (Leonard-Barton, 1992) and better-trained employees (Andreu and Ciborra, 1996; Torkkeli and Tuominen, 2001).

Such support is vital to obtaining T.D.Cs. (Jarvenpaa and Ives, 1990) and the successful implementation of T.D.C. strategies to improve competitiveness (Kearns, 2006), as well as to achieving a sustainable competitive advantage that is truly difficult to imitate (Chandler and Jansen, 1992; Kearns, 2006). When T.M.S. of T.D.Cs. is lacking, economic justification measures may be imposed, since the intangible benefits of technology-based applications are not valued and the firm cannot obtain its advantage from T.D.Cs. as quickly as it used to (Weill and Broadbent, 1998). In the light of the foregoing, the following hypothesis is proposed:

Hypothesis 4: T.M.S. will be positively related to T.D.Cs. in technological organizations

Management support of technology is one of the most important factors of systematic knowledge management and organizational learning. Omerzel and Antoncic (2008) studied managerial support in technology in small and medium-sized enterprises and concluded that one person is usually in charge of organizational learning, combining both knowledge ownership and the managerial function. For them, the main manager is the person who provides employees with a knowledge technological framework by means of an organizational learning process. Stone (2006) affirmed that T.M.S. is identified as an important core value that can be used to demonstrate commitment and enhance the potential for employee participation. It is manifested in terms of consistent decisions in support of organizational learning programmes. Fineman (1996) provides insight into the influence of T.M.S. as it plays a key role in shaping the climate for such a learning culture. Managers should understand company culture and values, and they should maintain what is good and promotes knowledge

creation through an organizational learning process. This can be achieved if the manager is willing to observe and talk to employees, to recognize obstacles, problems and success, and to train employees (Stone, 2006; Leonard-Barton, 1992). Top management characteristically requires different knowledge in different growth periods and thus continuously develops its organizational learning process so as to obtain that knowledge (Omerzel and Antoncic, 2008).

Furthermore, expert managerial culture may provide an overarching frame of reference, helping to align employees' behaviour with organizational objectives for learning (Huber, 1991). Thus, it is likely that the employees of firms that are implementing a technology-supportive culture will have more precise knowledge of the organizational objectives for innovation and will make a greater effort to achieve these objectives more efficiently (Benitez *et al*., 2010), as they have been trained through specific organizational learning processes (Andreu and Ciborra, 1996; Leonard-Barton, 1992) provided by top management (Chenhall, 2005). In practice, top management designs organizational learning processes for employees to learn and, consequently, the firm may well be able to obtain a competitive advantage that it would otherwise not achieve (González and Nieto, 2005). Argyris (1993) and Stone (2006) emphasize that, in the design of the organizational learning process, it is necessary to re-examine assumptions continually, and assumptions are promoted by top managers (Leonard-Barton, 1987).

Successful managers develop various practical skills during their work (e.g., shaping and structuring the organization of the enterprise and introducing the factors for the promotion of company culture). They also exert considerable effort on building support systems for disseminating knowledge technological and initiating an organizational learning process to teach it (Andreu and Ciborra, 1996; Leonard-Barton, 1992; Omerzel and Antoncic, 2008). For Chenhall (2005), a distinctive characteristic of T.M.S. is its objective of ensuring that the organization can develop a capacity to innovate by encouraging learning in the organization. There are arguments to support the view that integrative T.M.S. can contribute to each of the four elements of learning: information acquisition, interpretation, distribution and organizational memory (Chenhall, 2005; Huber, 1991; Levitt and March, 1988).

T.M.S. permits the organization to learn through experimentation, communication, dialogue, personal mastery and the process of organizational knowledge creation in

order become an intelligent organization (Leonard-Barton, 1992; Lloréns *et al*., 2005). Consequently, organizational learning needs strong technological commitment and support from top managers (Lei *et al*., 1999; Leonard-Barton, 1987; Lloréns *et al*., 2005) to achieve competitive advantage (Lei *et al*., 1999). Based on this prior literature, we propose the following hypothesis:

Hypothesis 5: T.M.S. will be positively related to organizational learning in technological organizations

T.M.S. is essential to the implementation, use, and success of entrepreneurs in technology organizations (e.g., Cash *et al*., 1992, Earl, 1989). Organizational support of management is predictive and constitutes an essential antecedent of intrapreneurship—corporate entrepreneurship (Antoncic, 2007; Antoncic and Hisrich, 2001). The role of top management can be essential to the quality and performance of entrepreneurs (Demirbag *et al*., 2006), and top management involvement may be measured by the level of funding for technological corporate entrepreneurship (Byrd and Davidson, 2003).

Previous research has focused on corporate characteristics—including T.M.S.—that may represent predictors and stimulants for corporate entrepreneurship development (Antoncic, 2007; Antoncic and Hisrich, 2001; Hornsby *et al*., 1990; Kanter, 1984). Hornsby *et al*. (1990) demonstrate that T.M.S. is a key content and characteristic of corporate entrepreneurship. In an empirical paper, Kelley (2010) studied 12 firms and demonstrated a general feeling that good ideas for entrepreneurial ventures may be supported by top management. He included strategic objectives to guide entrepreneurs and to motivate corporate entrepreneurship, such as a top management structure to support entrepreneurial activities. The more funds invested by top managers, the higher the entrepreneurial activity promoted. Shane and Venkataraman (2000) also argue that the discovery of technological opportunities for entrepreneurs depends on the possession of prior information necessary to identify an opportunity and cognitive abilities of the outstanding individuals supported by top managers in the firm. Thus, T.M.S. stimulates opportunities that benefit people with specific information and exceptional skills to use them. These people are the entrepreneurs who will increase corporate entrepreneurship (Srivastava and Lee, 2005). Similarly, Damanpour (1987) found that a large proportion of top managers who support technology in an organization facilitate corporate entrepreneurship.

Furthermore, corporate entrepreneurship will be relegated if top managers do not put measure in place to support organizational innovation (Kelley, 2010; Leonard-Barton and Deschamps, 1988). Without support from top managers, the corporation will fail to develop and advance its entrepreneurial capabilities (Kelley, 2010). In the organizational innovation literature, management support is analyzed as an important power-tool for corporate entrepreneurship (Antoncic, 2007; Kanter, 1984**;** Zaltman *et al*., 1973). Zmud (1984) finds that managerial influence is stronger for technological innovations, since it stimulates corporate entrepreneurship. For Leonard-Barton and Deschamps (1988), the presence of power elites or champions supporting innovation have been associated with higher corporate entrepreneurship success. Shane and Venkataraman (2000) and Srivastava and Lee (2005) found that top managers with higher levels of technological education will possess greater capabilities in technology, innovation and creativity and will also ascribe greater value to innovation in their firms, acquiring more investments and consequently more support for entrepreneurial projects. The literature cited above serves as the foundation for the following hypothesis:

Hypothesis 6: T.M.S. will be positively related to corporate entrepreneurship in technological organizations

3.3.3 The influence of T.D.Cs. on organizational learning and corporate entrepreneurship

Technological competencies are one important element of the core competencies of the firm (Banerjee, 2003). Management usually strengthens these T.D.Cs. as a means to nurturing strengths in technological knowledge and production routines to exploit potential outcomes, create potential markets and beat potential competition (Banerjee, 2003).

T.D.Cs. may become institutionalized over a long period of time and form part of the company's knowledge creation system (Leonard-Barton, 1992). Authors such as Prahalad and Hamel (1990) suggest that the organization's collective learning is based on distinctive competencies, including technological competencies. As a knowledge creation process, organizational learning is influenced by the development of T.D.Cs. (Real *et al*., 2006). Andreu and Ciborra (1996) share this idea and observe that the development of central competencies (e.g. T.D.Cs.) is linked to the process of organizational learning. Technological competencies constitute the roots of a firm's sustainable competitive advantage, since the competencies comprise patents protected

by law, technological knowledge, and production skills that are valuable and difficult for competitors to imitate (Lee *et al*., 2001). Such competencies are obviously even more central in high-technology firms (e.g., Lee *et al*., 2001; Tushman and Anderson, 1986) because they comprise technological knowledge—internal know-how generated by R&D and other technology-specific intellectual capital such as organizational learning (Lee *et al*., 2001). Organizational learning programs make possible effective incorporation of the firm's T.D.Cs. into the firm's organizational context, making them apparent on all organizational levels and giving them meaning (Andreu and Ciborra, 1996).

Along similar lines, Amit and Schoemaker (1993) state that developing competencies involves organizational learning about how to combine and use resources, as well as the learning already embedded in the organizational routines employed. Organizational learning thus takes place within a firm's organizational context, which is dependent on core capabilities and competencies and crucial for making them difficult to imitate, encouraging sustainable and durable advantages (Andreu and Ciborra, 1996, Leonard-Barton, 1992).

An educational system or organizational learning program is required for the entire production staff, involving both classroom education and on-the-job training to exploit technological competencies (Alvarez and Barney, 2007; Leonard-Barton, 1992; Snow and Hrebiniak, 1980). Management actions aim at giving learning processes the appropriate direction at any point in time (Argyris, 1993). The goal is for employees to understand T.D.Cs. (Real *et al*., 2006) on all levels of the organization so that the organization can obtain a competitive advantage and stand out from its competitors (Ciborra and Lanzara, 1990; Real *et al*., 2006). Based on this literature, we propose the following hypothesis:

Hypothesis 7: T.D.Cs. will be positively related to organizational learning in technological organizations

T.D.Cs. are typical of entrepreneurs who support the generation of corporate entrepreneurship (Snow and Hrebiniak, 1980). These entrepreneurs have exceptional skills or distinctive competencies that enable corporate entrepreneurship by distinguishing the technological competencies (Leonard-Barton, 1992; Snow and Hrebiniak, 1980). Entrepreneurs are able to invent their way out of difficulties using

their technological excellence (Leonard-Barton, 1992). Before a project is over, entrepreneurs run a customized assembly and test line for the new storage device. T.D.Cs. enable entrepreneurship (Leonard-Barton, 1992; Rerup; 2005).

Technology-intensive firms should be more flexible in order to combine their technology with other complementary assets, such as managers' competencies in exploiting international growth opportunities (Autio *et al*., 2000). For Fosfuri and Tribó (2008), the ownership of technological competencies has great value as an indicator, promoting the firm's reputation as a producer of high-quality managers, that is, of entrepreneurs. Woolley (2010) applies this insight to technological firms and underscores that T.D.Cs. provide opportunities for entrepreneurs in the firm. Technological competencies provide an ownership advantage that enables entrepreneurs to increase the firm's likelihood of survival (Giarratana and Torrisi, 2010).

New technological assets produce technological discontinuities. Since technological assets open a space of opportunity for new entrants to develop and to exploit nascent technology (Alvarez and Barney, 2007), these assets provide opportunities for entrepreneurs to exploit nascent innovations (Woolley, 2010). These discontinuities in the firm eliminate some entry barriers, such as existing scale economies (Yip, 1982) and competency stocks (Tushman and Anderson, 1986). Reduction of entry barriers can attract entrepreneurs with technological know-how (Dean and Meyer, 1996). Successful potential entrepreneurs identify such opportunities through technology (Alvarez and Barney, 2007); that is, T.D.Cs. present an opportunity for corporate entrepreneurship, as potential entrepreneurs are more likely to exploit an opportunity when they can perceive demand (Choi and Shepherd, 2004). Without the identification of opportunities, corporate entrepreneurship is "fruitless" (Dean and Meyer, 1996), as it does not demonstrate its technological competencies (Shane and Venkatraraman, 2000). Particularly in a sector such as software, in which user-driven innovations are a major source of product creation, technological competencies can aid in the interpretation or anticipation of customer needs, leading to viable solutions (Torrisi, 1998).

T.D.Cs. are a necessary but not a sufficient condition for generating a sustainable competitive advantage (Giarratana and Torrisi, 2010). Such advantage requires that T.D.Cs. be combined with other complementary assets (e.g., exceptional skills managers—entrepreneurs—manufacturing, marketing) that the firm may or may not be able to develop or acquire and which could have negative consequences for profitability

(Teece, 1986). If T.D.Cs. are fulfilled by entrepreneurs, a company may well obtain a sustainable competitive advantage (Teece, 1986).

Thus, the entrepreneur must take existing technological knowledge and assimilate it to obtain T.D.Cs. The entrepreneur must identify potential market opportunities and then act upon them (Woolley, 2010) to obtain an outstanding advantage. T.D.Cs. are thus a brilliant way for entrepreneurs in the corporation to demonstrate their technological knowledge. Consequently, we formulate the following hypothesis:

Hypothesis 8: T.D.Cs. will be positively related to corporate entrepreneurship in technological organizations

3.3.4 The influence of organizational learning on corporate entrepreneurship

Organizational learning models are usually appropriate for the study of corporate entrepreneurship (García *et al*., 2006). When used strategically, organizational learning and information systems promote entrepreneurial actions by efficiently filtering, sorting, routing, and contextualizing relevant information for senior managers (Simsek *et al*., 2009). Information flows lead us to expect that organizational learning is positively related to corporate entrepreneurship (Antoncic, 2007; Antoncic and Hisrich, 2001). The quality and quantity of organizational learning are essential for successful entrepreneurial initiation and implementation (Antoncic, 2007; Zahra, 1991). In firms that are implementing an organizational learning culture, employees will have more precise knowledge for innovation and will make a greater effort to achieve corporate entrepreneurship more efficiently (Benitez *et al*., 2010). In addition, managers use the organizational learning models in making strategic decisions as they capture the firm's capability for sharing, synthesizing, and applying this information to entrepreneurial ends. Simsek *et al*. (2009) consider organizational learning to be a central mechanism in an organization, a mechanism that is likely to grant the firm an adaptive advantage via corporate entrepreneurship.

An organization committed to organizational learning usually has greater innovativeness than its competitors (Damanpour, 1991), encouraging corporate entrepreneurship (Antoncic and Hisrich, 2001). This organization closely monitors competitors' actions in the market, understands the strengths and weaknesses of rivals, and learns not only from their successes but also from their failures (Damanpour, 1991;

Lant and Mezias, 1990), enhancing high innovation capability and high corporate entrepreneurship (Antoncic and Hisrich, 2001).

Successful corporate entrepreneurship is frequently conditional on the knowledge of entrepreneurs (Hambrick and Mason, 1984), who constantly develop their competencies, skills and techniques and acquire specific knowledge in order to survive and innovate with new entrepreneurial opportunities in their industries (Omerzel and Antoncic, 2008). Many organizations make considerable efforts to build systems for acquiring and disseminating knowledge, developing organizational learning processes for all employees in the firm so that they may achieve corporate entrepreneurship (Leonard-Barton, 1992; Omerzel and Antoncic, 2008). Analyzing behavioural learning, Rerup (2005) indicates that entrepreneurs learn from success by repeating what they do well and learn from failure by changing or abandoning what they are doing poorly. He also underscores that mindfulness and mindlessness in organizational learning can affect entrepreneurs' efforts to discover and exploit opportunities. If an organization wishes to have well-constructed corporate entrepreneurship, entrepreneurs should view the need for different knowledge in different growth periods as characteristic and thus continuously develop organizational learning processes to satisfy their need for knowledge (Omerzel and Antoncic, 2008).

Organizational learning is normally analyzed as an antecedent of entrepreneurship, which increases the organization's capability to carry out actions to improve organizational performance (e.g., García *et al*., 2006). Corporate entrepreneurship requires an organizational learning framework that involves search activities such as expending resources on the exploration of alternative possibilities, attempting to understand the relationship between organizational characteristics and outcomes, and determining the viability of organizational change (García *et al*., 2006; Lant and Mezias, 1990). Thus, organizational learning is expected to be positively related to corporate entrepreneurship (Antoncic, 2007). Based on the previous literature, we formulate the following hypothesis:

Hypothesis 9: Organizational learning will be positively related to corporate entrepreneurship in technological organizations

3.3.5 The influence of corporate entrepreneurship on organizational performance

Corporate entrepreneurship is a strategic variable in successful organizations (Antoncic and Hisrich, 2001; Antoncic and Prodan, 2008; Kanter, 1984; Miles and Covin, 2002). It is positively related to the firm's growth and profitability (Covin and Slevin, 1991; Zahra, 1991, 1993). Organizations that engage in entrepreneurial activities achieve higher levels of growth and profitability than organizations that do not (Antoncic and Hisrich, 2001). A study by Zahra and Garvis (2000) shows that international corporate US companies' entrepreneurship was positively associated with the firm's overall profitability and growth, as well as its foreign profitability and growth. Furthermore, corporate entrepreneurship enables organizational performance (Antoncic and Prodan, 2008). Entrepreneurs who identify their firms' positions in the competitive network of the industry correctly strengthen and engage opportunities and neutralize the negative implications of threats and weaknesses, thus obtaining higher performance. This position may in fact lead to greater entrepreneurial opportunities in the form of new sales and supplier contracts, access to advertising channels, financial capital and important decisions, and participation in alliances and joint projects (Batjargal, 2007). Wood and McKinley (2010) suggest that entrepreneurs are not simply filters and interpreters of information; rather, they are an integral part of opportunity emergence, as they invent part of what they believe to be viable in order to improve organizational performance (Weick, 1979).

Nevertheless, it is not expected that all firms will demonstrate strong corporate entrepreneurship and, then, a higher performance (Lengnick-Hall, 1992). For instance, some organizations avoid responding to the need for change as long as possible. It is only when a firm begins to pay an economic price that an adjustment is made (Lengnick-Hall, 1992). This adjustment includes stronger strategic flexibility in the firm, which means seeking a proactive position focused on corporate entrepreneurship (Batjargal, 2007). In other situations, the relationship is produced among specific corporate entrepreneurship activities and organizational performance. In this sense, Zahra (1993) suggests that venture and renewal activities that match the demands of the environment will pay off by improving competitive position, performance, or both. Freel (2000) underscores the importance of innovation in organizational performance by showing that small innovating firms have more development and higher organizational performance than small non-innovating firms.

Zahra (1993) also suggests that not all corporate entrepreneurship activities are useful in all environments. From a constructivist viewpoint, Wood and McKinley (2010) establish that the entrepreneur does not predict the future (Kirzner, 1979), but rather focuses on the elements of the social structure and environment that he or she can control. They argue that entrepreneurs are active in shaping their environments, and entrepreneurial opportunities arise from the efforts of individual entrepreneurs as they develop pathways to achieve a better organizational performance.

For technological organizations, various current studies indicate a positive relationship between corporate entrepreneurship and organizational performance. Pearce *et al*. (2010) assert that corporate entrepreneurship has a positive effect on commercial organizations, as it leads to a beneficial first-mover advantage. Audretsch *et al*. (2008) show that positive economic performance in high-tech or information and communication technology companies depends on entrepreneurship capital, the capacity of a region to support entrepreneurs. Based on previous literature, the following hypothesis is proposed:

Hypothesis 10: Corporate entrepreneurship will be positively related to organizational performance in technological organizations

3.4 Methodology

This section presents the research methodology used in this study. We first describe the sample used and then discuss how each of the variables included in the study is operationalized. Finally, we present the statistical analysis.

3.4.1 Sample and Procedure

The first necessary step in an empirical study is selecting the population to be analyzed. The population for this study consisted of technological organizations possessing the greatest turnover in Spain. Technological organizations are firms that place emphasis on an orientation towards R&D and on innovativeness and entrepreneurship and that maintain a special pattern of work relations (a corporate culture of technology). These elements describe shared values, beliefs and symbols, as well as the way things are done in the firm (Grinstein and Goldman, 2006). The sample

was selected by means of a stratified sampling with proportional allocation (size and geographical location) from the database Dun & Bradstreet España (2003). Choosing a sample of firms located in a relatively homogeneous geographical, cultural, legal and political space enables us to minimize the impact of the variables that cannot be controlled in the empirical research (Hofstede, 1980). The Spanish market is relatively well developed and wholly integrated in the European Union. However, Spain is in a geographical area that has received relatively little attention from organizational researchers in the field of technological competencies.

Drawing on our knowledge about key dimensions of this investigation, previous contacts with interested managers and scholars and new interviews with managers and academics interested in these strategic variables, we developed a structured questionnaire to investigate how organizations face these issues. We then established a reliable list of the CEOs of the organizations, with the help of partial funding from the Spanish Ministry of Science and Research and the government department of Economy, Innovation and Science of the autonomous government of Andalusia. We omitted the responses of the interviewees in this first stage from the subsequent analysis of the survey data.

CEOs were our main informants, since they manage a great deal of information in all departments in the company. Furthermore, they constitute a valuable source for evaluating and moulding the different variables under study throughout the organization by determining the types of behaviour that are expected and supported (Baer and Frese, 2003). CEOs were also chosen as informants because they are ultimately responsible for plotting the organization's direction and plans, as well as for guiding the actions carried out to achieve them (Westphal and Fredickson, 2001).

Surveys were mailed to the 1000 selected organizations along with a cover letter. We used this method because it enabled us to reach a greater number of organizations at a lower cost, to exert less pressure for immediate reply, and to provide the interviewees with a greater sense of autonomy. The cover letter explained the goal of the study and offered recipients the option of receiving the results once the study was completed. It also explained that all responses obtained in the questionnaires would be used on an aggregate level to prevent the identification of any organization in order to reduce desirability bias. We told interviewees that they would soon receive the questionnaire

and reiterated the necessity that the person chosen answer it, even at the cost of receiving fewer responses.

We mailed each manager who had not yet responded two reminders. 226 valid questionnaires were returned, but because of missing values only 201 questionnaires were included in the research. The response rate was 20.1 % (Table 1). Characteristics of the responding businesses were compared to those of the nonresponding businesses to reduce the possibility of non-response bias. The results for return on assets, return on equity, return on sales and number of employees indicated that there was no significant difference among respondents and nonrespondents. We did not find significant difference between early and late respondents (Armstrong and Overton, 1977). Nor did we find significant differences due to geographical location or size in the variables studied in the different tests, such as the chi-square and t-tests. Since all measures were collected with the same survey instrument, the possibility of common method bias was tested using Harman's one-factor test (see Konrad and Linnehan, 1995). A principal components factor analysis of the questionnaire measurement items yielded five factors with eigenvalues greater than 1.0, which accounted for 69 percent of the total variance. A substantial amount of method variance does not appear to be present, since several factors, not just one single factor, were identified and because the first factor did not account for the majority of the variance (Podsakoff and Organ, 1986).

TABLE 3.1: Technical details of the research

Sectors	High-tech services (computer science activities, research and development services, postal and telecommunications services), high-tech manufacturing (chemical industry; aerospace construction; radio, television and communication manufacture; office machinery and computer science equipment; medical instruments, precision optics and watches)
Geographical location	Spain
Methodology	Structured questionnaire
Procedure	Stratified sample with proportional allocation (size)
Universe of population	50,000 firms
Sample (response) size	1000 (201) firms
Sample error	6.9%
Confidence level	95 %, p-q=0.50; Z=1.96
Period of collecting data	From April 2010 to May 2010

Source: Own elaboration

3.4.2 Measures

The use of constructs has played an important role in designing a survey instrument in management research. In any research concerning behavioural elements, no device using a single metric unit can measure precisely, and researchers usually employ two or more measures to gauge a construct or scale. Given that developing new constructs or scales of measurement is a complex task, wherever possible we use pre-tested constructs from past empirical studies to ensure their validity and reliability.

Organizational Slack: Using scales established by Real *et al*. (2006), we drew up a three-item scale (see Appendix) to reflect organizational slack. We developed a confirmatory factor analysis to validate our scales. The scale was unidimensional and showed high reliability (α=.942).

Technological Skills: We used the scales designed by Ray *et al*. (2005) and Byrd and Davidson (2003) and established a scale of four items (Appendix) to reflect technological skills. Using a confirmatory factor analysis (χ^2_2=9.04; Normed Fit Index, NFI=.99; Non-Normed Fit Index, NNFI=.97; Goodness of Fit Index, GFI=.99; Comparative Fit Index, CFI=.99), we validated our scales and then verified each scale's unidimensionality and its high validity and reliability (α=.879).

Technological Infrastructure: Using scales established by Ravichandran and Lertwongsatien (2005), we drew up a six-item scale (Appendix) to reflect technological infrastructure. We developed a confirmatory factor analysis to validate our scales (χ^2_9=13.06; NFI=.98; NNFI=.99; GFI=.99; CFI=.99). The scale was unidimensional and showed high reliability (α=.880).

T.M.S.: Using scales established by Byrd and Davidson (2003) and Ray *et al*. (2005), we drew up a four-item scale (Appendix) to reflect top management support. We developed a confirmatory factor analysis to validate our scales (χ^2_2=11.42; NFI=.99; NNFI=.98; GFI=.99; CFI=.99). The scale was unidimensional and showed high reliability (α=.926).

T.D.Cs.: Using scales established by Real *et al*. (2006), we drew up a four-item scale (Appendix) to reflect T.D.C.s in the organization. We developed a confirmatory factor analysis to validate our scales (χ^2_5=16.86; NFI=.99; NNFI=.99; GFI=.99; CFI=.99). The scale was unidimensional and showed high reliability (α=.923).

Organizational Learning: We used the scale of four items developed by Aragón *et al*. (2007) and García *et al*. (2006, 2008) to measure organizational learning (Appendix).

These items have been duly adapted to the present study. We developed a confirmatory factor analysis to validate the scales (χ^2_2=5.74, NFI=.99, NNFI=.99, GFI=.99, CFI=.99) and showed that the scale was unidimensional and had adequate validity and reliability (α=.908). A 7-point Likert scale (1 '*totally disagree'*, 7 '*totally agree'*) for this and all prior variables allowed managers to express agreement or disagreement.

Corporate Entrepreneurship: We used five items developed by Knight (1997) to measure proactiveness, five items developed by Zahra (1993) to measure new business venturing, eight items developed by Zahra (1993) to measure self-renewal, and six items developed by Zahra (1993) to measure organizational innovation. These items have been duly adapted to the present study (Appendix). We calculated the arithmetical mean of these items (a high score indicated good level of proactiveness, new business venturing, self-renewal and organizational innovation) and obtained a four-item scale of corporate entrepreneurship. We developed a confirmatory factor analysis to validate the scale of corporate entrepreneurship (χ^2_2=16.39, NFI=.98, NNFI=.95, GFI=.99, CFI=.98) and showed that the scale was unidimensional and had adequate validity and reliability (α=.867).

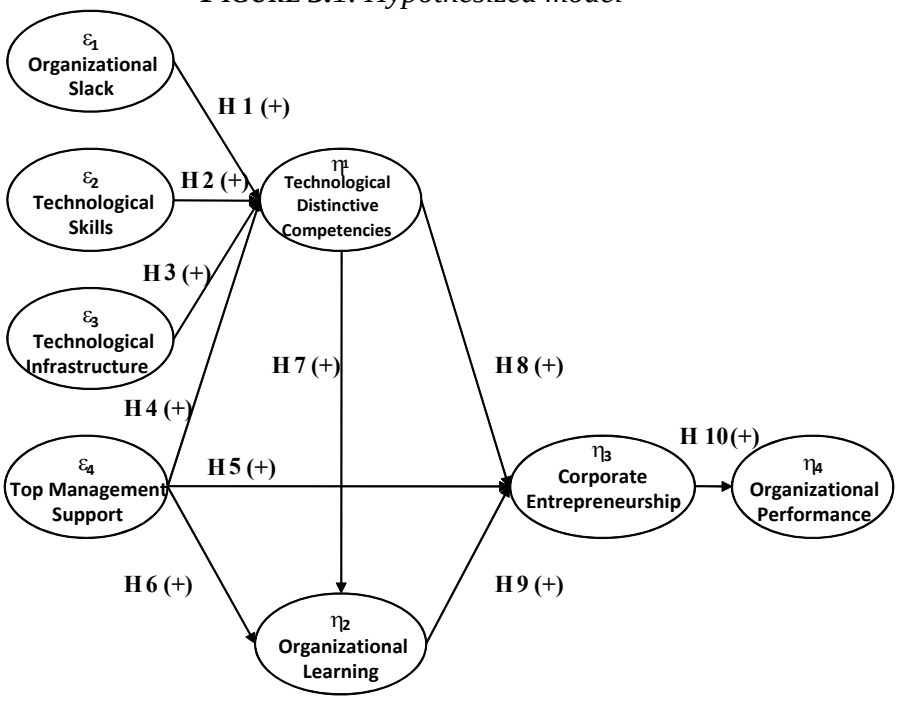
Organizational Performance: After reviewing how performance is measured in different works of strategic research, we used the scale of five items developed by Murray and Kotabe (1999). The use of scales for evaluating performance relative to the main competitors is one of the most widely-employed practices in recent studies (Choi *et al*., 2008; Douglas and Judge, 2001). Many researchers have used managers' subjective perceptions to measure beneficial outcomes for firms. Others have preferred objective data, such as return on assets. The literature has established widely that there is a high correlation and concurrent validity between objective and subjective data on performance, which implies that both are valid when calculating a firm's performance (Homburg *et al*., 1999; Venkatraman and Ramanujan, 1986). We included questions involving both types of assessment in the interviews, but the CEOs were more open to offering their general views than to offering precise quantitative data. When possible, we calculated the correlation between objective and subjective data, and these were high and significant. We developed a confirmatory factor analysis to validate the scales (χ^2_5 = 34.92, NFI=.97, NNFI=.95, GFI=.98, CFI=.97) and showed that the scale was unidimensional and had high reliability (α= .864). We used a Likert-type 7-point scale (1 *"Much worse than my competitors,"* 7 *"Much better than my competitors"*) to ask

about the organization's performance as compared with that of its most direct competitors.

3.4.3 Model and analysis

Data were analyzed through a structural equation model (LISREL 8.30 program) to determine the existence of exogenous latent variables (organizational slack [ξ_1], technological skills [ξ_2], technological infrastructure [ξ_3], T.M.S. [ξ_4]), first-grade endogenous latent variable (T.D.Cs. [η_1]) and second-grade endogenous latent variables (organizational learning [η_2], corporate entrepreneurship [η_3], organizational performance [η_4]) and to establish the causal relationships among these variables. This process allowed us to translate the theoretical constructs into mathematical models so that the constructs could be estimated and evaluated empirically (Jöreskog and Sorbom, 1996). The hypotheses are plotted graphically in the theoretical model presented in Figure 1. We used a recursive non-saturated model. Structural equation modelling takes into account errors in measurement, variables with multiple indicators and multiple-group comparisons (Koufteros *et al*., 2009).

FIGURE 3.1. *Hypothesized model*

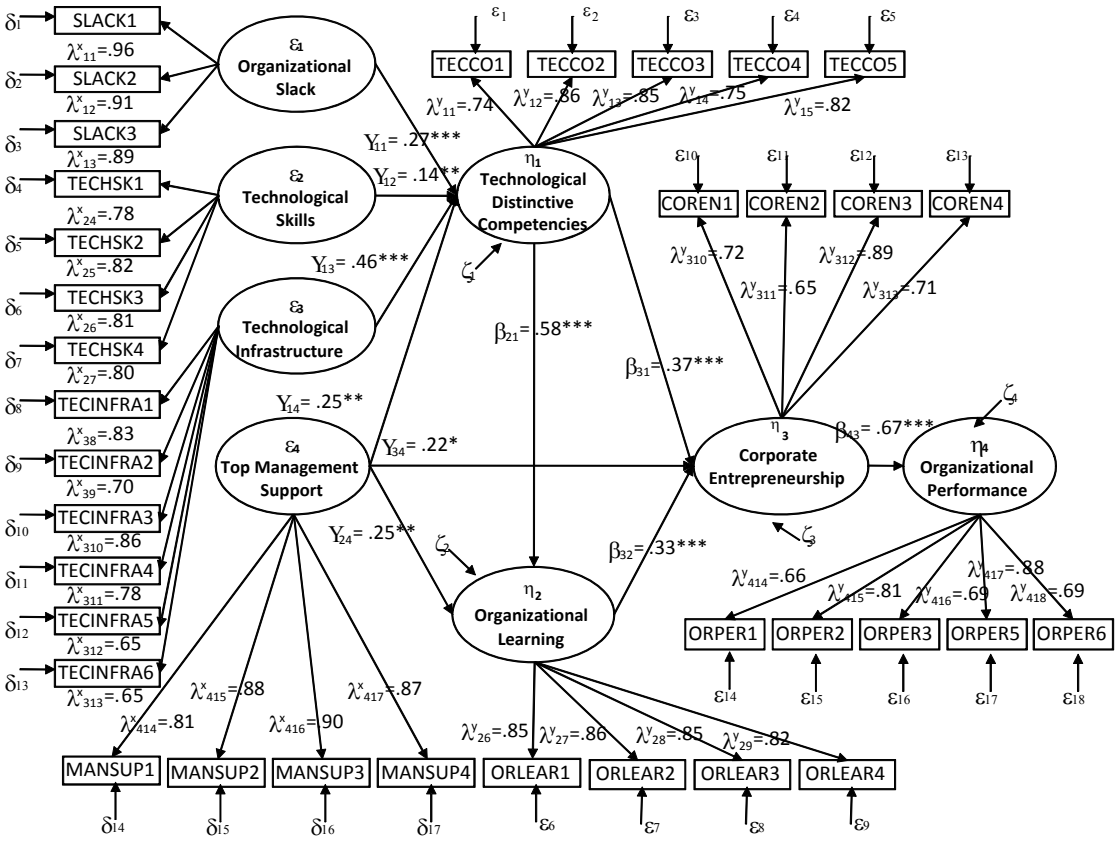


Source: Own elaboration.

3.5 Results

In this section, we present the main research results. First, Table 2 shows the means and standard deviations as well as the inter-factor correlation matrix for the study variables. There are significant and positive correlations among organizational slack, technological skills, technological infrastructure, T.M.S., T.D.Cs., organizational learning, corporate entrepreneurship and organizational performance. A second, structural equation modelling was performed to estimate direct and indirect effects using LISREL with the correlation matrix as input. This type of analysis has the advantage of correcting for unreliability of measures and also gives information on the direct and indirect paths between multiple constructs after controlling for potentially confounding variables. Figure 2 shows the standardized structural coefficients. The relative importance of the variables is reflected by the magnitude of the coefficients.

***FIGURE** 3.2. Results of structural equation model*



Source: Own Elaboration.

TABLE 3.2: Means, standard deviations and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8
1. Organizational Slack	4.215	1.649	1.000							
2. Technological Skills	4.891	1.280	.413***	1.000						
3. Technological Infrastructure	5.301	1.167	.469***	.515***	1.000					
4. Top Management Support	4.706	1.438	.585***	.448***	.515***	1.000				
5. Tech. Dist. Competencies	4.742	1.302	.555***	.557***	.609***	.622***	1.000			
6. Organizational Learning	4.791	1.404	.564***	.415***	.507***	.570***	.569***	1.000		
7. Corporate Entrepreneurship	4.339	1.154	.595***	.468***	.454***	.537***	.514***	.541***	1.000	
8. Organizational Performance	4.477	0.987	.473***	.353***	.408***	.390***	.438***	.464***	.505***	1.000

Note: *p<.05;**p<.01;***p<.001(two-tailed). n=201.
Source: Own elaboration

For quality of the measurement model for the sample, the constructs display satisfactory levels of reliability, as indicated by composite reliabilities ranging from 0.84 to 0.94 and shared variance coefficients ranging from 0.54 to 0.84 (Table 3). Convergent validity can be judged by observing both the significance of the factor loadings and the shared variance. The amount of variance shared or captured by a construct should be greater than the amount of measurement error (shared variance >0.50). All of the multi-item constructs meet this criterion, each loading (λ) being significantly related to its underlying factor (t-values >18.31) in support of convergent validity. To assess discriminant validity, we performed a series of chi-square difference tests on the factor correlations among all constructs (Anderson and Gerbing, 1988). We did this for each pair of latent variables by constraining the estimated correlation parameter between them to 1.0 and then performing a chi-square difference test on the values obtained for the constrained and unconstrained models (Anderson and Gerbin, 1988). The resulting significant differences in chi-square indicate that the constructs are not perfectly correlated and that discriminant validity is achieved.

TABLE 3.3: Validity, reliability and internal consistency

Variable	Item	Parameter	Validity, reliability and internal consistency		
			λ*	R^2	A. M.
Organizational Slack	SLACK1	λ^x_{11}	0.96***(f.p.)	0.92	α=0.942
	SLACK2	λ^x_{12}	0.91***(26.88)	0.83	C.R.=0.942
	SLACK3	λ^x_{13}	0.89***(26.35)	0.79	S.V.=0.846
Technological Skills	TECHSK1	λ^x_{24}	0.78***(f.p.)	0.60	α=0.879
	TECHSK2	λ^x_{25}	0.82***(21.26)	0.67	C.R.=0.878
	TECHSK3	λ^x_{26}	0.81***(21.43)	0.66	S.V.=0.644
	TECHSK4	λ^x_{27}	0.80***(21.33)	0.65	
Technological Infrastructure	TECINFRA1	λ^x_{38}	0.83***(f.p.)	0.68	α=0.880
	TECINFRA2	λ^x_{39}	0.70***(23.37)	0.50	C.R.=0.877
	TECINFRA3	λ^x_{310}	0.86***(25.58)	0.74	S.V.=0.547
	TECINFRA4	λ^x_{311}	0.78***(24.56)	0.60	
	TECINFRA5	λ^x_{312}	0.65***(22.51)	0.53	
	TECINFRA6	λ^x_{313}	0.65***(22.40)	0.52	
Top Management Support	MANSUP1	λ^x_{414}	0.81***(f.p.)	0.66	α=0.926
	MANSUP2	λ^x_{415}	0.88***(28.09)	0.78	C.R.=0.922
	MANSUP3	λ^x_{416}	0.90***(28.19)	0.80	S.V.=0.749
	MANSUP4	λ^x_{417}	0.87***(27.86)	0.76	
Technological Distinctive Competencies	TECCO1	λ^y_{11}	0.74***(f.p.)	0.55	α=0.923
	TECCO2	λ^y_{12}	0.86***(31.21)	0.74	C.R.=0.902
	TECCO3	λ^y_{13}	0.85***(31.24)	0.73	S.V.=0.650
	TECCO4	λ^y_{14}	0.75***(29.43)	0.56	
	TECCO5	λ^y_{15}	0.82***(30.74)	0.68	
Organizational Learning	ORLEAR1	λ^y_{26}	0.85***(f.p.)	0.73	α=0.908
	ORLEAR2	λ^y_{27}	0.86***(29.21)	0.74	C.R.=0.909
	ORLEAR3	λ^y_{28}	0.85***(29.07)	0.72	S.V.=0.714
	ORLEAR4	λ^y_{29}	0.82***(28.28)	0.67	
Corporate Entrepreneurship	COREN1	λ^y_{310}	0.72***(f.p.)	0.53	α=0.867
	COREN2	λ^y_{311}	0.65***(23.82)	0.52	C.R.=0.841
	COREN3	λ^y_{312}	0.89***(27.74)	0.79	S.V.=0.574
	COREN4	λ^y_{313}	0.71***(25.08)	0.50	
Organizational Performance	PERFOR1	λ^y_{414}	0.66***(f.p.)	0.53	α=0.864
	PERFOR2	λ^y_{415}	0.81***(20.11)	0.66	C.R.=0.873
	PERFOR3	λ^y_{416}	0.69***(18.31)	0.51	S.V.=0.583
	PERFOR5	λ^y_{417}	0.88***(19.43)	0.77	
	PERFOR6	λ^y_{418}	0.69***(18.61)	0.52	

Note: λ* = Standardized Structural Coefficient; R^2 = Reliability; α = Alpha Cronbach; C. R. = Compound Reliability; S. V. = Shared Variance; f. p. = fixed parameter; A. M. = Adjustment Measurement; *p < .05; ** p < .01; *** p < .001(two-tailed).

Source: Own elaboration.

The overall fit measures, multiple squared correlation coefficients of the variables (R^2s), and signs and significance levels of the path coefficients all indicate that the model fits the data well_(χ^2_{544}=1218.16, p>.001; χ^2_{ratio}=2.23; NFI=.98; NNFI=.99; GFI=.99, CFI=.99, IFI=.99, PGFI=.85). The hypothesized model was a significantly better fit than the null model_(χ^2_{595}=23472.77, p>.001; $\Delta\chi^2_{51}$=22254.61, p>.001). All of the modification indices for the beta pathways between major variables were small, suggesting that adding additional paths would not significantly improve the fit. The residuals of the covariances were also small and centred around zero.

If we examine the standardized parameter estimates (Table 4), the findings show that organizational slack (γ_{11}=.27, p<.001), technological skills (γ_{12}=.14, p<.01), technological infrastructure (γ_{13}=.46, p<.001) and T.M.S. (γ_{14}=.25, p<.01) are related to

and affect T.D.Cs., as predicted in Hypotheses 1, 2, 3 and 4, respectively. Comparing the magnitudes of these effects indicates that the effect of technological infrastructure on T.D.Cs. is larger than the effect of organizational slack, technological skills and T.M.S. on T.D.Cs. Globally, T.D.Cs. are explained well by the model (R^2=.88). T.M.S. affects corporate entrepreneurship directly (γ_{34}=.22, p<.05). Furthermore, we have shown an indirect effect (.23, p<.001) of T.M.S. on corporate entrepreneurship by T.D.Cs. (.25x.37; see, for instance, Bollen, 1989 for calculation rules), organizational learning (.25x.33), and T.D.Cs.–organizational learning (.25x.58x.33). The global influence of T.M.S. on corporate entrepreneurship is thus 0.45 (p<.001), supporting Hypothesis 5. Organizational learning is directly influenced by T.M.S. (γ_{24}=.25, p<.01). Furthermore, we haves shown an indirect effect (.15, p<.05) of T.M.S. on organizational learning by T.D.Cs. (.25x.58). The global influence of T.M.S. on organizational learning is thus 0.40 (p<.001), supporting Hypothesis 6. Organizational learning is also influenced by T.D.Cs. (β_{21}=.58, p<.001), supporting Hypothesis 7. Comparing the magnitudes of these effects indicates that the effect of T.D.Cs. on organizational learning is larger than the effect of T.M.S. on organizational learning. Globally, organizational learning is explained well by the model (R^2=.64).

Corporate entrepreneurship is influenced by T.D.Cs. (β_{31}=.37, p<.001) and organizational learning (β_{32}=.33, p<.001), supporting Hypotheses 8 and 9, respectively. Furthermore, we have shown an indirect effect (.19, p<.001) of T.D.Cs. on corporate entrepreneurship by organizational learning (.58x.33). The global influence of T.D.Cs. on corporate entrepreneurship is thus 0.56 (p<.001). Comparing the magnitudes of these effects indicates that the total effect of T.D.Cs. on corporate entrepreneurship is larger than the total effect of T.M.S. or organizational learning on corporate entrepreneurship. Globally, corporate entrepreneurship is explained well by the model (R^2=.73). Finally, for organizational performance, we find a significant relationship with corporate entrepreneurship (β_{43}=.67, p<.001), supporting Hypothesis 10. Globally, organizational performance is explained well by the model (R^2=.45). In addition to these effects, we have shown other indirect effects in Table 4.

TABLE 3.4: Structural Model Result (Direct, Indirect and Total Effects)

Effect from		To	Direct Effects [a]	*t*	Indirect Effects [a]	*t*	Total Effects [a]	*t*
Organizational Slack	→	Tech. Dist. Competencies	0.27***	3.60			0.27***	3.60
Organizational Slack	→	Organizational Learning			0.16***	3.49	0.16***	3.49
Organizational Slack	→	Corporate Entrepreneurship			0.16***	3.04	0.16**	3.04
Organizational Slack	→	Organizational Performance			0.10**	3.02	0.10**	3.02
Technological Skills	→	Tech. Dist. Competencies	0.14**	2.83			0.14**	2.83
Technological Skills	→	Organizational Learning			0.08**	2.83	0.08**	2.83
Technological Skills	→	Corporate Entrepreneurship			0.08*	2.52	0.08*	2.52
Technological Skills	→	Organizational Performance			0.05*	2.52	0.05*	2.52
Technological Infrastructure	→	Tech. Dist. Competencies	0.46***	8.38			0.46***	8.38
Technological Infrastructure	→	Organizational Learning			0.27***	6.15	0.27***	6.15
Technological Infrastructure	→	Corporate Entrepreneurship			0.26***	6.32	0.26***	6.32
Technological Infrastructure	→	Organizational Performance			0.17***	6.16	0.17***	6.16
Top Management Support	→	Tech. Dist. Competencies	0.25**	3.00			0.25**	3.00
Top Management Support	→	Organizational Learning	0.25*	2.88	0.15*	2.47	0.40***	5.85
Top Management Support	→	Corporate Entrepreneurship	0.22*	2.36	0.23***	4.39	0.45***	5.31
Top Management Support	→	Organizational Performance			0.30***	5.25	0.30***	5.25
Tech. Dist. Competencies	→	Organizational Learning	0.58***	7.10			0.58***	7.10
Tech. Dist. Competencies	→	Corporate Entrepreneurship	0.37***	4.01	0.19***	3.67	0.56***	6.25
Tech. Dist. Competencies	→	Organizational Performance			0.37***	6.09	0.37***	6.09
Organizational Learning	→	Corporate Entrepreneurship	0.33***	4.40			0.33***	4.40
Organizational Learning	→	Organizational Performance			0.22***	4.37	0.22***	4.37
Corporate Entrepreneurship	→	Organizational Performance	0.67***	19.20			0.67***	19.20
Goodness of Fit Statistics	χ^2_{544}=1218.16 (*P*>0.01) GFI=0.99 AGFI=0.98 ECVI=6.95 AIC=1390.16 CAIC=1760.25 NFI=0.98 NNFI=0.99 IFI=0.99 PGFI=0.85 NCP=674.16 RFI=0.98 CFI=0.99 RMSEA=0.079							

Notes: [a] Standardized Structural Coefficients; [†] $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.
Source: Own elaboration

In testing the theoretical framework, we fit several nested models, each incorporating different assumptions about parameters. Comparisons with reasonable alternative models are recommended as a means of showing that a hypothesized model is the best representation of the data. Comparison is considered to be an important part of assessing model fit (Bollen and Long, 1993). The summary statistics in Table 5 indicate that Model 1 was preferred to the others, supporting the inclusion of a model with these relationships among the analyzed constructs. For example, if we compare the theoretical model (Model 1) to a model that does not consider the relationship between T.D.Cs. and organizational learning (Model 5), we can see that the latter has a worse Root Mean Square Error of Approximation (>RMSEA=.002), Expected Cross-Validation Index (>ECVI=.23), Akaike Information Criterion (>AIC=46.68), Consistent Akaike Information Criterion (>CAIC=42.37) and Estimated Non-Centrality Parameter (>NCP=47.68). Hence, results show that T.D.C. transfer affects organizational learning and that Model 1 was preferred to Model 5 ($\Delta\chi^2$=48.68, Δdf=1). The theoretical model is also preferable to other models formulated (Table 5). Length restrictions prevent a detailed discussion of each model and of other models (a full report is available from the authors). In sum, the proposed theoretical model represents (Figure 2) the preferred, i.e. the most acceptable and parsimonious, model.

TABLE 3.5: Model Statistics against Theoretical Model

Model	Description	χ^2	*df*	$\Delta\chi^2$	RMSEA	ECVI	AIC	NCP	CAIC
1	Theoretical	1218.16	544		0.079	6.95	1390.16	674.16	1760.25
2	W.R. Org. Slack→Tech. Dist. Competencies	1234.00	545	15.84	0.080	7.02	1404.00	689.00	1769.78
3	W.R. Tech. Inf→Tech. Dist. Competencies	1600.13	545	381.97	0.098	8.85	1770.13	1055.13	2135.92
4	W.R. Top Man. Support→Corp. Entrepreneurship	1226.25	545	8.09	0.079	6.98	1396.25	681.25	1762.03
5	W.R. Org. Learning→Corp. Entrepreneurship	1240.84	545	22.68	0.080	7.05	1410.84	695.84	1776.62
6	W.R. Top Man. Support→Org. Learning	1238.24	545	20.08	0.080	7.04	1408.24	693.24	1744.02
7	W.R. Tech. Dist. Competencies→Org. Learning	1266.84	545	48.68	0.081	7.18	1436.84	721.84	1802.62
8	W.R. Corp. Entrepreneurship→Org. Performance	1228.79	545	10.63	0.080	7.03	1406.79	687.79	1789.78

Notes: W.R.=Without Relationship; n=201
Source: Own elaboration

3.6 Conclusions and future research

3.6.1 Discussion

Over the past 20 years, the business environment has become more competitive due to a move toward globalization, rapid technological changes, and increased sophistication in customers' and employees' behaviour (Jones *et al*., 2000). These changes, when coupled with the dramatic increase in computer processing power and data storage capability, have led to an incremental approach of investing in technology and in T.D.Cs. T.D.Cs. are extremely important for a company, since they refer to the process of competition by which the firm may achieve a better position than competitors, fostering beneficial behaviour not observed in other companies (Leonard-Barton, 1992) and developing a sustainable competitive advantage (Banerjee, 2003).

T.D.Cs. are promoted by technological variables such as organizational slack (Miller and Friesen, 1982), which imply achieving an excellent command of firm's assets; technological skills (Lee *et al*., 2001), which allow the firm to develop exceptional abilities that other firms do not have; technological infrastructure (Cantwell and Piscitello, 2002), which establishes a framework where new T.D.Cs. may be obtained by exploiting more effectively established technology in the company (Cantwell and Piscitello, 2002); T.M.S., whose effectiveness attracts technological capital; abundant material (Miller and Friesen, 1982); and technologically specialized human resources (Leonard-Barton, 1992).

Leonard-Barton (1992) has emphasized the need for organizational resources so that the organization may achieve T.D.Cs. A certain level of (technological) organizational slack is needed so that the company may take advantage of technological competencies (Bourgeois, 1981; Bradley *et al*., 2010; Dehning *et al*., 2004). Technological skills also

constitute the roots of a firm's sustainable competitive advantage if they are valuable and difficult for competitors to imitate (Lee *et al*., 2001). Such skills are obviously even more central in high-technology firms (e.g., Lee *et al*., 2001; Tushman and Anderson, 1986). Technological skills are complex, tacit and difficult to copy. Because they remain largely embedded in the routines and practices of the firm (Lee *et al*., 2001), they may serve to obtain competitive advantage. The foregoing implies maintenance of a flexible infrastructure that focuses on these technological competencies and seeks differentiation from the firm's competitors (Haro *et al*., 2010). A flexible infrastructure is crucial in developing T.D.Cs. that distinguish the firm from its competitors (Byrd and Turner, 2001). Rockart *et al*. (1996) attest that an effective infrastructure is a pre-requisite for doing business globally, where the sharing of information and knowledge is vital. In this global world, an effective flexible infrastructure is necessary for every firm that wishes to compete internationally (Rockart *et al*., 1996). T.M.S. also affects the development of T.D.Cs. because human, conceptual, and technological competency are thought to be supported by managerial effectiveness (Benitez *et al*., 2010). Thus, T.D.Cs. must be seen as a source of competitive advantage in the firm, as they open a space of opportunity for developing and exploiting a nascent technology that is truly difficult to imitate (Alvarez and Barney, 2007).

We must also take into account that T.D.Cs. and T.M.S. affect corporate entrepreneurship, both directly and indirectly through organizational learning. Nowadays we live in a world where globalization distinguishes people with the best remarkable skills from others, as the former have the ability habitually to discover and exploit opportunities (Covin and Slevin, 1991). These skilled people are usually recognized as entrepreneurs (Rerup, 2005) whose knowledge and capacity to discover those opportunities play pivotal role in corporate entrepreneurship (Omerzel and Antoncic, 2008). This corporate entrepreneurship is directly influenced by T.D.Cs., which may lead to greater entrepreneurial opportunities in the form of new sales, financial capital and important decisions (Batjargal, 2007); by T.M.S., which may increase technological capital and strengthen corporate entrepreneurship (Miller and Friesen, 1982); and by organizational learning, where corporate entrepreneurship permits the enterprise to differentiate itself from competitors through the specific knowledge of entrepreneurs (Rerup, 2005; Shane and Venkataraman, 2000; Srivastava and Lee, 2005).

T.D.Cs. and T.M.S. also influence corporate entrepreneurship indirectly through organizational learning (Alvarez and Barney, 2007; Autio *et al*., 2000; Batjargal, 2007; Hornsby *et al*., 1990; Rerup, 2005; Srivastava and Lee, 2005; Shane and Venkataraman, 2000), strengthening the importance of learning in the organization. Organizations can be considered cognitive entities, where organizational learning is the opportunity for new knowledge or insights, with the potential to influence individuals' behaviour, potentially leading employees to make important decisions to obtain higher organizational performance. Thus, organizational learning must be observed as a constant process that extends across time, allowing new abilities and knowledge to be developed (García *et al*., 2006), increasing an organization's capability to carry out actions and improving organizational performance (Senge *et al*., 1994). In the field of technology firms, it seems advisable to highlight that only firms endowed with strong technological competencies can understand technological problems promptly and find satisfactory solutions (Autio *et al*., 2000), and such competencies require organizational learning (Andreu and Ciborra, 1996; Chenhall, 2005; González and Nieto, 2005; Leonard-Barton, 1992).

Finally, we wish to emphasize that corporate entrepreneurship in technological firms leads to a higher performance (Antoncic and Prodan, 2008; Batjargal, 2007). Corporate entrepreneurship is beneficial to the revitalization and performance of large corporations, as well as that of small and medium enterprises (Antoncic and Hisrich, 2001). It allows the recognition of opportunities and increases the benefits for the companies (Andreu and Ciborra, 1996; Shane and Venkataraman, 2000). Organizations that engage in entrepreneurial activities achieve higher levels of growth and profitability than organizations that do not (Antoncic and Hisrich, 2001), thereby obtaining higher performance (Antoncic and Prodan, 2008; Zahra, 1991).

3.6.2 Limitations and future research

The investigation presented exhibits several limitations that should be considered. First, survey data based on self-reports may be subject to social desirability bias (Podsakoff and Organ, 1986). However, an assurance of anonymity can reduce such bias even when responses are related to sensitive topics (Konrad and Linnehan, 1995). The low risk of social desirability bias in this study was indicated by several managers who commented that it made no sense at all for their companies to go beyond regulatory compliance. Still, the responses are subject to interpretation by individual managers.

Second, although Harman's one-factor test and other method tests did not identify common method variance as a problem, it still might have been (Podsakoff and Organ, 1986; Konrad and Linnehan, 1995). Although Spector (2006) has argued that it is incorrect to assume that the use of a single method automatically introduces systematic bias, we recommend that future research gather measures of independent and dependent variables from different data sources to minimize the effects of any response bias (Podsakoff *et al*., 2003).

Third, our data are cross-sectional, making it difficult to examine the evolution of the different variables in our study. This aspect is of particular interest when considering the dynamic nature of some of our variables. Although we tested the most plausible directions for the pathways in our model, longitudinal research is needed to assess the direction of causality of the relationship and to detect possible reciprocal processes. We have tried to temper this limitation through attention to theoretical arguments by rationalizing the relationships analyzed and integrating temporal considerations into measurement of the variables (Hair *et al*., 1999). Fourth, future studies should be based on a larger sample, preferably in more than one country and in other sectors. As this study focuses only on Spanish firms, an empirical research paper could study the same relationship in Europe in order to generalize the results throughout the European economy, and subsequently throughout the world.

Finally, the model only analyzes the relation of T.D.Cs. (influenced by organizational slack, technological skills, technological infrastructure, T.M.S.), T.M.S. and organizational learning on organizational performance through corporate entrepreneurship. It should be noted that the variables selected explain an acceptable amount of the variance in organizational performance. However, other intermediate constructs could be analyzed, such as absorptive capacity or knowledge management (e.g., García *et al*., 2006; Nonaka and Takeuchi, 1995). We might also examine other consequences of introducing corporate entrepreneurship and learning processes in organizations (e.g. quality improvement, staff satisfaction, improvements in relational capacity). The homogeneous geographical context examined here, limits the influence of external factors, but future research might well explicitly integrate the influences of external factors (Aragón and Sharma, 2003). More empirical papers supporting (or rejecting) our results, in different contexts, would be welcomed (especially longitudinal studies).

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3.8 References

Alvarez, S.A. and Barney, J.B. (2007), "Discovery and creation: alternative theories of entrepreneurial action", *Strategic Entrepreneurship Journal*, Vol. 1 No. 1-2, pp. 11-26.

Amit, R. and Schoemaker, P.J.H. (1993), "Strategic assets and organizational rent", *Strategic Management Journal*, Vol. 14, pp. 33-46.

Anderson, J. C. and Gerbing, D. W. (1988), "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach", *Psychological Bulletin*, Vol. 103 No. 3, pp. 411-423.

Andreu, R. and Ciborra, C. (1996), "Organisational learning and core capabilities development: The role of IT", *Journal of Strategic Information Systems*, Vol. 5, pp. 111-127.

Antoncic, B. (2007), "Intrapreneurship: a comparative structural equation modelling study", *Industrial Management & Data Systems*, Vol. 107 No. 3, pp. 309-325.

Antoncic, B. and Hisrich, R.D. (2001), "Intrapreneurship: construct refinement and cross-cultural validation", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 495-527.

Antoncic, B. and Prodan, I. (2008), "Alliances, corporate technological entrepreneurship and firm performance: Testing a model on manufacturing firms", *Technovation*, Vol. 28, pp. 257–265.

Aragón -Correa, J.A. and Sharma, S. (2003), "A contingent resource-based view of proactive corporate environmental strategy", *Academy of Management Review*, Vol. 28 No. 1, pp. 71-88.

Aragón, J.A., García Morales, V.J. and Cordón Pozo, E. (2007), "Leadership and organizational learning's role on innovation and performance: lessons from Spain", *Industrial Marketing Management*, Vol. 36 No. 3, pp. 349-359.

Argyris, C. (1993), *Knowledge for Action*, Jossey Bass: San Francisco.

Armstrong, J. S. and Overton, T. S. (1977), "Estimating Nonresponse Bias in Mail Surveys", *Journal of Marketing Research*, Vol. 14, pp. 396-402.

Audretsch, D. B., Bönte, W. and Keilbach, M. (2008), "Entrepreneurship capital and its impact on knowledge diffusion and economic performance", *Journal of Business Venturing*, Vol. 23, pp. 687–698.

Autio, E., Sapienza, H.J. and Almeida, J.G. (2000), "Effects on age at entry, knowledge intensity, and imitability on international growth", *Academy of Management Journal*, Vol. 43 No. 5, pp. 909-924.

Baer, M., and Frese, M. (2003), "Innovation is not enough: Climate for Initiative and Psychological Safety, Process Innovations, and Firm Performance", *Journal of Organizational Behavior*, Vol. 24, pp. 45-68.

Banerjee, P. (2003), "Some indicators of dynamic technological competencies: Understanding of Indian software managers", *Technovation*, Vol. 23, pp. 593-602.

Batjargal, B. (2007): "Internet entrepreneurship: Social capital, human capital, and performance of Internet ventures in China", *Research Policy,* Vol. 36, pp. 605–618.

Benitez-Amado, J., Lloréns-Montes, F. J. and Perez-Arostegui, M. N. (2010). "Information technology-enabled intrapreneurship culture and firm performance", *Industrial Management & Data Systems*, Vol. 110 No. 4, pp. 550-566.

Bollen, K. A. (1989), *Structural equations with latent variables*, John Wiley & Sons, New York, NY.

Bollen, K.A. and Long, J.S. (1993), *Testing Structural Equation Models*, Sage, Newbury Park, CA.

Bourgeois, L.J. III, (1981), "On the measurement of organizational slack", *Academy of Management Review,* Vol. 29, pp. 29-39.

Bradley, S.W., Wiklund, J. and Shepherd, D.A. (2010), "Swinging a double-edged sword: The effect of slack on entrepreneurial management and growth", *Journal of Business Venturing*, Forthcoming.

Byrd, T. A. and Davidson, N. W. (2003), "Examining possible antecedents of IT impact on the supply chain and its effect on firm performance", *Information & Management*, Vol. 41, pp. 243-255.

Byrd, T.A. and Turner, D. (2000), "Measuring the flexibility of information technology infrastructure: exploratory analysis of a construct", *Journal of Management Information Systems*, Vol. 17 No. 1, pp. 167–208.

Byrd, T.A. and Turner, D. (2001), "An exploratory analysis of the value of the skills of IT personnel: their relationship to IS infrastructure and competitive advantage", *Decision Sciences*, Vol. 32 No.1, pp. 21–54.

Cantwell, J. and Piscitello, L. (2002), "The location of technological activities of MNCs in European regions: The role spillovers and local competencies", *Journal of International Management*, Vol. 8, pp. 69-96.

Cash Jr., J.I., McFarlan, F.W. and McKenney, J.L. (1992), *Corporate Information Systems Management: Text and Cases*, 3rd ed., Richard D. Irwin, Homewood, IL.

Chandler, G. N. and Jansen, E. (1992), "The founder's self-assessed competence and venture performance", *Journal of Business Venturing*, Vol. 7, pp. 223-236.

Cheney, P.H. and Lyons, N.R. (1980). "Information systems skill requirements: a survey", *MIS Quarterly*, Vol. 4 No. 1, pp. 35–43.

Chenhall, R. H. (2005), "Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: An exploratory study", *Accounting, Organizations and Society*, Vol. 30, pp. 395-422.

Choi, B., Poon, S.K. and Davis, J.G. (2008), "Effects of knowledge management strategy on organizational performance: A complementarity theory-based approach", *Omega*, Vol. 36 No. 2, pp. 235-251.

Choi, Y.R. and Shepherd, D.A. (2004), "Entrepreneurs' decisions to exploit opportunities", *Journal of Management*, Vol. 30 No. 3, pp. 377-395.

Ciborra, C. and Lanzara, G.F. (1990), "Designing dynamic artifacts: Computer systems as formative context", in Galiardi, P. (ed.), *Symbols and Artifacts*: *Views of the Corporate Landscape*, De Gruiter, Berlin, pp. 147-165.

Clark, C.E., Cavanaugh N.C., Brown, C.V. and Sambamurthy, V. (1997), "Building change-readiness capabilities in the IS organization: insights from the Bell Atlantic experience", *MIS Quarterly*, Vol. 21 No. 4, pp. 425-545.

Covin, J.G. and Slevin, D.P., (1991), "A conceptual model of entrepreneurship as firm behaviour", *Entrepreneurship Theory and Practice,* Vol. 16 No. 1, pp.7–25.

Cyert, R. M. and March, J. G. (1963), *A behavioral theory of the firm,* Prentice-Hall, Englewood Cliffs, NJ.

Damanpour F. (1987), "The adoption of technological, administrative and ancillary innovations: impact of organizational factors", *Journal of Management*, Vol. 13 No. 4, pp. 675–688.

Damanpour F. (1991), "Organizational innovation: a meta-analysis of effects of determinants and moderators", *Academy of Management Journal*, Vol. 34 No. 3, pp. 555 –590.

Danneels, E. (2007), "The process of technological competence leveraging", *Strategic Management Journal*, Vol. 28, pp. 511-533.

Davenport, T. H. and Linder, J. (1994), "Information management infrastructure: The new competitive weapon", in Proceedings of the 27th Annual Hawaii International Conference on Systems Sciences, *IEEE*, Vol. 27, pp. 885-899.

Dean, T.J. and Meyer, G.D. (1996), "Industry environments and new venture formations in U.S. manufacturing: a conceptual and empirical analysis of demand determinants", *Journal of Business Venturing*, Vol. 11 No. 2, pp. 107-132.

Dehning, B., Dow, K. E. and Stratopoulos, T. (2004), "Information technology and organizational slack", *International Journal of Accounting Information Systems*, Vol. 5, pp. 51-63.

Demirbag, M., Koh, S.C.L., Tatoglu, E. and Zaim, S. (2006), "TQM and market orientation's impact on SMEs' performance", *Industrial Management & Data Systems*, Vol. 106 No. 8, pp. 1206-28.

Dun & Bradstreet España, S.A. (2003). *Duns 50.000 Principales Empresas Españolas*, Publicaciones, Madrid.

Douglas, T.J. and Judge, W.Q. (2001), "Total quality management implementation and competitive advantage. The role of structural control and exploration", *Academy of Management Journal*, Vol. 44 No. 1, pp. 158-169.

Duncan, N.B. (1995), "Capturing flexibility of information technology infrastructure: A study of resource characteristics and their measure, *Journal of Management Information Systems*, Vol. 12 No.2, pp. 37-57.

Earl, M.J. (1989), *Management Strategies for Information Technologies*, Prentice-Hall, Englewood, NJ.

Fineman S. (1996), "Emotional subtexts in corporate greening", *Organization Studies*, Vol. 17 No. 3, pp. 479-500.

Fosfuri, A. and Tribó, J. A. (2008), "Exploring the antecedents of potential absorptive capacity and its impact on innovation performance", *Omega*, Vol. 36 No. 2, pp. 173-187.

Freel, M.S., (2000), "Do small innovating firms outperform non-innovators?", *Small Business Economics*, Vol. 14 No. 3, pp. 195–210.

García Morales, V.J., Lloréns Montes, F.J. and Verdú Jover, A.J. (2006), "Antecedents and consequences of organizational innovation and organizational learning in

entrepreneurship", *Industrial Management & Data Systems*, Vol. 106 Nos. 1-2, pp. 21-42.

García Morales, V.J., Lloréns Montes, F.J. and Verdú Jover, A.J. (2008), "The effects of transformational leadership on organizational performance through knowledge and innovation", *British Journal of Management*, Vol. 19 No.4, pp. 299-319.

Ghosh, B.C., Liang, T.W., Meng, T.T. and Chan, B. (2001), "The key success factors, distinctive capabilities, and strategic thrusts of top SMEs in Singapore", *Journal of Business Research*, Vol.51, pp. 209-221.

Giarratana, M.S. and Torrisi, S. (2010), "Foreign entry and survival in a Knowledge-intensive market: Emerging economy countries' international linkages, technology competences, and firm experience", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 85-104.

González Álvarez, N. and Nieto Antolín, M. (2005), "Protection and internal transfer of technological competencies: The role of causal ambiguity", *Industrial Management & Data Systems*, Vol. 105 No. 7, pp. 841-856.

Grinstein, A. and Goldman, A. (2006), "Characterizing the technology firm: an exploratory study", *Research Policy*, Vol. 35, pp. 121-143.

Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C. (1999), *Análisis Multivariante*. Prentice Hall, Madrid.

Hambrick, D.C. and Mason, P.A. (1984), "Upper Echelons: The Organizations as a Reflection of Its Top Managers", *Academy of Management Review,* Vol. 9 No. 2, pp. 193-206.

Harkness, W.L., Kettinger, W.J. and Segars, A.H. (1996), "Sustaining process improvement and innovation in the information services function: lessons learned at the Bose Corporation", *MIS Quarterly*, Vol. 20 No. 3, pp. 349–368.

Haro Domínguez, C., Ortega Egea, T. and Tamayo Torres, I. (2010), "Proactive orientation and its influence for technology acquisition". *Industrial Management & Data Systems*, Vol. 110 No.7, pp. 953-970.

Henderson, J. C. and Venkatraman, N. (1993), "Strategic alignment: Leveraging information technology for transforming organizations", *IBM Systems Journal*, Vol. 32 No. 1, pp. 4-16.

Hofstede, G. (1980), "Motivation, Leadership, and Organization: Do American Theories Apply Abroad?". *Organizational Dynamics*, Vol. 9, pp. 42-63.

Homburg, C., Krohmer, H. and Workman, J.P. (1999), "Strategic consensus and performance: The role of strategy type and market-related dynamism", *Strategic Management Journal*, Vol. 20, pp. 339-357.

Hornsby, J.S., Naffziger, D.W., Kuratko, D.F. and Montagno, R.V. (1990), "Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment", *Strategic Management Journal*, Vol. 11, pp. 49-58.

Huber, G.P. (1991), "Organizational learning: the contributing processes and the literatures", *Organizational Sciences*, Vol. 2 No.1, pp. 88-115.

Jarvenpaa, S.L. and Ives, B. (1990), "Information technology and corporate strategy: a view from the top", *Information Systems Research*, Vol. 1 No. 4, pp. 351-376.

Jones, G.R. and Butler, J.E. (1992), "Managing internal corporate entrepreneurship: An agency theory perspective", *Journal of Management*, Vol. 18 No.4, pp.733-749.

Jones, G.K., Lanctot, A. Jr. and Teegen, H.J. (2000), "Determinants and performance impacts of external technology acquisition", *Journal of Business Venturing*, Vol. 16, pp. 255-283.

Jöreskog, K.G. and D. Sörbom (1996), *LISREL VIII*, SPSS, Inc., Chicago.

Kanter, R.M. (1984), *The Change Masters*, Touchstone, Simon & Schuster, New York, NY.

Kearns, G.S. (2006), "The effect of top management support of SISP on strategic IS management: Insights from the US electric power industry", *Omega,* Vol. 34, pp. 236-253.

Kelley, D. (2010), "Sustainable corporate entrepreneurship: Evolving and connecting with the organization", *Business Horizons*, Vol. 54 No.1, pp. 73-83.

Kirzner, I. (1979), *Perceptions, Opportunity, and Profit*, University of Chicago Press: Chicago.

Knight, G.A. (1997), "Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation", *Journal of Business Venturing*, Vol. 12, pp. 213-225.

Konrad, A.M., and Linnehan, F. (1995), "Formalized HRM Structures: Coordinating Equal Employment Opportunity or Concealing Organizational Practice?", *Academy of Management Journal*, Vol. 38, pp. 787-820.

Koufteros, X., Babbar, S. and Kaighobadi, M. (2009), "A paradigm for examining second-order factor models employing structural equation modelling", *International Journal of Production Economics*, Vol. 120, pp. 633-652.

Lant, T.K. and Mezias, S.J. (1990), "Managing discontinuous change: a simulation study of organizational learning and entrepreneurship", *Strategic Management Journal*, Vol. 11, pp. 147-179.

Lee, C., Lee, K. and Pennings, J. M. (2001), "Internal capabilities, external networks, and performance: A study on technology-based ventures", *Strategic Management Journal*, Vol. 22, pp. 615-640.

Lei, D., Slocum, J.W. and Pitts, R.A. (1999), "Designing organizations for competitive advantage: the power of unlearning and learning", *Organizational Dynamics*, Vol. 28 No.3, 24-38.

Lengnick-Hall, C. A. (1992), "Strategic configurations and designs for corporate entrepreneurship: Exploring the relationship between cohesiveness and performance", *Journal of Engineering and Technology Management*, Vol. 9, pp. 127-154.

Leonard-Barton, D. (1987), "The Case for Integrative Innovation: An Expert System at Digital". *Sloan Management Review* (1986-1998), Vol. 29 No. 1, pp.7-19.

Leonard-Barton, D. (1992), "Core capabilities and core rigidities: A paradox in managing new product development", *Strategic Management Journal*, Vol. 13, pp. 111-125.

Leonard-Barton, D. and Deschamps, I. (1988), "Managerial influence in the implementation of new technology", *Management Science*, Vol. 34 No. 10, pp.1252-1265.

Levitt, B. and March, J. G. (1988) "Organizational learning", *Annual Review of Sociology*, Vol. 14, pp, 319-340.

Lloréns Montes, F. J., Ruiz Moreno, A. and García Morales, V. (2005), "Influence of support leadership and teamwork cohesion on organizational learning, innovation and performance: An empirical examination", *Technovation*, Vol. 25, pp. 1159-1172.

Miles, M.P. and Covin, J.G. (2002), "Exploring the practice of corporate venturing: some common forms and their organizational implications", *Entrepreneurship: Theory & Practice,* Vol. 26 No. 3, pp. 21-40.

Miller, D. and Friesen, P.H. (1982), "Innovation in Conservative and Entrepreneurial Firms: Two Models of Strategic Momentum", *Strategic Management Journal*, Vol. 3 No. 1, pp. 1-25.

Murray, J.Y. and Kotabe, M. (1999), "Sourcing strategies of U.S. service companies: A modified transaction-cost analysis", *Strategic Management Journal*, Vol. 20, pp. 791-809.

Nonaka I., Reinmoller P. and Toyama R. (2001), "Integrated information technology systems for knowledge creation", in Dierkes M., Berthoin-Antal A., Child J., Nonaka I., (eds.), *Handbook of organizational learning and knowledge*, Oxford University Press, New York.

Nonaka, I., and Takeuchi, H. (1995), *The knowledge-creating company*, Oxford University Press, New York.

Omerzel, D.G. and Antoncic, B. (2008), "Critical entrepreneur knowledge dimensions for the SME performance", *Industrial Management & Data Systems*, Vol. 108 No. 9, pp. 1182-1199.

Pearce, J.A., Fritz, D.A. and Davis, P.S. (2010), "Entrepreneurial Orientation and the Performance of Religious Congregations as Predicted by Rational Choice Theory", *Entrepreneurship, Theory and Practice*. Vol. 34 No.1, pp. 219-248.

Petroni, A. and Panciroli, B. (2002), "Innovation as a determinant of suppliers' roles and performances: An empirical study in the food machinery industry", *Purchasing & Supply Management*, Vol. 8, pp. 135-149.

Podsakoff, P.M. and Organ, D.W. (1986), "Self-reports in organization research: Problems and prospects", *Journal of Management*, Vol. 12, pp. 531-544.

Podsakoff, P.M., MacKenzie, S.B., Lee J.Y. and Podsakoff N.P. (2003), "Common method biases in behavioural research: A critical review of the literature and recommended remedies", *Journal of Applied Psychology*, Vol. 88, pp. 879-903.

Porter, M. (1980), *Competitive Strategy: Techniques for Analysing Industries and Competitors*. Free Press, New York.

Prahalad, C. K. and Hamel, G. (1990), "The core competence of the corporation", *Harvard Business Review*, Vol. 63 No. 3, pp. 79-91.

Ravichandran, T. and Rai, A. (2000). "Quality management in systems development: an organizational systems perspective", *MIS Quarterly*, Vol. 24 No. 3, pp. 381-415.

Ray, G., Muhanna, W. A. and Barnety, J. B. (2005), "Information Technology and the Performance of the Customer Service Process: A Resource-Based Analysis", *MIS Quarterly*, Vol. 29 No. 4, pp. 625-652.

Real, J.C., Leal, A. and Roldan, J.L. (2006), "Information technology as a determinant of organizational learning and technological distinctive competencies", *Industrial Marketing Management*, Vol. 35, pp. 505-521.

Rebentisch, E.S. and Ferretti, M. (1995), "A knowledge asset-based view of technology transfer international joint ventures", *Journal of engineering and technology management*, Vol. 12, pp. 1-25.

Rerup, C. (2005), "Learning from past experience: Footnotes on mindfulness and habitual entrepreneurship", *Scandinavian Journal of Management*, Vol. 21, pp. 451-472.

Rockart, J. W., Beath, C. M. and Goodhue, D. L. (1996), "Eight imperatives for the new IT organization", *Sloan Management Review*, Vol. 38 No. 1, pp. 43-56.

Ross, J. W., Beath, C.M. and Goodhue, D. L. (1996), "Develop long-term competitiveness through IT assets", *Sloan Management Review*, Vol. 38 No. 1, pp. 31-42.

Senge, P., Roberts, C., Ross, R.B., Smith, B.J. and Kleiner, A. (1994), *The Fifth Discipline*. Doubleday Publ., Fieldbook, New York.

Shane, S. and Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25, No. 1, pp. 217-226.

Simsek, Z., Lubatkin, M.H., Veiga, J. F. and Dino, R.N. (2009), "The role of an entrepreneurially alert information system in promoting corporate entrepreneurship", *Journal of Business Research*, Vol. 62, pp. 810-817.

Skerlavaj, M. and Dimovski, V. (2006), "Study of the mutual connections among Information-Communication Technologies, Organisational Learning and Business Performance", *Journal for East European Management Studies*, Vol. 11 No. 1, pp. 9-29.

Snow, C.C. and L.G. Hrebiniak. (1980), "Strategy, distinctive competence, and organizational performance", *Administrative Science Quarterly,* Vol. 25, pp. 317-335.

Spector, P.E. (2006), "Method variance in organizational research: Truth or urban legend?", *Organizational Research Methods*, Vol. 9, pp. 221-232.

Srivastava, A. and Lee, H. (2005), "Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship", *Journal of Business Venturing*, Vol. 20, pp. 459-481.

Stone, L.J. (2006), "Limitations of cleaner production programmes as organizational change agents. II. Leadership, support, communication, involvement and programme design", *Journal of Cleaner production*, Vol. 14, pp. 15-30.

Teece, D.J. (1986), "Profiting from technological innovation: implications for integration, collaboration, licensing and public policy", *Research Policy,* Vol. 15 No. 6, pp. 285-305.

Torkkeli, M. and Tuominen, M. (2001), "The contribution of technology selection to core competencies", *International Journal of Production Economics*, Vol. 77, pp. 271-284.

Torrisi, S. (1988), *Industrial Organization and Innovation: An International Study of the Software Industry*, Edwar Elgar, Cheltenham, U.K.

Tushman, M.L. and Anderson, P.C. (1986), "Technological discontinuities and organizational environments", *Administrative Science Quarterly*, Vol. 31 No. 3, pp 439-465.

Venkatraman, N. and Ramanujam, V. (1986), "Measurement of business performance in strategy research: A comparison of approaches", *Academy of Management Review*, Vol. 11 No. 4, pp. 801-814.

Weick K.E. (1979), *The social psychology of organizing (2nd ed.)*, Addison-Wesley: Reading, MA.

Weill, P. and Broadbent, M. (1998), *Leveraging the New Infrastructure. How Market Leaders Capitalize on Information Technology*, Harvard Business School Press, Boston.

Westphal, J.D. and Fredickson, J.W. (2001), "Who Directs Strategic Change? Director Experience, the Selection of New CEOs, and Change in Corporate Strategy", *Strategic Management Journal*, Vol. 22, pp. 1113-1137.

Woolley, J. (2010), "Technology emergence through entrepreneurship across multiple industries", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 1-21.

Wood, M.S. and McKinley, W. (2010), "The production of entrepreneurial opportunity: A constructivist perspective", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 66-84.

Yip, G.S. (1982), *Barriers to entry: A Corporate-Strategy Perspective*, Lexington Books, Lexington, MA.

Zahra, S.A. (1991), "Predictors and financial outcomes of corporate entrepreneurship: an exploratory study", *Journal of Business Venturing*, Vol. 6 No. 4, pp. 259-85.

Zahra, S.A. (1993), "Environment, corporate entrepreneurship, and financial performance: a taxonomic approach", *Journal of Business Venturing,* Vol. 8 No.4, pp. 319-340.

Zahra, S.A. and Garvis, D.M. (2000), "International corporate entrepreneurship and firm performance: the moderating effect of international environmental hostility", *Journal of Business Venturing*, Vol. 15 Nos. 5-6, pp. 469-492.

Zaltman, G., Duncan, R. and Holbek, J. (1973), *Innovations and organizations*, Wiley, New York.

Zmud, R.W. (1984), "An Examination of "Push-Pull" Theory Applied to Process Innovation in Knowledge Work", *Management Science*, Vol. 30, pp. 727-738.

APPENDIX

❖ Organizational Slack

Indicate the degree to which you agree or disagree about whether the organizational has a significant:

1. Allocation of financial resources to R&D department.
2. Allocation of human resources to R&D department.
3. Allocation of resources to create efficient programs oriented to internal development of technological or technology absorption competencies, from either R&D centres or suppliers and customers.

❖ Technological Skills

Indicate the degree to which you agree or disagree with the following statements about the technological skills. The skills of the people in the department/unit of technology:

1. Are very superior to closest competitors in hardware and operating systems performance.
2. Are very superior to closest competitors in business applications software performance.
3. Are very superior to closest competitors in communications services efficiency.
4. Are very superior to closest competitors in the generation programming languages.

❖ Technological Infrastructure

Indicate the degree to which you agree or disagree with the following statements about technological infrastructure:

1. The organization has the technological infrastructure needed to electronically link our business units.
2. The organization has the technological infrastructure needed to electronically link our firm with external business partners (i.e., key customers, suppliers, alliances).
3. The organization has the technological infrastructure needed for current business

operations.

4. The capacity of our network infrastructure adequately meets our current business needs.

5. Corporate data is currently sharable across business units and organizational boundaries.

6. The organization has standardized the various components of our technology infrastructure (i.e., hardware, OS, network, database).

- **Top Management Support**

Indicate the degree to which you agree or disagree with the following statements about top management support.

1. Top management cultivates technology project champions.

2. Top management ensures adequate funding of technology research and development.

3. Top management restructures work processes to leverage technology opportunities in the organization.

4. Top management facilitates technology transfer throughout the organization.

- **Technological Distinctive Competencies**

Indicate the degree to which you agree or disagree with the following statements about whether the organization has:

1. Capability to obtain information about the status and the progress of science and relevant technologies.

2. Capability to generate advanced technological processes.

3. Capability to assimilate new technologies and useful innovations.

4. Capability to attract and retain its qualified scientific-technical staff.

5. Capability to dominate, generate or absorb basic and key technologies of business.

8. Capability to establish efficient programs to develop technology from R&D units, providers and clients.

- **Organizational Learning**

In the last three years:

1. The organization has acquired and shared much new and relevant knowledge that provided competitive advantage.

2. The organization's members have acquired some critical capacities and skills that provided competitive advantage.

3. Organizational improvements have been influenced fundamentally by new

knowledge entering the organization (knowledge used).

4. The organization is a learning organization.

❖ **Corporate Entrepreneurship**

In the last three years.

1. Proactiveness.

1.1. In dealing with competitors, the organization is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.

1.2. In dealing with competitors, our organization typically adopts a very competitive, undo-the-competitors posture.

1.3. In general, the top managers at our firm have a strong proclivity for high risk projects (with chances of very high returns).

1.4. In general, the top managers at our firm believe that, owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives.

1.5. When confronted with decision-making situations involving uncertainty, our organization typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.

2. New business venturing.

2.1. The organization has stimulated new demands on the existing products/services in the currents markets through aggressive advertising and marketing.

2.2. The organization has broadened the business lines in the current industries.

2.3. The organization has pursued new businesses in new industries that are related to the current business.

2.4. The organization has found new niches for the products/services in the current markets.

2.5. The organization has entered new businesses by offering new lines and products/services.

3. Self-renewal.

3.1. The organization has revised the business concept.

3.2. The organization has redefined the industries in which the company will compete.

3.3. The organization has reorganized units and divisions to increase organizational innovation.

3.4. The organization has coordinated activities among units to enhance organizational innovation.

3.5. The organization has increased the autonomy (independence) of different units to

enhance their innovation.

3.6. The organization has adopted flexible organizational structures to increase innovation.

3.7. The organization has rewarded employees for creativity and innovation.

3.8. The organization has trained and encouraged to the employees to be creative and innovative.

4. Organizational innovation.

The organization has significantly increased:

4.1. The emphasis on developing new products/services.

4.2. The rate of new products/services introduction into the market.

4.3. The spending on new products/services development activities.

4.4. The number of products/services added by the organization and already existing in the market.

4.5. The number of new products/services introduced for first time in the market by the organization.

4.6. Percentage of revenue generated from new businesses/services that did not exist three years ago.

- **Organizational Performance**

Relative to your main competitors, what is your firm's performance in the last three years in the following areas?

1. Organizational performance measured by return on assets (economic profitability or ROA).

2. Organizational performance measured by return on equity (financial profitability or ROE).

3. Organizational performance measured by return on sales (percentage of profits over billing volume).

4. Organization's market share in its main products and markets.

5. Growth of sales in its main products and markets.

Capítulo 4

4 INFLUENCE OF TECHNOLOGY AND LEARNING IN CORPORATE ENTREPRENEURSHIP ON EUROPEAN TECHNOLOGICAL FIRMS

4.1 Abstract

Purpose – The aim of this paper is to highlight the importance of different technological aspects of organizations on technological European firms´ performance.

Methodology – The studied relationships are empirically confirmed by using a hierarchical regression model to demonstrate our hypotheses. The sample was selected from the database Amadeus in 2009, obtaining 160 European firms. CEOs were our main informants.

Findings – The results obtained show that the supportive character adopted by top managers, technological distinctive competencies and technological skills influence all jointly in the corporate entrepreneurship. The organizational learning processes will also directly influence in that corporate entrepreneurship. Finally, corporate entrepreneurship influences the technological organizational performance.

Research limitations/implications – The paper is exploratory in character, and its goal is to show whether interrelations exist between the variables. The main limitations are: The cross-sectional character of the analysis performed; the use of a single method and of self-reports.

Practical implications – To obtain perfect adaptation of the firm to its environment, it is crucial that managers develop the corporate entrepreneurship to improve high technology sector firms´ performance. The paper shows the important role of top manager's support, technological distinctive competencies technological skills and organizational learning. Success in this kind of aspects is of vital importance to the corporate entrepreneurship in the firm.

Originality/value – The paper seeks to stimulate new lines of research regarding joined variables (technological distinctive competencies, technological skills and top management support) and directly relate them to corporate entrepreneurship, observing their repercussions for the firm.

Keywords

Top management support, technological skills, technological distinctive competencies, organizational learning, corporate entrepreneurship, organizational performance

4.2 Introduction

The internal development and implementation of technologies is a complex management problem, especially when the technology is on the cutting edge of knowledge and managers must be pioneers. However, companies undertake development of such technologies for good reasons such as increased productivity and proprietary advantage over competition (Leonard-Barton, 1987). In addition, nowadays, technology firms drive economic growth, productivity gains and have created new industries and innovative products and processes (Grinstein and Goldman, 2006). For the development of these companies some heads of human experts, new capabilities, construction of the programs and intensive participation by entrepreneurs is required in the firm (Leonard Barton, 1987).

Our study seeks first to analyze empirically the influence of some of the technological variables, specifically, technological skills (Berry, 1996; Leonard-Barton, 1992; Teece et al., 1990), technological distinctive competencies (TDCs) (Danneels, 2008; Real et al., 2006) and top management support to technology (TMS) (Byrd and Davidson, 2003; Dean and Giglierano, 1990; Leonard-Barton and Deschamps, 1988) on corporate entrepreneurship (CE). Industrial application of technology requires distinctive competence in older process technologies, complementary assets, such as technological skills, as well as managerial support and experience (Fontes, 2001). Second, these technological variables influence in CE helped by organizational learning (OL) which reach a really specialized technological knowledge (Fontes, 2001; Gillich et al., 2009). OL is needed all over this process, since involving users as part of the integrative innovation process necessitates more planning than may be recognized at the outset (Leonard-Barton, 1987). Entrepreneur must learn enterprise aspects, including the use of technological aspects to prepare for the competitive global market, for the challenge to manage a business in its different dimensions and also to guarantee the solidity of some structural conditions for its development (Gillich et al., 2009). Finally, we will analyze CE as a means for renewing established organizations, to innovate and

increasing their ability to compete in global markets. Covin and Slevin (1991, p. 19) suggest that "the growing interest in the study of entrepreneurship is a response to the belief that such activity can lead to improved performance in established organizations." Schollhammer (1982, p. 210) suggests that CE is "the key element for gaining competitive advantage and consequently greater financial rewards."

To develop all these constructs we structure the paper in different sections. In the theoretical background section all the concepts and hypothesis are explained. In the research methodology and result section the main results are discussed. Finally, the implications, limitations and future research are explained in the conclusion section.

4.3 Theoretical background

Teece et al. (1990, p. 29) define managerial skills as “a set of differentiated skills, complementary assets, and routines that provide the basis for a firm´s competitive capacities and sustainable advantage in a particular business”. So if we apply this in technological aspects Leonard-Barton (1992, p 113) emphasizes that “technological skills constitute the entire technical system, which usually traces its roots back to the firm’s first products”.

These technological skills are joined to the concepts of TDCs which have been described in terms of the unique or distinctive or even inimitable resource or managerial capabilities (Danneels, 2007, 2008). They “reflect the ability of a firm to make certain physical products or processes which enable the firm to serve a particular customer group” (Danneels, 2008, p. 520). Likewise, TMS to technology in terms of funding it is the portfolio of technological investments from which the strategy, the choice and the management of the company depend, and in terms of decision making is the information which only top managers possess, but they have been helped by technology that may reduce the uncertainty of the environment to be more closely approximate to the rational ideal of decision-making (Dean and Giglierano, 1990, p. 376). It “reflects, in many ways, the importance that top management executives place on technology” (Byrd and Davidson, 2003, p. 246). For Leonard-Barton and Deschamps (1988, p. 1254), TMS is a “perceived powerful source”.

These three variables in technological firms impact on CE. This CE require a specialized knowledge which will be got through the OL, which might be defined as “a constant process that extends across time, allowing new abilities and knowledge to be

developed (Wild et al., 2002), increasing an organization's capability to carry out actions and improving organizational performance" (García et al., 2006).

CE refers to the "pursuit of entrepreneurial actions and initiatives that transform the established organization through strategic renewal processes and/or extend the firm's scope of operations into new domains, that is, new product-market segments or technological arenas" (Goodale et al., 2011, p. 116). It is "a vision-directed, organization-wide reliance on entrepreneurial behavior that purposefully and continuously rejuvenates the organization and shapes the scope of its operations through the recognition and exploitation of entrepreneurial opportunity" (Ireland et al. 2009, p.21). All this definitions demonstrate a propensity for innovative behavior (Hallak et al., 2011) that in technological organizations carries on a higher organizational performance which is conceptualized as "the degree of success attained by the firm at achieving its goals pertaining to product-market or technological innovation" (Goodale et al., 2011, p. 117).

4.3.1 The influence of technological skills, TMS and TDCs on CE

Technological competences of a firm have been accepted as one important element of the organizational core competency (Banerjee, 2003). There are, however, variations on the defining characteristics of this core competency (Banerjee, 2003). Consistent with the dynamic capabilities theory, the TDCs may be viewed as a bundle of intangible and valuable resources which accumulate over time (Deeds et al., 1999). These TDCs enhance the creation and dissemination of new knowledge that enable entrepreneurship (Leonard-Barton, 1992). TDCs promote engineering know-how, manufacturing facilities and know-how, and patents which improves CE (Danneels, 2008). TDCs are not "simple" assets, but compound assets structures which are built over time and increase CE (Deeds, et al., 1999). Likewise, TDCs provide an ownership advantage that enables entrepreneurs to increase the firm's likelihood of survival (Giarratana and Torrisi, 2010).

Corporate entrepreneurs often possess different capabilities or competencies which, are usually articulated over time in the entrepreneurs' strategic choices, (e.g., technological strategies) (Zahra, 1996). In the technology field this focus is consistent with the proposition that "technology is the most fundamental of the core competencies of a firm" (Itami and Numagami 1992, p. 119). Furthermore, technological choices and TDCs influence the ability of entrepreneurs to position themselves in the firm and,

generally in the market (Shan, 1990). Then, the entrepreneurs' TDCs are usually articulated in its technology firm´s strategy, which defines the desired competencies, their sources, timing, and potential use (Porter, 1985). Today, there is a growing appreciation of technology's impact on the entrepreneurism's strategic choices (Zahra, 1996).

Technology firms created by people, who have TDCs, play a critical role in such a process by acting as disseminators of new technology and translators of competencies to entrepreneurs (Fontes, 2001). That is because technological innovation opportunities in technology derive from scientific discovery, which provides the access to potential entrepreneurs with a fundamental advantage (Fontes, 2001). Consequently, TDCs will increase CE in technological companies since successful entrepreneurs identify such innovative opportunities through technology. TDCs present an opportunity for CE (Alvarez and Barney, 2007). Without TDCs the identification of opportunities and CE is "fruitless" (Shane and Venkatraraman, 2000). All these previous comments let us formulate the following hypotheses:

H1a: TDCs will be related positively with CE in technological organizations

Dean and Giglierano (1990) found working in the Silicon Valley with technological organizations that most research that focuses on the financing of new ventures initial funding was important. Then, once the new venture has been created, key top executives will have to focus their efforts on managing the growth of their technological firm. All these funding will let entrepreneurs develop new technological products or processes in order to change the company´s strategy for a better strategy focused on technological aspects and improve the decision making in technological matters so as to achieve a sustainable competitive advantage in the firm. In both, decision making and funding support, TMS was critical in helping technological organization members to understand and apply the chosen strategy and increasing CE.

Top managers should bear in mind that looks for external technology support, through collaboration as a means of complementing and leveraging their internal capabilities, let an entrepreneurial development. Mechanisms promoting the creation of technological support from top managers are necessary to increase CE and boost industry competitiveness (Tsai and Wang, 2009). Berry (1996) found that the companies which were able to improve their entrepreneurial capabilities, adapting and enhancing them showed received increased commitment from top management and a

higher level of credibility across the broader organization. These firms with TMS become more receptive to CE over time. Indeed, TMS enhances strategies that guide the organization's entrepreneurial efforts. CE is enabled by TMS (Kelley, 2010).

In technological companies Zmud (1984) finds that TMS influences in technological innovations and it stimulates CE. Other scholar such as Shane and Venkataraman (2000) and Srivastava and Lee (2005) found that top managers with higher levels of technological education will possess greater capabilities in technology, innovation and creativity, acquiring more investments and consequently more support for entrepreneurial projects. Thus, TMS makes that entrepreneurs are able to realize their strategic vision of an emerging technology business for sophisticated international markets (Badguerahanian and Abetti, 1995). Based on this previous literature we assert the following hypothesis:

H1b: TMS will be related positively with CE in technological organizations

A crisis often arises as the result of an unanticipated event in the firm's external environment and is a direct consequence of the founding entrepreneur's inability to adapt his/her management style to the changing needs of the organization as it undergoes the transformation from a technology-driven to a market-led business (Berry, 1996). Frequently it is only in later stages of the firm's development, where this transformation becomes a prerequisite for success, when the business abilities and high-technological skills of managers are truly tested (Berry, 1996). As a consequence of this "critical event", the required strategic re-orientation of the business occurs. Such a re-orientation within the technology firm requires a concurrent development in the technological skills, techniques and processes necessary to manage the enterprise effectively (Berry, 1996). These skills must be complemented by general management and marketing expertise, improving the CE (Andreu and Ciborra, 1996; Leonard-Barton, 1992; Rerup, 2005) in order to support the required transformation towards a market-led organization with strategic planning systems in later life cycle stages (Berry, 1996).

In numerous cases, seemingly intractable technological problems have been solved through entrepreneur's excellence (Leonard-Barton, 1987). The professional entrepreneurs in technological companies earn their status by demonstrating remarkable skills. They expect to 'achieve the impossible' and it is often asked of them. They are able to invent their way out of difficulties (Leonard-Barton, 1992). Thus, the majority of

successful new technology-based ventures and CE (Antoncic and Hisrich, 2001) are founded and developed by a group of people (Cooper, 1973), whose experienced technological skills play pivotal role in organization to achieve an excellent command of CE (Omerzel and Antoncic, 2008).

Zahra and Garvis (2000) underline that U.S. companies have learned and utilized different technological skills closely linked to entrepreneurial activities. With the current and changing conditions within and outside their organizations these new skills include strategic objectives to guide entrepreneurs, a management structure to support entrepreneurial activities, and processes to inform assessment and decision making (Kelley, 2010). Thus, the possession of technological skills for the managers is a necessary condition for environmental development, even enough up to certain levels (Brio and Junquera, 2003). Managers might increase CE by combining technological innovation skills with potential market needs (Badguerahanian and Abetti, 1995). Without capturing and leveraging these technological skills, which have been learned over time, the corporation will fail to develop and advance its entrepreneurial activity (Kelley, 2010).

Technological firms usually are more flexible in order to combine their technology with other complementary assets, such as managers' competencies in exploiting international growth opportunities, so as to improve their technological skills and their CE (Autio et al., 2000; Leonard-Barton, 1992; Srivastava and Lee, 2005). Successful potential entrepreneurs identify such growth opportunities through technological assets, which require new technological skills (Alvarez and Barney, 2007). Taking into account all the previous literature we have formulated the following hypothesis:

H1c: Technological skills will be related positively with CE in technological organizations

4.3.2 The influence of OL on CE

An essential prerequisite for entrepreneurial strategic awareness and effective strategy development is OL (Berry, 1996). Learning new knowledge makes future entrepreneurial initiatives more likely (Hayek, 1945) and such initiatives constitute possible bases for firm growth and renewal (Shepherd et al., 2009).

CE is better built when learning has been developed in the organization –in successful and unsuccessful situations- (Gillich et al., 2009; Omerzel and Antoncic,

2008; Rerup, 2005; Stuart and Abetti, 1990). In a study of 52 new technological ventures, Stuart and Abetti (1990), found past industry experience and learning was positively related to future entrepreneurial success. Equally, Hernández et al. (2010) and Rerup (2005) indicates that entrepreneurs learn from success by repeating what they do well and learn from failure by changing or abandoning what they are doing poorly. He also underscores that mindfulness and mindlessness in OL can affect entrepreneurs' efforts to discover and exploit opportunities. If an organization wishes to have well-constructed CE, entrepreneurs should view the need for different knowledge in different growth periods as characteristic and thus continuously require OL processes to satisfy their need for knowledge (Omerzel and Antoncic, 2008). This knowledge and learning is the factor with which entrepreneurs can distinguish themselves from their competitors in order to keep a sustainable competitive advantage (Omerzel and Antoncic, 2008). Entrepreneurs with more knowledge will be less uncertain regarding their effectiveness and they will be able to learn and notice changes on the market faster, as technological market (Jones *et al*., 2000; Lee et al., 2001; Leonard-Barton, 1987; Omerzel and Antoncic, 2008).

In the business context, OL is a prerequisite for the development of entrepreneurial attitude and skills throughout the firm (Leonard-Barton, 1992). Entrepreneurs need to develop a learning mindset with enormous discipline and effort (Hernández et al., 2010; Pitts, 2008; Polities, 2008). It is characteristic for entrepreneurs that they need different knowledge and learning in different growth periods and thus continuously develops their need for knowledge so as to maintain CE (Omerzel and Antoncic, 2008).

Acquiring knowledge, through OL, is a specific requirement for a high CE (Lloréns et al., 2005). By combining new tools, technologies, sources and acquired opportunities through learning, entrepreneurs can constantly create new added value (Omerzel and Antoncic, 2008). Besides, once that knowledge has been acquired it might well be considered as the factor with which entrepreneurs can distinguish themselves from their competitors and the means with which the poorly organized business environment can become well organized (Omerzel and Antoncic, 2008).

Likewise, OL let the development of CE in technological organizations by enhancing the development of technological variables all over the firm as a coordinative management process, with the possibility of becoming a cognitive entity, where new abilities, competences and knowledge have been developed (Berry, 1996; García *et al*.,

2006; Teece et al., 1990). In addition, Simsek *et al*. (2009) consider OL to be a central mechanism in an organization, a mechanism that is likely to grant the firm an adaptive advantage via CE. Finally, different models of OL are usually used for the study of CE for the existent relationship between both strategic variables (García et al., 2006). Based on previous arguments the following relationship is proposed:

H2: O L will be related positively with CE in technological organizations

4.3.3 The influence of CE on organizational performance

CE has usually been depicted as an antecedent of company performance or as an organizational process that contributes to firm survival and performance (Barringer and Bluedorn, 1999; Covin and Slevin, 1991; Lengnick-Hall, 1992; Miller, 1983; Shan, 1990; Zahra 1991, 1993, 1996; Zahra and Covin, 1995; Zahra and Garvis, 2000). Current researches suggest that CE is positively associated with financial performance (Antoncic and Hisrich, 2001; Antoncic and Prodan, 2008; Simsek and Heavey, 2011). Previous research have analyzed this relationship in USA (Zahra, 1993; Zahra and Garvis, 2000) or in transition Economies (Antoncic and Hisrich, 2001; Antoncic and Prodan 2008). This research tries to show if this relationship has the same effect in the European market.

Firms that engage in CE can realize important financial benefits from their innovation, risk taking, and new business creation; a finding that supports past results by leveraging the performance in the firm (Brinckmann et al., 2010; Simsek and Heavey, 2011; Zahra, 1993). All these authors argue that entrepreneurial attitudes and behaviors are necessary for firms of all sizes to prosper and flourish in competitive environments (Barringer and Bluedorn, 1999; Shan, 1990; Simsek and Heavey, 2011). Nowadays we live in a hostile environment, what is supposed to be joined to a shortage of opportunities for CE (Zahra, 1993). However, as the environment becomes more hostile, a firm will become more involved in corporate entrepreneurial activities (Zahra, 1993) because increased hostility forces executives to find innovative to reduce or manage the sources of hostility (Covin and Slevin, 1991).

In the field of technology companies, competition in innovations is characterized by being extremely intense (Shan, 1990). There is usually a strong incentive to be the first innovator when the first-mover advantage is significant. Once an innovation is made, the entrepreneur needs to bring the innovation to the market in the shortest possible time

because the innovator's monopoly position might otherwise be quickly eroded by imitators or by yet better and superior innovations (Brinckmann et al., 2010; Shan, 1990).

From a theoretical perspective, taking into account these innovations is important because there are at least two reasons for expecting a positive and increasing relationship between CE activities and subsequent firm performance (Zahra and Covin, 1995). First, innovativeness and consequently CE (Antoncic and Hisrich, 2001) can be a source of competitive advantage for a firm. Innovative companies frequently develop strong, positive market reputations that ensure customer loyalty. Second, the fact that firms which pursue CE are proactive by definition, what often allows them to exploit an additional basis for competitive advantage. Besides, Zahra and Covin (1995) note that a quick response strategy often results in first-mover advantages that translate into superior firm performance. These advantages may grow in magnitude as learning and experience curve effects enable entrepreneurial firms to improve their product or market strategies and achieve a higher organizational performance (Zahra and Covin, 1995). Among such entrepreneurial firms, there is a willingness to deviate from prior routines, strategies, business models, and operating environments, and embrace new resource combinations that hold promise as potential enablers of innovation (Goodale et al., 2011).

In this way, firms that exhibit CE are typically viewed as dynamic, flexible entities preparing, or prepared, to take advantage of new business opportunities when they arise (Goodale et al., 2011). When such opportunities are abundant, technological innovation is emphasized. Alternatively, companies may license the use of their technology to other companies within the industry, thus creating new business and enhancing their revenue and profits. Therefore, technological opportunities in an industry are associated positively with increased CE (Zahra, 1993).

This CE in technological companies can also lead to the development of key capabilities that can improve a firm's performance (Teece et al., 1997), since CE in technological companies, may generate products, goods, processes, services, and systems that can be used to meet customer needs and build a strong international market position (Antoncic and Prodan 2008; Simsek and Heavey, 2011; Zahra, 1996). CE can thus improve the firm's profitability and fuel its growth (Zahra, 1996; Zahra and Garvis, 2000). In addition, in industries with technological opportunities, for a firm to succeed,

it is important to engage in CE and take risks and at the same time make investments in developing products and technologies (Antoncic and Prodan, 2008; Zahra and Covin, 1995). However, we do not have to forget that only when there is a cohesive choice of strategy configuration and approach to CE there will be a positively relationship to organizational performance and profitability for firms in which shared values, and lean operations are dominant corporate characteristics (Lengnick-Hall, 1992).

To sum up, if CE continues in the firm not just in a specific moment, this company will be able to be positively associated with company performance over time (Zahra, 1991). Organizations that engage in intrapreneurial activities -entrepreneurship within existing organizations- are expected to achieve higher levels of growth and profitability than organizations that do not engage in them (Antoncic and Hisrich, 2001). Moreover improved organizational results, usually in terms of growth and profitability, are thought to be a result of entrepreneurship in established organizations along the time (Antoncic and Hisrich, 2001; Covin and Slevin 1991; Zahra, 1991). With all this previous literature, which asserts CE is positively related to organizational performance we formulate the following hypothesis:

H3: CE will be related positively with organizational performance in technological organizations

4.4 Methodology

This section presents the research methodology used in this study. We first describe the sample used and then discuss how each of the variables included in the study is operationalized. Finally, we present the statistical analysis.

4.4.1 Sample and Procedure

The population for this study consisted of technological organizations within the geographical area of the European Union. We chose high-tech manufacturing firms due to the interest inherent in carrying out a technological and entrepreneurship study on sectors with a high technological element. The Amadeus (2009) database was used. Drawing on our knowledge about key dimensions of this investigation, previous contacts with managers and scholars and new interviews with managers and academics interested in these strategic variables, we developed a structured questionnaire to investigate how organizations face these issues. We then established a list of the CEOs of the organizations, with the help of partial funding from the Spanish Ministry of

Science and Research and the Local Government of Economy, Innovation and Science of Andalusia´s Regional Government.

CEOs were our main informants, since they manage a great deal of information in all departments in the company. Furthermore, they constitute a valuable source for evaluating and moulding the different variables under study throughout the organization by determining the types of behaviour that are expected and supported (Baer and Frese, 2003). CEOs were also chosen as informants because they are ultimately responsible for plotting the organization's direction and plans, as well as for guiding the actions carried out to achieve them (Westphal and Fredickson, 2001).

Questionnaires were requested in 10 EU countries (Austria, Belgium, Denmark, France, Germany, Italy, Poland, Spain, The Netherlands, United Kingdom. The requesting ratio to obtain 16 questionnaires of each country was 17.7% (Table 1). Technologies have played an important role in market globalization, in turn, in globalizing business practices. For these reasons is advisable to carry out the study within the framework of the EU countries (Verdú et al., 2006). Characteristics of the responding businesses were compared to those of the no responding businesses to reduce the possibility of non-response bias. The results for return on assets, return on equity, return on sales and number of employees indicated that there was no significant difference among respondents and no respondents (Armstrong and Overton, 1977). Since all measures were collected with the same survey instrument, the possibility of common method bias was tested using Harman's one-factor test (see Konrad and Linnehan, 1995). A principal components factor analysis of the questionnaire measurement items yielded five factors with Eigen-values greater than 1.0, which accounted for 69 percent of the total variance. A substantial amount of method variance does not appear to be present, since several factors, not just one single factor, were identified and because the first factor did not account for the majority of the variance (Podsakoff and Organ, 1986).

TABLE 4.1: Technical details of the research

Sectors	High-tech manufacturing (pharmaceutical industry, Hardware and other computer science equipment; automotive industry, space and aeronautics products).
Geographical location	Europe (Austria, Belgium, Denmark, France, Germany, Italy, Poland, Spain, The Netherlands, United Kingdom)
Methodology	Structured questionnaire
Universe of population	5441 firms
Sample size (response)	160 firms (17.7%)
Sample error	7.7%
Confidence level	95 %, *p-q*=0.50; *Z*=1.96
Period of collecting data	From May 2010 to September 2010

Source: Own elaboration

4.4.2 Measures

The use of constructs has played an important role in designing a survey instrument in management research. In any research concerning behavioral elements, no device using a single metric unit can measure precisely, and researchers usually employ two or more measures to gauge a construct or scale. Given that developing new constructs or scales of measurement is a complex task, wherever possible we use pre-tested constructs from past empirical studies to ensure their validity and reliability.

Top Management Support. Using scales established by Byrd and Davidson (2003) and Ray *et al*. (2005), we drew up a four-item scale (Appendix) to reflect TMS. We developed a confirmatory factor analysis to validate our scales (χ^2_2=1.13; Normed Fit Index, NFI=.99; Non-Normed Fit Index, NNFI=.99; Goodness of Fit Index, GFI=.99; Comparative Fit Index, CFI=.99). The scale was one dimensional and showed high reliability (α=.784).

Technological Skills. We used the scales designed by Ray *et al*. (2005) and Byrd and Davidson (2003) and established a scale of four items (Appendix) to reflect technological skills. Using a confirmatory factor analysis (χ^2_2=1.68; NFI=.99; NNFI=.99; GFI=.99; CFI=.99), we validated our scales and then verified each scale's one dimensionality and its high validity and reliability (α=.866).

Technological Distinctive Competencies. Using scales established by Real et al. (2006), we drew up a six-item scale (Appendix) to reflect T.D.C.s in the organization. We developed a confirmatory factor analysis to validate our scales (χ^2_9=24.68; NFI=.94; NNFI=.93; GFI=.98; CFI=.96). The scale was one-dimensional and showed high reliability (α=.957).

Organizational Learning. We used the scale of four items developed by Aragón *et al*. (2007) and García *et al*. (2006) to measure OL (Appendix). These items have been duly adapted to the present study. We developed a confirmatory factor analysis to validate the scales (χ^2_2=0.28, NFI=.99, NNFI=.99, GFI=.99, CFI=.99) and the item 4 was eliminated. The scale was one-dimensional and had adequate validity and reliability (α=.778). A 7-point Likert scale (1 '*totally disagree'*, 7 '*totally agree'*) for this and all prior variables allowed managers to express agreement or disagreement.

Corporate Entrepreneurship. We used four items developed by Knight (1997) to measure proactiveness, four items developed by Zahra (1993) to measure new business venturing, four items developed by Zahra (1993) to measure self-renewal, and four items developed by Zahra (1993) to measure organizational innovation. These items have been duly adapted to the present study (Appendix). We calculated the arithmetical mean of these items (a high score indicated good level of proactiveness, new business venturing, self-renewal and organizational innovation) and obtained a four-item scale of CE. We developed a confirmatory factor analysis to validate the scale of CE (χ^2_2=3.68, NFI=.99, NNFI=.98, GFI=.99, CFI=.99) and showed that the scale was one-dimensional and had adequate validity and reliability (α=.800).

Organizational Performance. After reviewing how performance is measured in different works of strategic research, we used the scale of five items developed by Murray and Kotabe (1999). The use of scales for evaluating performance relative to the main competitors is one of the most widely-employed practices in recent studies (Choi *et al*., 2008; Douglas and Judge, 2001). Many researchers have used managers' subjective perceptions to measure beneficial outcomes for firms. Others have preferred objective data, such as return on assets. The literature has established widely that there is a high correlation and concurrent validity between objective and subjective data on performance, which implies that both are valid when calculating a firm's performance (Homburg *et al*., 1999; Venkatraman and Ramanujan, 1986). We included questions involving both types of assessment in the interviews, but the CEOs were more open to offering their general views than to offering precise quantitative data. When possible, we calculated the correlation between objective and subjective data, and these were high and significant. We developed a confirmatory factor analysis to validate the scales (χ^2_5 =22.13, NFI=.94, NNFI=.90, GFI=.98, CFI=.95) and showed that the scale was unidimensional and had high reliability (α=.833). We used a Likert-type 7-point scale (1

"Much worse than my competitors," 7 *"Much better than my competitors"*) to ask about the organization's performance as compared with that of its most direct competitors.

Control Variables.

The research adds control variables for several other factors that may influence the estimation results. In this case we take into account that firms may vary in size, industry or sector and country or nationality. The measurement of size is a difficult question, as multiple focuses may be adopted to be operational (Gupta, 1980). Then, it could be measured by the number of employees, the volume of sales, activity or net assets (in million of Euros). Anyway we would be measuring the size as an organizational factor (Damanpour, 1992). Items initially used were the volume of annual sales and the number of employees. But, both items had a high significant correlation in our sample; we thus decided use the number of employees in our models as CEOs are more reactive to give an acquainted figure of sales. To avoid desirability bias due to the range of variance values all over the sample we measured the size through a logarithmic transformation in the number of employees instead of gross data (Damanpour, 1992; Gupta, 1980; Kimberly and Evanisko, 1981).

Industry type was included as other similar researches on entrepreneurial activities or opportunities for innovation (Covin and Slevin, 1991; Grant, 1995; Zahra, 1993, 1996). The nationality variable was included as a nominal variable with ten categories. The loyalty and way people act or work of a local national firm will lie mostly in the way of thinking from the country where they work (Baum, et al., 1993; Grinstein and Goldman, 2006). This fact could control de higher investments in technology, or the higher importance employees give to technology (Grinstein and Goldman, 2006; Van Gils, 2005).

4.5 Results

In this section we present the main research results. First, Table 2 shows the means and standard deviations as well as the inter-factor correlation matrix for the study variables. There are significant and positive correlations among TMS, TDCs, technological skills, OL, CE and organizational performance.

TABLE 4.2: Means, standard deviations and correlations

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9
1. Sector	1.260	0.438	1.000								
2. Size	4.128	2.510	-.077	1.000							
3. Country	5.500	2.881	.037	-.133	1.000						
4. Top Management Support	5.231	1.231	.035	.186*	.011	1.000					
5. Technological Dist. Compet.	4.806	1.391	.158*	.139	-.058	.644***	1.000				
6. Technological Skills	5.148	1.179	.016	.264***	-.077	.690***	.528***	1.000			
7. Organizational Learning	5.531	1.127	.022	.066	.020	.419***	.344***	.444***	1.000		
8. Corporate Entrepreneurship	4.767	1.141	.077	.216**	.075	.668***	.547***	.626***	.437***	1.000	
9. Organizational Performance	4.724	1.124	-.018	.208**	.182*	.382***	.272***	.354***	.430***	.390***	1.000

Note: *p<.05;**p<.01;***p<.001(two-tailed). n=160

Source: Own elaboration

With respect to the quality of used scales the constructs display satisfactory levels of reliability, as indicated by composite reliabilities ranging from 0.81 to 0.89 and shared variance coefficients ranging from 0.54 to 0.59 (Table 3). Convergent validity – the extent to which maximally different attempts to measure the same concept agrees – can be judged by looking at both the significance of the factor loadings and the shared variance. The amount of variance shared or captured by a construct should be greater than the amount of measurement error (shared variance >0.50). All the multi-item constructs meet this criterion, each loading (λ) being significantly related to its underlying factor (t-values greater than 10.37) in support of convergent validity. Likewise, a series of chi-square difference tests on the factor correlations showed that discriminant validity – the degree to which a construct differs from others – is achieved among all constructs (Anderson and Gerbing, 1988). In particular, discriminant validity was established between each pair of latent variables by constraining the estimated correlation parameter between them to 1.0 and then performing a chi-square difference test on the values obtained for the constrained and unconstrained models (see Anderson and Gerbing, 1988). The resulting significant differences in chi-square indicate that the constructs are not perfectly correlated and that discriminate validity is achieved.

TABLE 4.3: Validity, reliability and internal consistency

Variable	Item	Validity, reliability and internal consistency		
		λ*	R^2	A. M.
Top Management Support	MANSUP1	0.65***(11.57)	0.53	α=0.784 C.R.=0.823 S.V.=0.540
	MANSUP2	0.80***(17.38)	0.64	
	MANSUP3	0.74***(14.61)	0.54	
	MANSUP4	0.67***(12.01)	0.54	
Technological Skills	TECSK1	0.71***(15.14)	0.50	α=0.866 C.R.=0.852 S.V.=0.593
	TECSK2	0.79***(19.74)	0.62	
	TECSK3	0.87***(25.92)	0.75	
	TECSK4	0.70***(14.64)	0.50	
Technological Distinctive Competencies	TECCO1	0.66***(13.13)	0.54	α=0.857 C.R.=0.894 S.V.=0.587
	TECCO2	0.75***(17.31)	0.56	
	TECCO3	0.77***(19.16)	0.59	
	TECCO4	0.75***(17.27)	0.56	
	TECCO5	0.85***(25.56)	0.72	
	TECCO6	0.77***(18.62)	0.59	
Organizational Learning	ORLEAR1	0.65***(11.02)	0.52	α=0.778 C.R.=0.813 S.V.=0.597
	ORLEAR2	0.90***(16.83)	0.82	
	ORLEAR4	0.69***(11.95)	0.51	
Corporate Entrepreneurship	COREN1	0.63***(11.12)	0.50	α=0.800 C.R.=0.834 S.V.=0.561
	COREN2	0.82***(19.35)	0.68	
	COREN3	0.61***(10.37)	0.51	
	COREN4	0.82***(18.96)	0.66	
Organizational Performance	OPERF1	0.74***(16.12)	0.55	α=0.833 C.R.=0.873 S.V.=0.580
	OPERF2	0.73***(15.23)	0.53	
	OPERF3	0.77***(18.92)	0.60	
	OPERF4	0.84***(23.00)	0.71	
	OPERF5	0.72***(15.41)	0.52	

Note: λ* = Standardized Structural Coefficient; R^2 = Reliability; α = Alpha Cronbach; C. R. = Compound Reliability; S. V. = Shared Variance; f. p. = fixed parameter; A. M. = Adjustment Measurement; *$p < .05$; ** $p < .01$; *** $p < .001$(two-tailed).

Source: Own elaboration.

Second, hypotheses 1a, 1b, 1c and 2 were tested using hierarchical regression method (Cohen and Cohen, 1983). We have checked the non existence of multicolinearity in these regression analyses and have checked the requirements of the tolerance value and variance inflation factor measures (Hair et al., 1999). In the first step, the dependent variable of interest (CE) was regressed on the control variables (model 1). Next (model 2), the technological independent variables (TMS, TDCs, technological skill) were entered. Finally (model 3), OL was added (Table 4).

H1a, 1b and 1c suggested that TMS, TDCs and technological skills will be related positively to CE. As shown in Model 2, TMS (β=0.343; p<.001), TDC (β=0.168; p<.05) and technological skill (β=0.284; p<.001) had a significant positive relationship with CE, and together accounted for 45.7% of the variance of CE. Thus the data supported Hypotheses 1a, 1b and 1c. H2 suggested that OL will be related positively with CE. As shown in Model 3 OL (β=0.126; p<.05) had a significant positive relationship with CE, and accounted for 6.2% of the variance of CE. Thus the data supported Hypotheses 2. F test on all adjusted R square changes are significant, indicating that successive factors added in the regression models significantly improved

the prediction for CE. The sector, size and country are not significant variables in analyzed models related to CE.

TABLE 4.4: Regression analysis

	Dependent Variable		
Independent Variables	Model 1	Model 2	Model 3
Constant	3.783*** (10.427)	0.530 (1.395)	0.421 (0.358)
Sector	0.098 (1.257)	0.038 (0.662)	0.039 (0.682)
Size	0.098 (1.251)	0.110 (1.926)	0.105 (1.856)
Country	0.237 (3.014)	0.071 (1.218)	0.078 (1.336)
Top Management Support		0.343*** (3.932)	0.324*** (3.720)
Technological Distinctive Competencies		0.168* (2.215)	.156* (2.064)
Technological Skills		0.284*** (3.568)	.247** (3.050)
Organizational Learning			.126* (2.002)
R^2	0.066	0.523	0.585
Adjusted R^2	0.048	0.504	0.564
Change in adjusted R^2		0.457***	0.062*
F	3.661	27.778	24.854
Std. Error	1.108	0.800	0.792

Note: *p < .05; ** p < .01; *** p < .001(two-tailed); T-students are shown in parentheses below the variables
Source: Own elaboration.

Third, hypotheses 3 were tested using also hierarchical regression method and similarly checking the multicolinearity and the compliance of requirements of the tolerance value and variance inflation factor measures. In the first step (model 1), the dependent variable of interest (organizational performance) was regressed on the control variables. Finally (model 2), the independent variable (CE) were entered (Table 5). H3 suggested that CE will be related positively with organizational performance. As shown in Model 2 of Table 5 CE (β=0.351; p<.001) had a significant positive relationship with CE, and accounted for 11.5% of the variance of organizational performance. Thus the data supported Hypotheses 3. F test on adjusted R square change are significant, indicating that CE factor added in the regression model significantly improved the prediction for organizational performance. The size and country are significant variables analyzed in relation to organizational performance. Bigger companies usually obtain higher results. Likewise, the organizational performance will be higher if the country invests more quantity in R&D than a country where the investment is lower. To sector no significant differences were found in respectful of organizational performance.

TABLE 4.5: Regression analysis

	Dependent Variable	
Independent Variables	Model 1	Model 2
Constant	0.356*** (10.833)	0.453*** (5.826)
Sector	-0.008 (-0.106)	-0.043 (-0.587)
Size	0.235** (3.033)	0.152* (2.033)
Country	0.214** (2.760)	0.179* (2.457)
Corporate Entrepreneurship		0.351*** (4.721)
R^2	0.088	0.203
Adjusted R^2	0.070	0.188
Change in adjusted R^2		0.115***
F	4.979	9.820
Std. Error	1.108	0.800

Note: *$p < .05$; ** $p < .01$; *** $p < .001$(two-tailed); T-students are shown in parentheses below the variables

Source: Own elaboration.

4.6 Conclusions

4.6.1 Discussion

In this quickly changing world, technological companies are hardly competing to each other in order to reach a competitive advantage which makes them differentiate of other and obtain a good position or higher performance (Porter, 1985). To arrive at that purpose, the results of this research have underlined that exploiting advantage of technological skilled people will increase the CE (Berry, 1996). Managers need to view an important strategic decision which will impact their firm's access to the technological skilled research personnel and the streams of knowledge upon which the firm will develop its specific dynamic capabilities (Brio and Junquera, 2003; Deeds, et al., 1999; Leonard-Barton, 1987, 1992). Moreover, it has been demonstrated, in previous literature (Jarillo, 1989), which entrepreneurs, or entrepreneurial firms, use external resources when they try to grow beyond the limits set by the resources they currently control. Consequently, a top manager may promote corporate entrepreneurship through networks, which let them to acquire more investment in their firm. These resources will let entrepreneurs to develop new projects in order to obtain a sustainable competitive advantage (Jarillo, 1989). Additionally, over the time these top managers may increase their companies´ corporative entrepreneurism, by increasing their commitments, demonstrating greater effectiveness and a higher credibility across the broader organization thanks to networks (Berry, 1996, Jarillo, 1989). That is, managers articulate strategy in a way that guides the organization´s entrepreneurial efforts,

without unduly restricting exploration and the pursuit of new business opportunities (Kelley, 2010).

Apart from top managers support and technological skilled people the research analyze TDCs as an antecedent of CE. TDCs are apprehended by manager through intuitive understanding, and can give robust shape in the form of indicators of competencies and dynamism (Banerjee, 2003). In order to arrive at an understanding of notions of T.D.Cs., managers of technological firms have to employ a series of OL processes, which may be complex and affected both by the nature of initial experience and by the cognitive attributes of entrepreneurs (Banerjee, 2003; Leonard-Barton, 1992; Rerup, 2005; Zahra, 1993).

This point lead us to talk about the second hypothesis which reflects that OL processes make that experienced entrepreneurs may develop a higher tolerance for ambiguity and acceptance of failures as a way of reducing uncertainty, increasing variety and expanding the search for technological opportunities (Rerup, 2005). There is a positively significant relationship between OL and CE. A knowledge structure can be achieved in the company with these OL processes (Omerzel and Antoncic, 2008).

Finally, the results of the last hypothesis relate positively this CE with organizational performance in technological European companies. CE is a pattern of corporate choices and a process of revitalizing the organization (Zahra, 1993). Thus, managers must offer a tight fit between the type of environmental setting -strategic and administrative context and CE activities (Lengnick-Hall, 1992) - since without match (fit), these activities will be unfocused and perhaps unproductive. Shaping the strategic context requires include customer satisfaction criteria, new patent registrations, success in meeting target dates for new product or process introductions, and the achievement of quality control standards (Randoy and Goel, 2003). Managing the administrative context requires net income, return on equity, and return on sales (Hitt *et al.*, 1996; Lengnick-Hall, 1992; Randoy and Goel, 2003). This will be difficult, but with them the likelihood of successful performance is enhanced (Randoy and Goel, 2003). Managers and entrepreneurs in a firm would be able to create new product innovation, increase the investment of revenue new businesses, enable technological entrepreneurship, reformulate the mission and the last but not the least; executives should adopt a long-term view of the effect of CE (Zahra, 1993).

To sum up, successful entrepreneurs need have previously developed technological skills, TDCs, have had TMS, and acquire specific knowledge in order to survive and innovate new entrepreneurial opportunities in their industries. These strategic variables are especially valuable in spotting and exploiting entrepreneurial opportunities using company´s knowledge and experience (Randoy and Goel, 2003). The research reflects that this CE has beneficial effects on the firm's performance. Firms with TMS, technological skills, TDCs and adequate OL processes are more likely to have higher growth and profitability than organizations in which entrepreneurs are lacking such characteristics (Leonard-Barton, 1987, 1992; Omerzel and Antoncic, 2008).

4.6.2 Limitations and future research

First our data are cross-sectional, making it impossible to examine the evolution of the different variables in our study. Future longitudinal analyses should empirically reinforce the theoretical logic of our hypotheses.

Second, although the OECD questionnaire attempted to avoid a bias related to data collection through survey techniques, the CEOs´ influences in this study were subjectively measured by respondent perceptions. Nevertheless, completely objective measures related to CEOs influence are rarely found in research (Henriques and Sadorsky, 1999). For this reason, additional empirical evidence must be offered by future studies.

Finally, this study has considered all these variables in Spanish and European market -only ten OECD countries- and their service and manufacturing industries. Future research should address these limitations, and more research is needed to globalize the results, then, more countries should be included and a greater number of economic sectors.

Apart from this, other variables could be studied like the influence of networks on performance (Jarillo, 1989) or the moderating effect of knowledge in these hypotheses (Bojica et al., 2011; Simsek and Heavey, 2011).

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4.8 References

Alvarez, S.A. and Barney, J.B. (2007), "Discovery and creation: Alternative theories of entrepreneurial action", *Strategic Entrepreneurship Journal*, Vol. 1 No. 1-2, pp. 11-26.

Anderson, J. C. and Gerbing, D. W. (1988), "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach", *Psychological Bulletin*, Vol. 103 No. 3, pp. 411-423.

Andreu, R. and Ciborra, C. (1996), "Organisational learning and core capabilities development: The role of IT", *Journal of Strategic Information Systems*, Vol. 5, pp. 111-127.

Antoncic, B. and Hisrich, R.D. (2001), "Intrapreneurship: construct refinement and cross-cultural validation", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 495-527.

Antoncic, B. and Prodan, I. (2008), "Alliances, corporate technological entrepreneurship and firm performance: Testing a model on manufacturing firms", *Technovation*, Vol. 28, pp. 257–265.

Aragón, J.A., García Morales, V.J. and Cordón Pozo, E. (2007), "Leadership and organizational learning's role on innovation and performance: lessons from Spain", *Industrial Marketing Management*, Vol. 36 No. 3, pp. 349-359.

Armstrong, J. S. and Overton, T. S. (1977) "Estimating nonresponse bias in mail surveys", *Journal of Marketing Research*, Vol. 14, pp. 396-402.

Autio, E., Sapienza, H.J. and Almeida, J.G. (2000), "Effects on age at entry, knowledge intensity, and imitability on international growth", *Academy of Management Journal*, Vol. 43 No. 5, pp. 909-924.

Badguerahanian, L. and Abetti, P. A. (1995), "Case study. The rise and fall of the Merlin-Gerin Foundry Business: A case study in French corporate entrepreneurship", *Journal of Business Venturing*, Vol. 10, pp. 477-493.

Baer, M., and Frese, M. (2003), "Innovation is not enough: Climate for Initiative and Psychological Safety, Process Innovations, and Firm Performance", *Journal of Organizational Behavior*, Vol. 24, pp. 45-68.

Banerjee, P. (2003), "Some indicators of dynamic technological competencies: Understanding of Indian software managers", *Technovation*, Vol. 23, pp. 593-602.

Barringer, B. R. and Bluedorn, A. C. (1999), "The relationship between corporate entrepreneurship and strategic management", *Strategic Management Journal*, Vol. 20, pp. 421-444.

Baum, J. R., Olian, J. D., Erez, M. Schnell, E. R., Smith, K. G., Sims, H. P., Scully, J. S. and Smith, K. A. (1993), "Nationality and work role interactions: A cultural contrast of Israeli and U. S. Entrepreneurs´ versus managers´ needs", *Journal of Business Venturing*, Vol. 8, pp. 399-512.

Berry, M. J. (1996), "Technical entrepreneurship, strategic awareness and corporate transformation in small high-tech firms", *Technovation*, Vol. 16, No. 9, pp. 487-498.

Bojica, A. M., Fuentes-Fuentes, M.M. and Gómez-Gras, J. M. (2011) "Radical and incremental entrepreneurial orientation: The effect of knowledge acquisitions", *Journal of Management & Organization*, Vol. 17 No. 3, pp. 326-343.

Brinckmann, J.; Grichnik, D. and Kapsa, D. (2010), "Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms", *Journal of Business Venturing*, Vol. 25, pp. 24-40.

Brio, J. A. and Junquera, B. (2003), "A review of the literature on environmental innovation management in SMEs: Implications for public policies", *Technovation*, Vol. 23, pp. 939-948.

Byrd, T. A. and Davidson, N. W. (2003), "Examining possible antecedents of IT impact on the supply chain and its effect on firm performance", *Information & Management*, Vol. 41, pp. 243-255.

Choi, B., Poon, S.K. and Davis, J.G. (2008), "Effects of knowledge management strategy on organizational performance: A complementarity theory-based approach", *Omega*, Vol. 36 No. 2, pp. 235-251.

Cohen, J. and Cohen, P. (1983) *Applied multiple regression/correlation analysis for the behavioural sciences*, second ed. Laurence Erlbaum, New Jersey.

Cooper, A.C. (1973), "Technical entrepreneurship: what do we know?", *R&D Management, Vol.* 3 No. 2, pp. 59-64.

Covin, J. G. and D. P. Slevin (1989), "Strategic management of small firms in hostile and benign environments', *Strategic Management Journal*, Vol. 10 No. 1, pp. 75–87.

Covin, J. G. and D. P. Slevin (1991), "A conceptual model of entrepreneurship as firm behavior", *Entrepreneurship Theory and Practice*, Vol. 16, pp. 7–25.

Damanpour, F. (1992), "Organizational size and innovation", *Organizational Studies*, Vol. 13 No. 3, pp. 375-402.

Danneels, E. (2007), "The process of technological competence leveraging", *Strategic Management Journal*, Vol. 28, pp. 511-533.

Danneels, E. (2008), "Organizational antecedents of second-order competences", *Strategic Management Journal*, Vol. 29, pp. 519-543.

Dean, B. V. and Giglierano, J. J. (1990), "Multistage financing of technical start-up companies in Silicon Valley", *Journal of Business Venturing, Vol. 5, pp. 375-389.*

Deeds, D. L.; DeCarolis, D. and Coombs, J. (1999), "Dynamic capabilities and new product development in high technology ventures: An empirical analysis of new biotechnology firms", *Journal of Business Venturing*, Vol. 15, pp. 211- 229.

Douglas, T.J. and Judge, W.Q. (2001), "Total quality management implementation and competitive advantage. The role of structural control and exploration", *Academy of Management Journal*, Vol. 44 No. 1, pp. 158-169.

Fontes, M. (2001), "Biotechnology entrepreneurs and technology transfer in an intermediate economy", *Technological forecasting and social change*, Vol. 66, pp. 59-74.

García Morales, V.J., Lloréns Montes, F.J. and Verdú Jover, A.J. (2006), "Antecedents and consequences of organizational innovation and organizational learning in entrepreneurship", *Industrial Management & Data Systems*, Vol. 106 Nos. 1-2, pp. 21-42.

Giarratana, M.S. and Torrisi, S. (2010), "Foreign entry and survival in a Knowledge-intensive market: Emerging economy countries' international linkages, technology competences, and firm experience", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 85-104.

Gillich, G. R., Amariei, D., Gillich, N. and Amariei O. I. (2009), "Premio- an electronic platform for entrepreneurial training", *Procedia Social and Behavioral Sciences*, Vol. 1 No. 1, pp. 2380-2384.

Goodale, J. C., Kuratko, D. F., Hornsby, J. S. and Covin J. G. (2010), "Operations management and corporate entrepreneurship: The moderating effect of operations control on the antecedents of corporate entrepreneurial activity in relation to innovation performance", *Journal of Operations Management*, Vol. 29, pp. 116-127.

Grant, R.M. (1995), *Contemporary strategy analysis: Concepts, techniques, applications.* Second Edition, Cambridge, MA: Blackwell Publishers Inc.

Grinstein, A. and Goldman, A. (2006), "Characterizing the technology firm: an exploratory study", *Research Policy*, Vol. 35, pp. 121-143.

Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C. (1999), *Análisis Multivariante*. Prentice Hall, Madrid.

Hallak, R.; Brown, G. and Lindsay, N. J. (2011), "The place identity-performance relationship among tourism entrepreneurs: A structural equation modelling analysis", *Tourism Management*, In Press.

Hayek, F.A. (1945), "The use of knowledge in society", *American Economic Review*, Vol. 35, pp. 519–530.

Henriques, I. and Sadorsky, P. (1999), "The relationship between environmental commitment and managerial perceptions of stakeholder importance", *Academy of Management Journal*, Vol. 42, pp. 87-99.

Hernández Mogollón, R., Cepeda Carrión, G., Cegarra Navarro, J. G. and Leal Millán, A. (2010), "The role of cultural barriers in the relationship between open-mindedness and organizational innovation", *Journal of Organizational Change Management*, Vol. 23 No.4, pp. 360-376.

Hitt, M.A., Johnson, R. and Moesel, D. (1996), "The market for corporate control and firm innovation", *Academy of Management Journal,* Vol. 39 No. 5, pp. 1084–1119.

Homburg, C., Krohmer, H. and Workman, J.P. (1999) "Strategic consensus and performance: The role of strategy type and market-related dynamism", *Strategic Management Journal*, Vol. 20, pp. 339-357.

Ireland, R.D., Covin, J.G., and Kuratko, D.F. (2009), "Conceptualizing corporate entrepreneurship strategy", *Entrepreneurship Theory and Practice*, Vol. 33 No.1, pp.19–46.

Itami, H. and Numagami, T. (1992), "Dynamic interaction between strategy and technology", *Strategic Management Journal, Vol.* 13, pp. 119-135.

Jarillo, J.C. (1989) "Entrepreneurship and growth: The strategic use of external resources", *Journal of Business Venturing*, Vol. 4, pp. 133-147.

Jones, G.K., Lanctot, A. Jr. and Teegen, H.J. (2000), "Determinants and performance impacts of external technology acquisition", *Journal of Business Venturing*, Vol. 16, pp. 255-283.

Kelley, D. (2010), "Sustainable corporate entrepreneurship: Evolving and connecting with the organization", *Business Horizons*, Vol. 54 No.1, pp. 73-83.

Knight, G.A. (1997) "Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation", *Journal of Business Venturing*, Vol. 12, pp. 213-225.

Kimberly, J. R. and Evanisko, M. J. (1981), "Organizational innovation: The influence of individual, organizational and contextual factors on hospital adoption of technological and administrative innovation", *Academy of Management Journal*, Vol. 24, pp. 689-713.

Konrad, A.M. and Linnehan, F. (1995), "Formalized HRM Structures: Coordinating Equal Employment Opportunity or Concealing Organizational Practice?", *Academy of Management Journal*, Vol. 38, pp. 787-820.

Lee, C., Lee, K. and Pennings, J. M. (2001), "Internal capabilities, external networks, and performance: A study on technology-based ventures", *Strategic Management Journal*, Vol. 22, pp. 615-640.

Lengnick-Hall, C. A. (1992), "Strategic configurations and designs for corporate entrepreneurship: Exploring the relationship between cohesiveness and performance", *Journal of Engineering and Technology Management*, Vol. 9, pp. 127-154.

Leonard-Barton, D. (1987), "The case for integrative innovation: An expert system at digital", *Sloan Management Review*, Vol. 29 No. 1, pp.7-19.

Leonard-Barton, D. (1992), "Core capabilities and core rigidities: A paradox in managing new product development", *Strategic Management Journal*, Vol. 13, pp. 111-125.

Leonard-Barton, D. and Deschamps, I. (1988), "Managerial influence in the implementation of new technology", *Management Science*, Vol. 34 No. 10, pp.1252-1265.

Lloréns Montes, F. J., Ruiz Moreno, A. and García Morales, V. (2005), "Influence of support leadership and teamwork cohesion on organizational learning, innovation and performance: An empirical examination", *Technovation*, Vol. 25, pp. 1159-1172.

Miller, D. (1983), "The correlates of entrepreneurship in three types of firms", *Management Science*, Vol. 29, pp. 770–791.

Murray, J.Y. and Kotabe, M. (1999), "Sourcing strategies of U.S. service companies: A modified transaction-cost analysis", *Strategic Management Journal*, Vol. 20, pp. 791-809.

Omerzel, D.G. and Antoncic, B. (2008), "Critical entrepreneur knowledge dimensions for the SME performance", *Industrial Management & Data Systems*, Vol. 108 No. 9, pp. 1182-1199.

Pitts, G. (2008), "Life as an entrepreneur: leadership and learning", *Development and learning in organizations*, Vol. 22 No. 3, pp. 16-17.

Podsakoff, P.M. and Organ, D.W. (1986), "Self-reports in Organization Research: Problems and Prospects", *Journal of Management*, Vol. 12, pp. 531-544.

Polities, D. (2008), "Does prior start-up experience matter for entrepreneurs´ learning?", *Journal of Small Business and Enterprise development*, Vol. 15 No. 3, pp. 472-489.

Porter, M.E. (1985), "Technology and competitive advantage", *Journal of Business Strategy, Vol.* 5 No. 3, pp. 60-78.

Randoy, T. And Goel, S. (2003), "Ownership structure, founder leadership, and performance in Norwegian SMEs: Implications for financing entrepreneurial opportunities", *Journal of Business Venturing*, Vol. 18, pp. 619-637.

Ray, G., Muhanna, W. A. and Barnety, J. B. (2005), "Information technology and the performance of the customer service process: A resource-based analysis", *MIS Quarterly*, Vol. 29 No. 4, pp. 625-652.

Real, J.C., Leal, A. and Roldan, J.L. (2006), "Information technology as a determinant of organizational learning and technological distinctive competencies", *Industrial Marketing Management*, Vol. 35, pp. 505-521.

Rerup, C. (2005), "Learning from past experience: Footnotes on mindfulness and habitual entrepreneurship", *Scandinavian Journal of Management*, Vol. 21, pp. 451-472.

Schollhammer, H. (1982), "Internal corporate entrepreneurship", in C.A. Kent, D.L. Sexton, and K.H. Vesper, eds., *Encyclopedia of Entrepreneurship*, Englewood Cliffs, NJ: Prentice Hall, pp. 209-223.

Shane, S. and Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25 No. 1, pp. 217-226.

Shan, W. (1990), "An empirical analysis of organizational strategies by entrepreneurial high-technology firms", *Strategic Management Journal*, Vol. 11, pp. 129-139.

Shepherd, D. A., Covin, J. G. and Kuratko, D. F. (2009), "Project failure from corporate entrepreneurship: Managing the grief process", *Journal of Business Venturing*, Vol. 24, pp. 588-600.

Simsek, Z. and Heavey C. (2011), "The mediating role of knowledge-based capital for corporate entrepreneurship effects on performance: A study of Small- to Medium-Sized firms", *Strategic entrepreneurship Journal*, Vol. 5 No. 1, pp. 81-100.

Simsek, Z., Lubatkin, M.H., Veiga, J. F. and Dino, R.N. (2009), "The role of an entrepreneurially alert information system in promoting corporate entrepreneurship", *Journal of Business Research*, Vol. 62, pp. 810-817.

Srivastava, A. and Lee, H. (2005), "Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship", *Journal of Business Venturing*, Vol. 20, pp. 459-481.

Stuart, R., and Abetti, P. (1990), "Impact of entrepreneurial and management experience on early performance", *Journal of Business Venturing, Vol.* 5, pp. 151-162.

Teece. D. J., G. Pisano and A. Shuen (1990), "Firm capabilities, resources and the concept of strategy", *Consortium on Competitiveness and Cooperation Working Paper*, University of California at Berkeley, Center for Research in Management, Berkeley, CA, pp. 90-99.

Teece, D. J., Pisano, G. and Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533.

Tsai, K.H. and Wang, J.C. (2009), "External technology sourcing and innovation performance in LMT sectors: An analysis based on the Taiwanese technological innovation survey", *Research Policy*, Vol. 38, pp. 518-526.

Van Gils, A. (2005), "Management and governance in Ducth SMEs", *European Management Journal*, Vol. 23 No.5, pp. 583-589.

Venkatraman, N. and Ramanujam, V. (1986), "Measurement of business performance in strategy research: A comparison of approaches", *Academy of Management Review*, Vol. 11 No. 4, pp. 801-814.

Verdú Jover, A. J., Lloréns Montes, F. J. and García Morales, V. J. (2006), "Environment-Flexibility Coalignment and Performance; An Analysis in Large Versus Small-Firms", *Journal of Small Business Management*, Vol. 44 No. 3, pp. 334-349.

Westphal, J.D. and Fredickson, J.W. (2001), "Who directs strategic change? Director experience, the selection of new CEOs, and change in corporate strategy", *Strategic Management Journal*, Vol. 22, pp. 1113-1137.

Wild, R.S., Griggs, K.A. and Downing, T. (2002), "A framework for e-learning as a tool for knowledge management", *Industrial Management & Data Systems*, Vol. 102 No. 7, pp. 371-80.

Zahra, S.A. (1991), "Predictors and financial outcomes of corporate entrepreneurship: an exploratory study", *Journal of Business Venturing*, Vol. 6 No. 4, pp. 259-85.

Zahra, S.A. (1993), "Environment, corporate entrepreneurship, and financial performance: a taxonomic approach", *Journal of Business Venturing,* Vol. 8 No.4, pp. 319-340.

Zahra, S. A. (1996), "Technology strategy and new venture performance: A study of corporate-sponsored and independent biotechnology ventures", *Journal of Business Venturing*, Vol. 11, pp. 289-321.

Zahra, S.A. and Covin, J. G. (1995), "Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis", *Journal of Business Venturing*, Vol. 10, pp. 43-58.

Zahra, S.A. and Garvis, D.M. (2000), "International corporate entrepreneurship and firm performance: the moderating effect of international environmental hostility", *Journal of Business Venturing*, Vol. 15 Nos. 5-6, pp. 469-492.

Zmud, R.W. (1984), "An examination of "Push-Pull" theory applied to process innovation in knowledge work", *Management Science*, Vol. 30, pp. 727-738.

APPENDIX

❖ Top Management Support

Indicate the degree to which you agree or disagree with the following statements about top management support.

1. Top management cultivates technology project champions.

2. Top management ensures adequate funding of technology research and development.

3. Top management restructures work processes to leverage technology opportunities in the organization.

4. Top management facilitates technology transfer through the organization.

❖ Technological Skills

Indicate the degree to which you agree or disagree with the following statements about the technological skills. The skills of the people in the department/unit of technology:

1. Are very superior to closest competitors in hardware and operating systems performance.

2. Are very superior to closest competitors in business applications software performance.

3. Are very superior to closest competitors in communications services efficiency.

4. Are very superior to closest competitors in the generation programming languages.

- **Technological Distinctive Competencies**

Indicate the degree to which you agree or disagree with the following statements about whether the organization has:

1. Capability to obtain information about the status and the progress of science and relevant technologies.

2. Capability to generate advanced technological processes.

3. Capability to assimilate new technologies and useful innovations.

4. Capability to attract and retain its qualified scientific-technical staff.

5. Capability to dominate, generate or absorb basic and key technologies.

6. Effectiveness in setting-up programs oriented to internal development of technological or technology absorption competencies, either from R+D centers, or suppliers and customers.

- **Organizational Learning**

In the last three years:

1. The organization has acquired and shared much new and relevant knowledge that provided competitive advantage.

2. The organization's members have acquired some critical capacities and skills that provided competitive advantage.

3. Organizational improvements have been influenced fundamentally by new knowledge entering the organization (knowledge used).

- **Corporate Entrepreneurship**

In the last three years.

1. Proactiveness.

1.1. In dealing with competitors, the organization is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.

1.2. In general, the top managers at our firm have a strong proclivity for high risk projects (with chances of very high returns).

1.3. In general, the top managers at our firm believe that, owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives.

1.4. When confronted with decision-making situations involving uncertainty, our organization typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.

2. New business venturing.

2.1. The organization has stimulated new demands on the existing products/services in the currents markets through aggressive advertising and marketing.

2.2. The organization has broadened the business lines in the current industries.

2.3. The organization has pursued new businesses in new industries that are related to the current business.

2.4. The organization has entered new businesses by offering new lines and products/services.

3. Self-renewal.

3.1. The organization has reorganized units and divisions to increase organizational innovation.

3.2. The organization has coordinated activities among units to enhance organizational innovation.

3.3. The organization has adopted flexible organizational structures to increase innovation.

3.4. The organization has trained and encouraged to the employees to be creative and innovative.

4. Organizational innovation.

The organization has significantly increased:

4.1. The spending on new products/services development activities.

4.2. The number of products/services added by the organization and already existing in the market.

4.3. The number of new products/services introduced for first time in the market by the organization.

4.4. The emphasis in R&D, technological leadership and innovations.

❖ **Organizational Performance**

Relative to your main competitors, what is your firm's performance in the last three years in the following areas?

1. Organizational performance measured by return on assets (economic profitability or ROA).

2. Organizational performance measured by return on equity (financial profitability or ROE).

3. Organizational performance measured by return on sales (percentage of profits over billing volume or ROS).

4. Organization's market share in its main products and markets.

5. Growth of sales in its main products and markets.

❖ **Control Variables**

Finally, please fill out the following general information that helps us to complete the statistical analysis of our study:

1. General business sector.
2. Size:
2.1 Total number of employees in the organization in 2009.
2.2. Volume of sales in 2009 (million of Euros).
3. Nation

Capítulo 5

5 CONCLUSIONES

5.1 Conclusiones

El presente capítulo trata de ofrecer un resumen general de las distintas aportaciones obtenidas por todo el trabajo en conjunto, además de las aportaciones de los tres artículos de investigación presentados en esta tesis doctoral. Por lo tanto, en primer lugar, pondremos de relieve las principales conclusiones generales obtenidas de la investigación desarrollada, así como las conclusiones de cada artículo. A continuación, destacamos tanto las implicaciones teóricas como las implicaciones prácticas. Seguidamente se describen las limitaciones que ofrece la investigación, relacionadas con la muestra, con los problemas encontrados en la medición, con el sesgo ofrecido por la subjetividad de las respuestas en las encuestas y con el estudio longitudinal de las variables. Finalmente se describen las posibles líneas futuras de investigación que se pueden desprender de esta investigación, que no obstante quedan abiertas tras la conclusión del trabajo.

La aportación principal del trabajo de investigación desarrollado, y que está presente en cada uno de los artículos, reside en la difusión, profundización y análisis de la "innovativeness". Primero se ha dado una ampliación de la literatura en el uso de "personal innovativeness" u orientación a la innovación del personal en la empresa, recogiéndose una influencia indirecta en el resultado hotelero a través de las tecnologías de la comunicación y la información, por medio de una de sus principales herramientas, Internet (OCDE, 2009).

Además se ha extendido la literatura en materia de "organizational innovativeness" u orientación a innovar en la empresa hacia el espíritu emprendedor corporativo. En la época de recesión en que vivimos el papel del espíritu emprendedor corporativo es vital para el resultado en todas las empresas de tecnología (Antoncic y Hisrich, 2001). Espíritu emprendedor corporativo no debe ser estudiado aisladamente, sino que su análisis debe estar acompañado de otra serie de variables estratégicas tales como los activos tecnológicos. Estas variables tecnológicas apenas habían sido previamente analizadas empíricamente, sobre todo su influencia sobre el espíritu emprendedor corporativo y posteriormente sobre los resultados en empresas tecnológicas (Omerzel y Antoncic, 2008).

Este enfoque hacia el análisis de la influencia de las variables tecnológicas o de tecnologías de comunicación e información viene justificado ya que actualmente la mayoría de las decisiones estratégicas que la empresa toma hoy en día, en un ambiente globalizado y cada día más competitivo, hacen especial énfasis en el desarrollo de la tecnología (Jones *et al*., 2000). Sin embargo este acento en la tecnología nunca ha sido fácil, no obstante con ella las empresas incorporan sistemas que permiten reducir costes y un mayor éxito empresarial, siendo la tecnología una herramienta esencial para esta época que atravesamos (Ross *et al*., 1996). El valor de estas iniciativas tecnológicas yace en la mejora de la competitividad empresarial, que es incierta e incuantificable (Ross *et al*., 1996), por lo que cuando se consigue tener una alta competitividad se favorece la existencia de una ventaja competitiva sostenible (Porter, 1980).

Además, hay que destacar el desarrollo empírico y teórico de la variable de competencias distintivas tecnológicas o TDCs, que normalmente han sido vistas como consecuencia del espíritu emprendedor y no como un antecedente (Real et al., 2006). Y los escasos trabajos que la han estudiado como antecedente (Danneels, 2008) únicamente las estudiaron relacionadas con habilidades –no tecnológicas- y excedentes de recursos tecnológicos. Por lo que las investigaciones aportan una nueva visión a las cuestiones existentes previas sobre las TDCs.

Una vez destacadas las principales aportaciones de este trabajo, se pasan a analizar las principales conclusiones obtenidas en cada capítulo a modo de síntesis de cómo se ha ido respondiendo a los objetivos inicialmente planteados.

En el capítulo 2, titulado "*The impact of Internet on tourism: The case of Spanish hotels*", se refleja como las tecnologías de la información y la comunicación tienen gran impacto en el sector hotelero (Scaglione et al., 2009), sobre todo a través de Internet, lo que permite una excelente distribución de la información del hotel. En el trabajo se pone de manifiesto como un mayor uso de Internet en los hoteles es motivado a partir del aprendizaje que lleva a una cultura de innovación y al fortalecimiento de una orientación innovadora del personal de la empresa para utilizar las tecnologías de la información y la comunicación. De esta forma cuanto más arraigada esté esa cultura innovadora entre los empleados de la empresa y por lo tanto, mayor formación innovadora tengan, la empresa tendrá mayores posibilidades de obtener una ventaja competitiva por el uso de las tecnologías de la comunicación e información a través de

Internet y podrán influir en mayores reservas de vuelos de bajo coste y mayores reservas hoteleras (Chipika y Wilson, 2006; Covin y Slevin, 1991; Slater y Narver, 1995).

La estructura del sector hotelero está cambiando en un continuo proceso de globalización, por lo que los directivos hoteleros deben de buscar esa innovación en todas las áreas de la compañía y sobre todo en sus activos intangibles, como es el conocimiento del personal de su empresa, incrementando de esta manera la capacidad de innovación o "innovativeness" del personal del hotel (Larsen y Sorebo, 2005; Laudon y Laudon, 2007).

Sin embargo, se ha demostrado que las tecnologías de la información y la comunicación –Internet (OCDE, 2009)- junto con las condiciones meteorológicas del país destino –España en este caso- son mucho más importantes que esa cultura innovadora del hotel para mejorar las reservas hoteleras y atraer los vuelos de bajo coste (Cockerell, 1992; Kerpel, 1990).

Por lo tanto, se puede decir que un hotel situado en un lugar donde el tiempo no es agradable y por lo tanto no llegan tantos vuelos de bajo coste o no hay una buena conexión de Internet tendrá unas reservas hoteleras menores, aunque sus empleados tengan una alta propensión a innovar, que un hotel situado en una zona donde haya playas, buena temperatura, mucho sol, es decir, vayan muchos vuelos de bajo coste y exista una buena conexión a Internet (Cockerell, 1992; Kerpel, 1990). Esta afirmación que parece tan obvia, sin embargo ha sido ampliada por nuestra parte al decir que para que esta ventaja climática que poseen los hoteles españoles sea sostenible se debe de incentivar unos procesos de aprendizaje organizativo que favorezcan la propensión u orientación a innovar dentro del hotel por parte de los empleados, de modo que los clientes estén satisfechos y quieran repetir destino otro año (Calantone et al., 2002).

Sin embargo, en nuestra investigación no hemos encontrado relación directa significativa entre el aprendizaje organizativo, la propensión a innovar de los empleados o "personal innovativeness" y las reservas en hoteles provenientes de vuelos de bajo coste, sino que hemos visto que esas mayores reservas pueden venir dadas por la mediación del uso de tecnologías de la información y la comunicación (Internet) y por el mayor número de reservas de vuelos de bajo coste a ese lugar. Eso sí siempre y cuando se haya implantado una cultura innovadora previa en el hotel (Agarwal y Prasad, 1998).

Como conclusión general de este capítulo hay que decir que, gracias al aprendizaje de una cultura innovadora que favorece que el personal de una empresa quiera innovar, las tecnologías de la información y la comunicación, a través de Internet, son una herramienta que sirven para gestionar, promocionar y atraer a turistas, principalmente internacionales a los países con buen clima (Kerpel, 1990) y por lo tanto muchos vuelos de bajo coste, incrementando las reservas hoteleras (Papatheodorou, 2002).

A continuación pasamos a ver las conclusiones del tercer capítulo, titulado: "*The effects of technological distinctive competencies and top management support on corporate entrepreneurship*". En este capítulo se observa que en los últimos 20 años la globalización y los rápidos cambios tecnológicos han promovido un cambio en el comportamiento de los empleados (Jones *et al*., 2000). Cambios que han hecho que todos los empleados de la organización tengan que desarrollar una serie de competencias distintivas tecnológicas o TDCs, para conseguir lograr una ventaja competitiva sostenible en la empresa (Banerjee, 2003; Leonard-Barton, 1992). Estas competencias tecnológicas son promovidas por variables tecnológicas como son el excedente de recursos tecnológicos (Miller y Friesen, 1982), las habilidades tecnológicas (Lee *et al*., 2001), el desarrollo de una infraestructura tecnológica (Cantwell y Piscitello, 2002), y el incremento del apoyo por parte de la alta dirección o TMS (Leonard-Barton, 1992).

Una vez fortalecidas o creadas las competencias distintivas tecnológicas en la empresa, estas pueden ser vistas como una fuente de ventaja competitiva porque abren una oportunidad para explotar una capacidad o competencia tecnológica que es realmente difícil de imitar por los competidores (Alvarez y Barney, 2007). Ventaja competitiva que llegará a ser sostenible por medio de que una serie de procesos de aprendizaje organizativo sean desarrollados en la compañía para promulgar estas competencias distintivas tecnológicas en todos los niveles organizativos y que hacen que las empresas puedan llegar a ser consideradas entidades cognitivas donde el conocimiento adquirido y las nuevas competencias pueden ser perfectamente desarrolladas (Andreu y Ciborra, 1996; Chenhall, 2005; Leonard-Barton, 1992; Senge *et al*., 1994).

No obstante, no se puede olvidar que, para que todos estos procesos de aprendizaje organizativos se lleven a cabo y las TDCs puedan ser desarrolladas, la empresa necesita un apoyo por parte de la alta dirección tanto financiero, por los costes

que todo ello conlleva, como en la toma de decisiones, para que todos los empleados vean que estos procesos son motivados por los directivos (Alvarez y Barney, 2007; Hornsby *et al*., 1990; Rerup, 2005; Shane y Venkataraman, 2000; Srivastava y Lee, 2005).

La investigación refleja que tanto el apoyo de la alta dirección como TDCs influyen positiva y directamente en el aprendizaje organizativo. Y además estos tres conceptos, influyen directa y positivamente al espíritu emprendedor corporativo o "corporate entrepreneurship", que va a permitir que la empresa se diferencie de los competidores a través del conocimiento específico de capacidades tecnológicas adquirido gracias al apoyo directivo (Rerup, 2005; Shane y Venkataraman, 2000; Srivastava y Lee, 2005). Luego este espíritu emprendedor corporativo está influido directamente por el apoyo de la alta dirección, las TDCs y el aprendizaje organizativo, como hemos comentado y además será influido indirectamente por el apoyo de la alta dirección y las TDCs, a través del aprendizaje organizativo.

Finalmente, se ha demostrado empíricamente, que el espíritu emprendedor del que hablamos en las empresas tecnológicas, dirige la compañía, en nuestra muestra española, hacia un mayor desempeño organizativo. Y es que las organizaciones que llevan a cabo actividades emprendedoras logran mayores niveles de crecimiento y rentabilidad que las que no las llevan a cabo (Antoncic y Hisrich, 2001) y por lo tanto, logran mejor resultado (Antoncic y Prodan, 2008; Zahra, 1991).

En el cuarto capítulo titulado "*Influence of technology and learning in corporate entrepreneurship on European technological firms*", ofrece conclusiones parecidas a las del capítulo 3, pero aquí la variable central objeto de estudio ha pasado de ser las competencias distintivas tecnológicas a ser el espíritu emprendedor corporativo o "corporate entrepreneurship" y además otra diferencia yace en que ya las TDCs son estudiadas como parte de una conjunto de variables tecnológicas, que engloban las TDCs, las habilidades tecnológicas en la empresa y el apoyo de la alta dirección. Por lo tanto, se puede ver cómo, en el caso de las empresas tecnológicas, el "corporate entrepreneurship" o espíritu emprendedor corporativo tecnológico será afectado, de manera positiva y significativa, conjuntamente por habilidades tecnológicas del personal de la empresa, cuya adquisición permitirá el desarrollo de capacidades internas del personal que otras empresas no tienen (Leonard-Barton, 1987, 1992); por el apoyo de la alta dirección, con mayores inversiones financieras en I+D y mayor refuerzo en la

confianza de las decisiones de los directivos a empresa y una mayor credibilidad, y por TDCs, que darán una fuerte robustez a los indicadores de competencias y dinamismo de la compañía.

También se refleja como los procesos de aprendizaje organizativo en las empresas tecnológicas llevan a un espíritu emprendedor corporativo más desarrollado mediante la aparición de oportunidades tecnológicas a partir de una buena estructura de conocimiento que además de dar lugar a nuevas oportunidades de desarrollo para la empresa, permite la reducción de la incertidumbre tecnológica (Rerup, 2005), lo que puede ser utilizado como fuente de ventaja competitiva frente a los competidores (García *et al*., 2006; Omerzel and Antoncic, 2008; Simsek *et al*., 2009).

Finalmente, como última conclusión de este capítulo y en línea con algunos trabajos de investigación (Lengnick-Hall, 1992), cabe destacar, que el espíritu emprendedor corporativo en empresas tecnológicas ofrece un mayor resultado en la empresa, gracias a un ajuste adecuado entre las actividades estratégicas y administrativas.

Y como principal originalidad del trabajo cabe destacar que se ha vuelto a ampliar la literatura del "corporate entrepreneurship" y de las TDCs, pues éstas ya no sólo no son vistas como una consecuencia del espíritu emprendedor corporativo o "corporate entrepreneurship" (Real et al., 2006), ni tampoco vistas como un antecedente por sí sólo del espíritu emprendedor corporativo (Danneels, 2008; Martin et al., 2011); sino que aquí son vistas como un antecedente del espíritu emprendedor corporativo pero en conjunción con otras dos variables tecnológicas (habilidades tecnológicas y apoyo de la alta dirección a la tecnología).

En resumen, en estos dos últimos capítulos, la principal y más novedosa aportación a la literatura es que las competencias distintivas tecnológicas pueden ser vistas como un antecedente del espíritu emprendedor y no como una consecuencia, en las empresas tecnológicas. En el primer caso se ha visto por aislado mientras que en el segundo caso se ha visto como parte de una influencia conjunta con otras variables tecnológicas (habilidades tecnológicas y apoyo de la alta dirección).

Una vez observadas todas estas conclusiones se puede comprobar que se han cumplido prácticamente todos los objetivos que al inicio fueron planteados. Se ha comprobado que la orientación a innovar del personal de una empresa no afecta

directamente al resultado hotelero, sino que lo afecta indirectamente a través de las tecnologías de la comunicación y la información y las mayores reservas en vuelos de bajo coste.

También hemos evidenciado que realmente a la hora de mejorar el resultado de reservas hoteleras tanto las tecnologías de comunicación y de información como el clima meteorológico son importantes, siendo transcendentales las tecnologías de la comunicación y la información por su influencia directa y por su alta significación.

En el caso de los precios hemos comprobado que los vuelos de bajo coste sí influyen las reservas hoteleras, luego los turistas no vienen sólo y exclusivamente por el clima que se ofrece sino que la gran oferta de compañías de aerolíneas de bajo coste tienen una gran influencia en el número de reservas hoteleras.

En el caso del aprendizaje organizativo, hemos demostrado que al igual que la capacidad de innovación del personal no influye directamente en los resultados si no es por medio de Internet. Es decir, que en verdad existe únicamente una relación intermedia, por lo que sí que es necesario ese aprendizaje pero previamente al uso de las tecnologías de la información y la comunicación.

Se demuestra que los procesos de aprendizaje organizativo influye positivamente y por lo tanto, son importantes para el fortalecimiento de la capacidad de innovación del personal con el uso de tecnologías de la comunicación y la información y además hemos demostrado que esos procesos de aprendizaje organizativo influyen en la capacidad de la innovación organizativa u "organizational innovativeness" y consecuentemente en el espíritu emprendedor corporativo o "corporate entrepreneurship".

También hemos comprobado una gran cantidad de objetivos en las empresas tecnológicas tanto españolas como europeas. El excedente o disponibilidad de recursos tecnológicos facilitan el desarrollo de competencias tecnológicas de la organización, por lo que éstas son desarrolladas una vez que existen recursos en la organización.

Estas competencias son también mejoradas por las habilidades directivas, por la infraestructura tecnológica de la compañía y por el apoyo de la alta dirección en la compañía de una forma positiva y significativa. También se ha comprobado que los procesos de aprendizaje organizativo en empresas tecnológicas españolas no pueden ser desarrollados en la empresa sin el apoyo de la alta dirección y por tanto sin el apoyo de

todo el personal de la compañía, es decir, que no pueden ser desarrolladas por unas pocas personas independientes.

Hemos reflejado, que el espíritu emprendedor de la compañía no solo es el que hace que se mejoren las competencias tecnológicas de las compañías españolas y europeas tecnológicas, sino que al contrario también las competencias distintivas tecnológicas de la compañía son las que mejoran el espíritu emprendedor corporativo.

De la misma manera, hemos evidenciado que el conocimiento que los emprendedores poseen no promueve el desarrollo de un proceso de aprendizaje a lo largo de la organización, como cabría esperar sino que son los procesos de aprendizaje de las competencias que posee la compañía las que favorecen el espíritu emprendedor corporativo.

Muchas veces es pensado que el espíritu emprendedor corporativo es el que incentiva a los directivos a mejorar en la empresa, sin embargo aquí se ha comprobado que también puede ser que sean las decisiones y las inversiones de los altos directivos las que incentivan ese espíritu emprendedor corporativo.

Las variables tecnológicas que hemos visto, no sólo afectan al espíritu emprendedor corporativo a nivel individual, sino que lo afectan de una forma conjunta en las empresas tecnológicas españolas y europeas.

Finalmente y con respecto al resultado empresarial, hemos demostrado que en el caso de las compañías hoteleras las reservas vendrán dadas por el mayor uso de las tecnologías de la comunicación y de la información a través de Internet y por el mayor número de reservas de vuelos de bajo coste. Y con respecto a las empresas tecnológicas, tanto españolas como europeas, el resultado empresarial se verá directamente incrementado por medio del espíritu emprendedor corporativo, como variable conjunta y no separado en cada uno de sus distintos componentes.

No obstante, aunque hemos cubierto la mayoría de los objetivos inicialmente planteados en la introducción, hay algunos que no hemos podido comprobar, como es la influencia de cada una de las dimensiones del espíritu emprendedor corporativo en el resultado o la influencia de cada una de estas variables en cada dimensión del espíritu emprendedor corporativo, sobre todo en la capacidad de innovación de la organización u “organizational innovativeness”.

Estos objetivos no logrados se proponen como futuras líneas de investigación que se intentarán resolver aplicando estas variables en otra muestra o realizando otra combinación distinta de la actual.

5.2 Implicaciones del Trabajo de Investigación

En este apartado escribimos una serie de implicaciones que se desprenden de esas conclusiones obtenidas, lo que aumenta el interés para los directivos de estas investigaciones.

5.2.1 Implicaciones Teóricas

Al hablar de una cultura innovadora mediante el aprendizaje organizativo y la orientación innovadora del personal del hotel, los directivos de los hoteles deben de innovar continuamente en el campo de los servicios basados en las tecnologías de la información y comunicación, lo que permitirá una mayor implicación del personal para intentar atraer más turistas por medio de vuelos de bajo coste (Matthing et al., 2006; Straub, 1994).

Si los directivos consiguen promocionarse a través de estas tecnologías de la información y la comunicación, conseguirán mayores resultados, y una vez conseguidos deberán de tratar de mantener a los clientes y conseguir una ventaja competitiva (Martinez y Raya, 2008). Así al resaltar la cultura innovadora de los empleados se puede incrementar la fidelidad de los clientes y se podrá conseguir una ventaja competitiva sostenible (Lee et al., 2001) ya que los clientes, volverán al año siguiente más fácilmente (Satterlee, 2003).

Si nos centramos ahora en las empresas tecnológicas, para hacer surgir las competencias distintivas tecnológicas de una compañía los directivos tienen que promocionar el excedente de recursos tecnológicos (Miller y Friesen, 1982), lo que implicaría lograr un perfecto dominio de ese excedente de recursos; potenciar algo más las habilidades tecnológicas de la compañía, que permitirá que la empresa desarrolle una serie de habilidades que de otra forma sería imposible conseguir (Lee et al., 2001); incentivar una infraestructura tecnológica, que permitirá una estructura organizativa, donde las competencias distintivas tecnológicas puedan ser llevadas a cabo adecuadamente, beneficiándose de la tecnología de la compañía (Cantwell y Piscitello, 2002); y aportar soporte o ayuda a la empresa, cuya efectividad va a atraer el capital

tecnológico, un abundante material y unos recursos humanos bien preparados (Leonard-Barton, 1992; Miller y Friesen, 1982).

Además del soporte financiero, los directivos deben de ver la toma de decisiones como una estrategia o una forma de hacer que el personal más preparado o los más emprendedores puedan desarrollar sus capacidades dinámicas y de esta forma aumentar la competitividad de la empresa (Brío y Junquera, 2003; Deeds, et al., 1999; Leonard-Barton, 1987, 1992; Tsai y Wang, 2009). Por lo tanto, esta toma de decisiones estratégica podría servir para dar lugar a oportunidades emprendedoras a partir de la mejora del conocimiento de la compañía y de las variables tecnológicas (Randoy y Goel, 2003) que harán que la compañía tenga mayor probabilidad de fortalecer sus capacidades. De esta forma habrá un mayor crecimiento y mayor rentabilidad frente a los competidores que no tienen tales características, lo que puede permitir reducir la incertidumbre, incrementar la variedad y expandir la investigación para la creación oportunidades tecnológicas (Rerup, 2005).

5.2.2 Implicaciones para la Gestión

Con estas implicaciones lo que pretendemos es ofrecer a los directivos algunos mecanismos para poder mejorar los aspectos estudiados en este trabajo. Al ver como se aumenta el resultado hotelero teóricamente en nuestro capítulo 2, y comprobarlo empíricamente podemos afirmar que muchos directores deberían de ejecutar y mejorar sus aplicaciones de Internet, mediante la inversión en la ejecución o mejora de páginas web y en una serie de catálogos que atraigan a los turistas al hotel.

Los directivos de hoteles deben seguir promocionando más su hotel a través de Internet, reflejando que sus hoteles gozan de un tiempo excelente la mayoría de los días del año, agradables temperaturas y tienen una buena conexión a Internet, aumentando así el interés de las aerolíneas en nuestro país y por tanto los vuelos de bajo coste que vienen hacia estos destinos y como consecuencia las reservas de estos hoteles (Das, 2008; Oorni y Klein, 2003).

Estos aspectos serán mucho más importantes que invertir únicamente en mecanismos que faciliten el aprendizaje organizativo. No obstante, los procesos de aprendizaje son necesarios para que, una vez alcanzado un número óptimo de turistas, los empleados sepan cómo mantenerlos interesados en el hotel mediante el empleo de

las tecnologías de la información y la comunicación o mediante el "e-business" (Curry y Stancich, 2000).

En el caso de las compañías de tecnología, hemos reflejado que los directivos deberán promover las variables tecnológicas mediante el desarrollo de habilidades directivas excepcionales que otras empresas no tienen, como el conocimiento tecnológico (Leonard-Barton, 1992), o deberán establecer una estructura flexible que permita a su empresa competir globalmente y compartir su conocimiento por toda la compañía (Leonard-Barton, 1992) y atraer capital tecnológico efectivamente (Miller y Friesen, 1982). Si los directivos son capaces de fortalecer las TDCs en su compañía, ellos podrán desarrollar un espíritu emprendedor corporativo a través de la orientación a innovar u "organizational innovativeness" lograda con el conocimiento tecnológico (Danneels, 2008).

Una forma de buscar nuevo apoyo/capital por parte de la dirección sería incentivar nuevas ventas, el capital financiero, la toma de decisiones significativas o importantes y establecer nuevas redes sociales para asegurarse ese capital financiero adicional (Lee *et al.,* 2001); todo ello permitiría que la compañía incrementara o ayudara al desarrollo de las competencias distintivas tecnológicas (Autio *et al*., 2000; Danneels, 2008) y por tanto pudiera así diferenciarse de sus competidores y dará a los directivo un mayor nivel de credibilidad a través de toda la organización (Berry, 1996).

Además, los directivos deberían explotar el conocimiento específico logrado por los procesos de aprendizaje organizativo e incrementar el espíritu emprendedor corporativo o "corporate entrepreneurship" a través de la "organizational innovativeness" o capacidad u orientación a la innovación de la empresa de forma que pueda conseguir obtener una ventaja competitiva sostenible (Omerzel y Antoncic, 2008).

En el caso del incremento del resultado empresarial a partir del espíritu emprendedor, hemos venido destacando que la empresa debe de adaptar el ambiente estratégico y administrativo de la compañía a la forma de actuación de los emprendedores para obtener ese mejor resultado (Lengnick-Hall, 1992). El ajuste del contexto estratégico requeriría incluir una adaptación de los criterios de satisfacción de los clientes, un registro de nuevas patentes, triunfo en el establecimiento de fechas para la introducción de nuevos productos o procesos y el logro de normas de control de calidad (Randoy y Goel, 2003). Mientras que moldear el contexto administrativo exige

incentivar los ingresos netos o los ingresos por ventas (Hitt et al., 1996; Lengnick-Hall, 1992; Randoy y Goel, 2003). Por lo tanto si se quiere mejorar el desempeño a fin de obtener una ventaja competitiva la empresa debe de realizar una adecuada combinación de las características de ambos ambientes.

A colación del anterior párrafo hay que destacar que estas formas de conseguir el ajuste de cada dimensión empresarial –estratégica y administrativa- permitirá a los directivos realizar los cambios necesarios para incentivar a los emprendedores, quienes podrían: Motivar la innovación de nuevos productos, incrementar las inversiones de los ingresos de nuevos negocios, capacitar la tecnología dentro del espíritu emprendedor corporativo, reformular la misión de la empresa y por último, pero no menos importante, adoptar un punto de vista a largo plazo de los efectos del espíritu emprendedor corporativo (Zahra, 1993).

5.3 Limitaciones del Trabajo de Investigación

En este apartado reflejamos algunas de las principales limitación de los trabajos de investigación realizados. Primero, los datos del estudio basados en auto informes pueden estar sujetos al sesgo de subjetividad social (Podsakoff y Organ, 1986). Sin embargo, asegurar el anonimato puede reducir este sesgo incluso cuando las respuestas seguirán siendo sensibles a estos temas importantes para la organización (Konrad y Linnehan, 1995). El sesgo de bajo riesgo social en este estudio fue indicado por muchos directivos que indicaron que no tenía sentido que todas las compañías fuesen más allá de la normativa obligatoria. No obstante, las respuestas están sujetas a interpretación por los directivos individuales.

Segundo, la ausencia de medidas objetivas para todas las variables es una limitación. Sin embargo, la validación externa de algunas variables desde un subconjunto de encuestados incrementó la confianza en los auto informes y redujo el riesgo de método común de la varianza. En consecuencia, la posibilidad de un método con sesgo común fue comprobada usando el test de un factor de Harman y otros métodos. Nosotros también usamos datos objetivos y cambiamos el orden de presentación de los ítems del estudio entre los distintos sujetos. De esta manera el método de sesgo común no parece estar presente (Konrad y Linnehan, 1995; Podsakoff y Organ, 1986).

Tercero, la naturaleza de corte seccional de la investigación en una serie de conceptos dinámicos nos permite analizar sólo una situación específica en el momento de las organizaciones estudiadas, y no su conducta global a lo largo del tiempo. Nuestra aproximación ha reducido las magnitudes de este problema, porque las características dinámicas y las afirmaciones causales pueden ser hechas si las relaciones están basadas en evidencias teóricas (Hair et al, 1999). Por esta razón, nosotros hicimos un esfuerzo teórico que nos permitiría identificar y comprobar la existencia formal de las diferentes relaciones causa-efecto. No obstante, la investigación futura debería enfocarse en un estudio longitudinal. La investigación longitudinal puede aproximar estas variables con mayor precisión y estudiar sus determinantes, procesos y resultados sistemáticamente, por lo que no permitirá analizar la evolución de las variables con el tiempo y proponer conclusiones más acertadas sobre su actividad.

Cuarto, el uso de una única respuesta puede haber influido en la precisión de algunas medidas. Sin embargo, las dificultades para obtener patrocinadores para la investigación basada en múltiples visiones de cada empresa, el valor del conocimiento de los CEOs de la empresa, y la práctica común en la investigación organizativa dan lugar a tomar a los CEOs como principales encuestados.

Quinto, nosotros nos hemos concentrado en determinados sectores por lo que sería necesario analizar los resultados en otros sectores estratégicos.

Sexto, hay que indicar que, aunque se han analizado diferentes variables, un gran número de variables de otro tipo pueden ser analizadas u otras combinaciones pueden ser realizadas para analizar su influencia en el espíritu emprendedor corporativo (Campos et al., 2010; García *et al*., 2006; Nonaka y Takeuchi, 1995; Simsek et al., 2011).

Finalmente y cómo última limitación habría que destacar que tanto en el capítulo 2 como en el 3 las muestras seleccionadas fueron de empresas de Andalucía y de España respectivamente, por lo que el estudio debería ampliarse a empresas europeas o globales de forma que los resultados puedan ser más generalizables. No obstante esta limitación ha sido resuelta en el capítulo 4 al ampliar el estudio a empresas europeas, aunque un estudio con un mayor número de empresas podría realizarse y el siguiente paso sería estudiar no sólo empresas europeas si no ir más allá para poder hacer los resultados globales.

5.4 Futuras Líneas de Investigación

Los estudios futuros deberían estar basados en una muestra más grande y podrían integrar perfectamente la influencia de factores externos. También sería interesante estudiar similares características no solo a nivel de directivos sino a todos los niveles de la organización, es decir, que los empleados fueran también encuestados en estos estudios, aunque esto sería realmente caro. El desarrollo de un esquema de colaboración entre directores y académicos generaría una estrategia bastante buena en las empresas hoteleras y en las tecnológicas.

Siguiendo con las líneas de esta investigación podríamos ver si una vez alcanzado un buen conocimiento tecnológico, adquirido con los procesos de aprendizaje organizativo, podríamos comprobar si el espíritu emprendedor seguirá aumentando.

Otra investigación muy interesante sería comprobar la mayoría de las relaciones planteadas en este estudio pero desagregando el espíritu emprendedor corporativo en las variables que aquí lo forman, que son "organizational innovativeness" u orientación a innovar por parte de la empresa, "new business venturing" o creación de nuevos negocios, "proactiveness" o proactividad y "self-renewal" o autorrenovación. Además siguiendo con la línea anterior si esas cuatro dimensiones se combinasen con el conocimiento de una empresa sería interesante observar los resultados obtenidos.

Además al trabajar con directivos como principales encuestados se podría estudiar cómo afectan las redes sociales de los directivos al espíritu emprendedor corporativo o al resultado empresarial.

Por último, otros puntos interesantes serían la aplicación de otras formas de demostrar empíricamente nuestras hipótesis, tales como la aplicación de variables mediadoras en nuestras relaciones, o de variables moderadoras en los modelos de regresión lineal jerárquica.

5.5 Bibliografía

Agarwal, R. y Prasad, P. (1998), "A conceptual and operational definition of personal innovativeness in the domain of information technology", *Information Systems Research*, pp. 9, Vol. 204-215.

Alvarez, S.A. and Barney, J.B. (2007), "Discovery and creation: alternative theories of entrepreneurial action", *Strategic Entrepreneurship Journal*, Vol. 1 No. 1-2, pp. 11-26.

Andreu, R. y Ciborra, C. (1996), "Organisational learning and core capabilities development: The role of IT", *Journal of Strategic Information Systems*, Vol. 5, pp. 111-127.

Antoncic, B. y Hisrich, R.D. (2001), "Intrapreneurship: construct refinement and cross-cultural validation", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 495-527.

Antoncic, B. y Prodan, I. (2008), "Alliances, corporate technological entrepreneurship and firm performance: Testing a model on manufacturing firms", *Technovation*, Vol. 28, pp. 257–265.

Autio, E., Sapienza, H.J. y Almeida, J.G. (2000), "Effects on age at entry, knowledge intensity, and imitability on international growth", *Academy of Management Journal*, Vol. 43 No. 5, pp. 909-924.

Banerjee, P. (2003), "Some indicators of dynamic technological competencies: Understanding of Indian software managers", *Technovation*, Vol. 23, pp. 593-602.

Berry, M. M. J. (1996), "Technical entrepreneurship, strategic awareness and corporate transformation in small high-tech firms", *Technovation*, Vol. 16, No. 9, pp. 487-498.

Brio, J. A. y Junquera, B. (2003), "A review of the literature on environmental innovation management in SMEs: Implications for public policies", *Technovation*, Vol. 23, pp. 939-948.

Calantone, R.J., Cauvsgil, S.T. y Zhao, Y. (2002), "Learning orientation, firm innovation capability, a firm performance", *Industrial Marketing Management*, Vol. 31, pp. 515-524.

Campos Martinez, S., Garau Vadell, J. B. y Martinez Ruiz, M. P. (2010), "Factors influencing repeat visits to a destination: The influence of group composition", *Tourism Management, Vol.* 31 No. 6, pp. 862–870.

Cantwell, J. y Piscitello, L. (2002), "The location of technological activities of MNCs in European regions: The role spillovers and local competencies", *Journal of International Management*, Vol. 8, pp. 69-96.

Chenhall, R. H. (2005), "Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: An exploratory study", *Accounting, Organizations and Society*, Vol. 30, pp. 395-422.

Chipika, S. y Wilson, G. (2006), "Enabling technological learning among light engineering SMEs in Zimbabwe through networking", *Technovation*, Vol.26, pp. 969-979.

Cockerell, N. (1993), "Germany outbound", *Travel and Tourism Analyst*, Vol. 2, pp. 19-34.

Covin, J.G. y Slevin, D.P. (1991), "A conceptual model of entrepreneurship as firm behavior", *Entrepreneurship: Theory and Practice*, Vol. 16, pp. 7-25.

Curry, A. y Stancich, L. (2000), "The Intranet - an intrinsic component of strategic information management", *International Journal of Information Management*, Vol. 20 No. 4, 249-268.

Danneels, E. (2008), "Organizational antecedents of second-order competences", *Strategic Management Journal*, Vol. 29, pp. 519-543.

Das, A.K. (2008), "Internet Service Marketing in the Hospitality Sector – A Case Study of Vizergy Hotels", *Management Science and Engineering*, Vol. 2 No. 2, 27-31.

Deeds, D. L., DeCarolis, D. y Coombs, J. (1999), "Dynamic capabilities and new product development in high technology ventures: An empirical analysis of new biotechnology firms", *Journal of Business Venturing*, Vol. 15, pp. 211- 229.

García Morales, V.J., Lloréns Montes, F.J. y Verdú Jover, A.J. (2006), "Antecedents and consequences of organizational innovation and organizational learning in entrepreneurship", *Industrial Management & Data Systems*, Vol. 106 Nos. 1-2, pp. 21-42.

Hair, J.F., Anderson, R.E., Tatham, R.L. y Black, W.C. (1999) *Análisis Multivariante*. Prentice Hall, Madrid.

Hitt, M.A., Johnson, R. y Moesel, D. (1996), "The market for corporate control and firm innovation", *Academy of Management Journal,* Vol. 39 No. 5, pp. 1084–1119.

Hornsby, J. S., Naffziger, D. W., Kuratko, D. F. y Montagno, R. V. (1993), "An interactive model of the corporate entrepreneurship process", *Entrepreneurship: Theory and Practice*, Vol. 17 No. 2, pp. 29-37.

Jones, G.K., Lanctot, A. Jr. y Teegen, H.J. (2000), "Determinants and performance impacts of external technology acquisition", *Journal of Business Venturing*, Vol. 16, pp. 255-283.

Kerpel, E. (1990), "Tourism Potential in Eastern Europe" *Travel and Tourism Analyst*, 1, 68-86.

Konrad, A.M. y Linnehan, F. (1995), "Formalized HRM Structures: Coordinating Equal Employment Opportunity or Concealing Organizational Practice?", *Academy of Management Journal*, Vol. 38, pp. 787-820.

Larsen, T.J. and Sorebo, O. (2005), "Impact of personal innovativeness on the use of the Internet among employees at work", *Journal of Organizational and End User Computing*, Vol. 17, pp. 43-63.

Laudon, K., and Laudon, J. (2007), *Management information systems*. Prentice-Hall: New Jersey.

Lee, C., Lee, K. y Pennings, J. M. (2001), "Internal capabilities, external networks, and performance: A study on technology-based ventures", *Strategic Management Journal*, Vol. 22, pp. 615-640.

Lengnick-Hall, C. A. (1992), "Strategic configurations and designs for corporate entrepreneurship: Exploring the relationship between cohesiveness and performance", *Journal of Engineering and Technology Management*, Vol. 9, pp. 127-154.

Leonard-Barton, D. (1987), "The case for integrative Innovation: An Expert System at Digital". *Sloan Management Review* (1986-1998), Vol. 29 No. 1, pp.7-19.

Leonard-Barton, D. (1992), "Core capabilities and core rigidities: A paradox in managing new product development", *Strategic Management Journal*, Vol. 13, pp. 111-125.

Martín Rojas, R., García Morales, V. J. y García Sánchez, E. (2011), "The influence on corporate entrepreneurship of technological variables", Industrial Management & Data Systems, In press.

Martinez Garcia, E. y Raya, J.M. (2008), "Length of stay for low-cost tourism", *Tourism Management*, Vol. 29, pp. 1064–1075.

Matthing, J., Kristensson, P., Gustafsson, A. y Parasuraman, A. (2006), "Developing successful technology-based services: The issue of identifying and involving innovative users" *Journal of Services Marketing*, Vol. 20 No. 5, 288–297.

Miller, D. y Friesen, P.H. (1982), "Innovation in conservative and entrepreneurial firms: Two Models of Strategic Momentum", *Strategic Management Journal*, Vol. 3 No. 1, pp. 1-25.

Nonaka, I. y Takeuchi, H. (1995), *The knowledge-creating company*, Oxford University Press, New York.

OECD (2009), *Guide to measuring the information society*, Paris, available at http://www.oecd.org/sti/measuring-infoeconomy/guide (accesed 23 April 2011).

Omerzel, D.G. y Antoncic, B. (2008), "Critical entrepreneur knowledge dimensions for the SME performance", *Industrial Management & Data Systems*, Vol. 108 No. 9, pp. 1182-1199.

Oorni, A. y Klein, S. (2003), "Electronic travel markets: Elusive effects on consumer behaviour", in A. J. Frew, M. Hitz, and P. O'Connor, (Eds.), *Information and Communication Technologies in Tourism*. pp. 29-38, Springer Wien: New York.

Papatheodorou, A. (2002), "Civil aviation regimes and leisure tourism in Europe", *Journal of Air Transport Management*, Vol. 8, pp. 381-388.

Podsakoff, P.M. y Organ, D.W. (1986), "Self-reports in organization research: Problems and prospects", *Journal of Management*, Vol. 12, pp. 531-544.

Porter, M. (1980), *Competitive strategy: Techniques for analysing industries and competitors*. Free Press, New York.

Randoy, T. y Goel, S. (2003), "Ownership structure, founder leadership, and performance in Norwegian SMEs: Implications for financing entrepreneurial opportunities", *Journal of Business Venturing*, Vol. 18, pp. 619-637.

Real, J.C., Leal, A. y Roldan, J.L. (2006), "Information technology as a determinant of organizational learning and technological distinctive competencies", *Industrial Marketing Management*, Vol. 35, pp. 505-521.

Rerup, C. (2005), "Learning from past experience: Footnotes on mindfulness and habitual entrepreneurship", *Scandinavian Journal of Management*, Vol. 21, pp. 451-472.

Ross, J. W., Beath, C.M. y Goodhue, D. L. (1996), "Develop long-term competitiveness through IT assets", *Sloan Management Review*, Vol. 38 No. 1, pp. 31-42.

Satterlee, S. (2003), "The impact of low cost flights: Enter the cut-price jet set", *Financial Times*.April 15, (pp. 1) available at <http://www.ft.com/home/europe> FT.com (accesed February 2008).

Scaglione, M., Schegg, R. y Murphy, J. (2009) "Website adoption and sales performance in Valais' hospitality industry", *Technovation*, Vol. 29, pp. 625-631. . .

Senge, P., Roberts, C., Ross, R.B., Smith, B.J. y Kleiner, A. (1994), *The fifth discipline*, Fieldbook. Doubleday Publ,: New York.

Shane, S. y Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25 No. 1, pp. 217-226.

Simsek, Z. y Heavey C. (2011), "The mediating role of knowledge-based capital for corporate entrepreneurship effects on performance: A study of Small- to Medium-Sized firms", *Strategic entrepreneurship Journal*, Vol. 5 No. 1, pp. 81-100.

Simsek, Z., Lubatkin, M.H., Veiga, J. F. y Dino, R.N. (2009), "The role of an entrepreneurially alert information system in promoting corporate entrepreneurship", *Journal of Business Research*, Vol. 62, pp. 810-817.

Slater, S. F. y Narver, J. C. (1995), "Market orientation and the learning organization", *Journal of Marketing*, vol. 59 No. 3, pp. 63-74.

Srivastava, A. y Lee, H. (2005), "Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship", *Journal of Business Venturing*, Vol. 20, pp. 459-481.

Straub, D.W. (1994), "The effect of culture on IT diffusion: Mail and fax in Japan and the U.S.", *Information System Research*, Vol. 5 No.1, pp. 23-47.

Tsai, K.H. y Wang, J.C. (2009), "External technology sourcing and innovation performance in LMT sectors: An analysis based on the Taiwanese technological innovation survey", *Research Policy*, Vol. 38, pp. 518-526.

Zahra, S.A. (1991), "Predictors and financial outcomes of corporate entrepreneurship: an exploratory study", *Journal of Business Venturing*, Vol. 6 No. 4, pp. 259-85.

Zahra, S.A. (1993), "Environment, corporate entrepreneurship, and financial performance: a taxonomic approach", *Journal of Business Venturing,* Vol. 8 No.4, pp. 319-340.

Bibliografía

6 BIBLIOGRAFÍA

Agarwal, R. y Prasad, P. (1998a), "The antecedents and consequences of user perceptions in information technology adoption", *Decision Support Systems*, Vol. 22 No.4, pp. 15-29.

Agarwal, R. y Prasad, P. (1998b), "A conceptual and operational definition of personal innovativeness in the domain of information technology", *Information Systems Research*, Vol. 9, pp. 204-215.

Akgün, A.E., Keskin, H., Byrne, J.C. y Aren, S. (2007), "Emotional and learning capability and their impact on product innovativeness and firm performance", *Technovation*, Vol. 27, pp. 501-513.

Alvarez, S.A. y Barney, J.B. (2007), "Discovery and creation: Alternative theories of entrepreneurial action", *Strategic Entrepreneurship Journal*, Vol. 1 No. 1-2, pp. 11-26.

Amit, R. y Schoemaker, P.J.H. (1993), "Strategic assets and organizational rent", *Strategic Management Journal*, Vol. 14, pp. 33-46.

Anderson, J. C. y Gerbing, D. W. (1988), "Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach", *Psychological Bulletin*, Vol. 103 No. 3, pp. 411-423.

Anderson, J.C. y Gerbin D.W. (1988), "Structural equation modelling in practice: A review and recommended two-step approach", *Psychological Bulletin*, pp. 103, Vol. 411-423.

Andreu, R. y Ciborra, C. (1996), "Organisational learning and core capabilities development: The role of IT", *Journal of Strategic Information Systems*, Vol. 5, pp. 111-127.

Ansoff, I. y Stewart, J. (1967), "Strategies for a technology-based business", *Harvard Business Review*, Vol. 45 No. 6, pp. 71–83.

Antoncic, B. (2007), "Intrapreneurship: a comparative structural equation modeling study", *Industrial Management & Data Systems*, Vol. 107 No. 3, pp. 309-325.

Antoncic, B. y Hisrich, R.D. (2001), "Intrapreneurship: construct refinement and cross-cultural validation", *Journal of Business Venturing*, Vol. 16 No. 5, pp. 495-527.

Antoncic, B. y Prodan, I. (2008), "Alliances, corporate technological entrepreneurship and firm performance: Testing a model on manufacturing firms", *Technovation*, Vol.

28, pp. 257–265.

Aragón -Correa, J.A. y Sharma, S. (2003), "A contingent resource-based view of proactive corporate environmental strategy", *Academy of Management Review*, Vol. 28 No. 1, pp. 71-88.

Aragón, J.A., García Morales, V.J. y Cordón Pozo, E. (2007), "Leadership and organizational learning's role on innovation and performance: lessons from Spain", *Industrial Marketing Management*, Vol. 36 No. 3, pp. 349-359.

Argyris, C. (1977) "Double loop learning in organizations", *Harvard Business Review*, Vol. 55 No. 5, pp. 115-125.

Argyris, C. (1993), *Knowledge for Action*, Jossey Bass: San Francisco.

Argyris, C. y Schön, D. A. (1978), *Organizational learning: a theory of action perspective*, Reading, MA: Addison-Wesley.

Argyris, C. y Schön, D.A. (1996), *Organizational learning II: Theory, method, and practice*, Addison-Wesley: London.

Armstrong, J. S. y Overton, T. S. (1977), "Estimating Nonresponse Bias in Mail Surveys", *Journal of Marketing Research*, Vol. 14, pp. 396-402.

Aubrey, R. y Cohen, P. (1995), *La organización en aprendizaje permanente: estrategias prácticas para ganar ventajas competitivas*, Ediciones: Bilbao (original en ingles: *Working wisdom: timeless skills and vanguard strategies for learning organizations*, Jossey-Bass Publishers: San Francisco).

Audretsch, D. B., Bönte, W. y Keilbach, M. (2008), "Entrepreneurship capital and its impact on knowledge diffusion and economic performance", *Journal of Business Venturing*, Vol. 23, pp. 687–698.

Auh, S. y Menguc, B. (2005) "Top management team diversity and innovativeness: The moderating role of interfunctional coordination", *Industrial Marketing Management (SSCI)*, Vol. 34 No. 3, pp. 249-261.

Autio, E., Sapienza, H.J. y Almeida, J.G. (2000), "Effects on age at entry, knowledge intensity, and imitability on international growth", *Academy of Management Journal*, Vol. 43 No. 5, pp. 909-924.

Badguerahanian, L. y Abetti, P. A. (1995), "Case study. The rise and fall of the Merlin-Gerin Foundry Business: A case study in French corporate entrepreneurship", *Journal of Business Venturing*, Vol. 10, pp. 477-493.

Baer, M. y Frese, M. (2003), "Innovation is not enough: Climate for initiative and psychological safety, process innovations, and firm performance", *Journal of Organizational Behavior*, Vol. 24, pp. 45-68.

Bain, A. (1998) "Social defenses against organizational learning", *Human Relations*, Vol. 51, pp. 413-429.

Banerjee, P. (2003), "Some indicators of dynamic technological competencies: Understanding of Indian software managers", *Technovation*, Vol. 23, pp. 593-602.

Barney, J. B. (1991) "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.

Barrales Molina, V. (2008), "Construcción de Capacidades dinámicas para generar innovación y ajuste de flexibilidad. La influencia moderadora del dinamismo de las rutinas organizativas", Tesis doctoral, Editorial Universidad de Granada, Granada.

Barringer, B. R. y Bluedorn, A. C. (1999), "The relationship between corporate entrepreneurship and strategic management", *Strategic Management Journal*, Vol. 20, pp. 421-444.

Baruch, Y. (1997) "High technology organization — what it is, what it isn't", *International Journal of Technology Management*, Vol. 13 No. 2, pp.179–195.

Batjargal, B. (2007): "Internet entrepreneurship: Social capital, human capital, and performance of Internet ventures in China", *Research Policy,* Vol. 36, pp. 605–618.

Baum, J. R., Olian, J. D., Erez, M. Schnell, E. R., Smith, K. G., Sims, H. P., Scully, J. S. and Smith, K. A. (1993), "Nationality and work role interactions: A cultural contrast of Israeli and U. S. Entrepreneurs´ versus managers´ needs", *Journal of Business Venturing*, Vol. 8, pp. 399-512.

Benitez Amado, J., Lloréns Montes, F. J. y Perez Arostegui, M. N. (2010) "Information technology-enabled intrapreneurship culture and firm performance", *Industrial Management & Data Systems*, Vol. 110 No. 4, pp. 550-566.

Berry, M. J. (1996), "Technical entrepreneurship, strategic awareness and corporate transformation in small high-tech firms", *Technovation*, Vol. 16, No. 9, pp. 487-498.

Bhat, S.S. y Milne, S. (2008), "Network effects on cooperation in destination website development", *Tourism Management*, Vol. 29 No. 6, pp. 1131–1140.

Bojica, A. M., Fuentes-Fuentes, M.M. y Gómez-Gras, J. M. (2011) "Radical and incremental entrepreneurial orientation: The effect of knowledge acquisitions", *Journal of Management & Organization*, Vol. 17 No. 3, pp. 326-343.

Bollen, K.A. (1989), *Structural equations with latent variables,* Wiley-Interscience Publication: USA.

Bourgeois, L.J. III, (1981), "On the measurement of organizational slack", *Academy of Management Review,* Vol. 29, pp. 29-39.

Bradley, S.W., Wiklund, J. y Shepherd, D.A. (2010), "Swinging a double-edged sword: The effect of slack on entrepreneurial management and growth", *Journal of Business Venturing*, Forthcoming.

Brikinshaw, J. (1997) "Entrepreneurship in multinational corporations: The characteristics of subsidiary initiatives", *Strategic Management Journal*, Vol. 18 No. 3, pp. 207-229.

Brinckmann, J., Grichnik, D. y Kapsa, D. (2010) "Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms", *Journal of Business Venturing*, Vol. 25, pp. 24-40.

Brio, J. A. y Junquera, B. (2003), "A review of the literature on environmental innovation management in SMEs: Implications for public policies", *Technovation*, Vol. 23, pp. 939-948.

Buhalis, D. (1998), "Strategic use of information technologies in the tourism industry", *Tourism Management*, Vol. 19 No. 5, pp, 409–421.

Buhalis, D. (2003) *eTourism: Information Technology for Strategic Tourism Management,* Prentice-Hall: New Jersey.

Buhalis, D. (2004), "e-Airlines: Strategic and tactical use of ICTS in the airline industry", *Information & Management*, Vol. 41 No. 7, pp. 805–825.

Buhalis, D. y Main, H. (1998) "Information technology in peripheral small and medium hospitality enterprises: Strategic analysis and critical factors", *International Journal of Contemporary Hospitality Management*, Vol. 10 No. 5, pp. 198-202.

Burgelman, R. A. (1983) "Corporate entrepreneurship and strategic management: Insights from a process study", *Management Science*, Vol. 29 No. 12, pp. 1349-1364.

Burgelman, R. A. (1984) "Desings for corporate entrepreneurship in established firms", *California Management Review*, Vol. 26 No. 3, pp. 154-166.

Busenitz, L. W. y Barney, J. B. (1997) "Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decisión-making", *Journal of Business Venturing*, Vol. 12, pp. 9-30.

Byrd, T. A. y Davidson, N. W. (2003), "Examining possible antecedents of IT impact on the supply chain and its effect on firm performance", *Information & Management*, Vol. 41, pp. 243-255.

Byrd, T.A. y Turner, D. (2000), "Measuring the flexibility of information technology infrastructure: exploratory analysis of a construct", *Journal of Management Information Systems*, Vol. 17 No. 1, pp. 167–208.

Byrd, T.A. y Turner, D. (2001), "An exploratory analysis of the value of the skills of IT personnel: their relationship to IS infrastructure and competitive advantage", *Decision Sciences*, Vol. 32 No.1, pp. 21–54.

Calantone, R.J., Cauvsgil, S.T. y Zhao, Y. (2002), "Learning orientation, firm innovation capability, a firm performance", *Industrial Marketing Management*, Vol. 31, pp. 515-524.

Campos Martinez, S., Garau Vadell, J. B. y Martinez Ruiz, M. P. (2010), "Factors influencing repeat visits to a destination: The influence of group composition", *Tourism Management, Vol.* 31 No. 6, pp. 862–870.

Cantillón, R. (1755), *Ensayo sobre la naturaleza del comercio en general*, Fondo de Cultura Económica, México, 1978.

Cantwell, J. y Piscitello, L. (2002), "The location of technological activities of MNCs in European regions: The role spillovers and local competencies", *Journal of International Management*, Vol. 8, pp. 69-96.

Cash Jr., J.I., McFarlan, F.W. y McKenney, J.L. (1992), *Corporate Information Systems Management: Text and Cases*, 3rd ed., Richard D. Irwin, Homewood, IL.

Cegarra Navarro, J.G., Jiménez Jiménez, D. y Martinez Conesa, E.A. (2007), "Implementing e-business through organizational learning: An empirical investigation in SMEs", *International Journal of Information Management*, Vol. 27, pp. 173-186.

Chand, M. y Katou, A. (2007), "The impact of HRM practices on organisational performance in the Indian hotel industry", *Employee Relations*, Vol. 29 No. 6, pp. 576-594.

Chand, M. y Katou, A. (2007), "The impact of HRM practices on organisational performance in the Indian hotel industry", *Employee Relations*, Vol. 29 No. 6, pp. 576-594.

Chandler, G. N. y Jansen, E. (1992), "The founder's self-assessed competence and venture performance", *Journal of Business Venturing*, Vol. 7, pp. 223-236.

Cheney, P.H. y Lyons, N.R. (1980). "Information systems skill requirements: a survey", *MIS Quarterly*, Vol. 4 No. 1, pp. 35–43.

Chenhall, R. H. (2005), "Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: An exploratory study", *Accounting, Organizations and Society*, Vol. 30, pp. 395-422.

Chipika, S. y Wilson, G. (2006), "Enabling technological learning among light engineering SMEs in Zimbabwe through networking", *Technovation*, Vol.26, pp. 969-979.

Choi, B., Poon, S.K. y Davis, J.G. (2008), "Effects of knowledge management strategy on organizational performance: A complementarity theory-based approach", *Omega*, Vol. 36 No. 2, pp. 235-251.

Choi, Y.R. y Shepherd, D.A. (2004), "Entrepreneurs' decisions to exploit opportunities", *Journal of Management*, Vol. 30 No. 3, pp. 377-395.

Chung, L. H. y Gibbons, P. T. (1997), "Corporate entrepreneurship. The roles of ideology and social capital", *Group & Organization Management*, Vol. 22 No. 1, pp. 10-30.

Churchill, N.C. (1992), "Research issues in entrepreneurship", in D.L. Sexton and J.D. Kasarda, eds., *The State of the Art of Entrepreneurship.* PWS-KENT: Boston, MA.

Ciborra, C. y Lanzara, G.F. (1990), "Designing dynamic artifacts: Computer systems as formative context", in Galiardi, P. (ed.), *Symbols and Artifacts*: *Views of the Corporate Landscape*, De Gruiter, Berlin, pp. 147-165.

Clark, C.E., Cavanaugh N.C., Brown, C.V. y Sambamurthy, V. (1997), "Building change-readiness capabilities in the IS organization: insights from the Bell Atlantic experience", *MIS Quarterly*, Vol. 21 No. 4, pp. 425-545.

Cockerell, N. (1993), "Germany outbound", *Travel and Tourism Analyst*, Vol. 2, pp. 19-34.

Cohen, J. y Cohen, P. (1983) *Applied multiple regression/correlation analysis for the behavioural sciences*, second ed. Laurence Erlbaum, New Jersey.

Connolly, D.J., Olsen, M.D. y Moore, R.G. (1998), "The Internet as a Distribution Channel", *The Cornell Hotel and Restaurant Administration Quarterly*, Vol. 39 No. 4, pp. 42-54.

Cooper, A.C. (1973), "Technical entrepreneurship: what do we know?", *R&D Management, Vol.* 3 No. 2, pp. 59-64.

Cooper, R.G. y Kleinschmidt, E.J. (1995) "Benchmarking the firm´s critical success factors in new product development", *Journal of product innovation Management*, Vol. 12, pp. 374-391.

Costa, J. (1995), "International perspectives on travel and tourism development", *International Journal of Contemporary Hospitality Management*, Vol. 7 No. 7, pp. 10-19.

Covin, J. G. y D. P. Slevin (1989), "Strategic management of small firms in hostile and benign environments", *Strategic Management Journal*, Vol. 10 No. 1, pp. 75–87.

Covin, J.G. y Slevin, D.P. (1991), "A Conceptual Model of Entrepreneurship as Firm Behavior", *Entrepreneurship: Theory and Practice*, Vol. 16, pp. 7-25.

Curry, A. y Stancich, L. (2000), "The Intranet - an intrinsic component of strategic information management", *International Journal of Information Management*, Vol. 20 No. 4, 249-268. .).

Cyert, R. M. y March, J. G. (1963) *A behavioural theory of the firm*, Englewood Cliffs, N.J.: Prentice Hall.

Daft, R.L. (1978), "A dual-core model of organizational innovation", *Academy of Management Journal*, Vol. 21, pp. 193-210.

Daft, R.L. (1982) "Bureaucratic versus non bureaucratic structure and the process of innovation and change", in S.B. Bacharach (Ed.), *Research in the sociology of organizations*, Vol. 1, pp. 129-166, JAI Press: Greenwich, CT.

Daft, R.L. (1983), "Learning the craft of organizational research", *Academy of Management Review*, Vol. 8 No. 4, pp. 539-546.

Damanpour F. (1987), "The adoption of technological, administrative and ancillary innovations: impact of organizational factors", *Journal of Management*, Vol. 13 No. 4, pp. 675–688.

Damanpour, F. (1991), "Organizational Innovation: A Meta-Analysis of Effects of Determinants and Moderators", *Academy Management Journal*, Vol. 34 No. 3, pp. 555-590.

Damanpour, F. (1992), "Organizational size and innovation", *Organizational Studies*, Vol. 13 No. 3, pp. 375-402.

Damanpour, F. y Evan, W.M. (1984), "Organizational innovation and performance: The problem of organizational lag", *Administrative Science Quarterly*, Vol. 29, pp. 392-409.

Danneels, E. (2007), "The process of technological competence leveraging", *Strategic Management Journal*, Vol. 28, pp. 511-533.

Danneels, E. (2008), "Organizational antecedents of second-order competences", *Strategic Management Journal*, Vol. 29, pp. 519-543.

Das, A.K. (2008), "Internet Service Marketing in the Hospitality Sector – A Case Study of Vizergy Hotels", *Management Science and Engineering*, Vol. 2 No. 2, 27-31.

Davenport, T. H. y Linder, J. (1994), "Information management infrastructure: The new competitive weapon", in Proceedings of the 27th Annual Hawaii International Conference on Systems Sciences, *IEEE*, Vol. 27, pp. 885-899.

Dean, B. V. y Giglierano, J. J. (1990), "Multistage financing of technical start-up companies in Silicon Valley", *Journal of Business Venturing, Vol. 5, pp. 375-389.*

Dean, T.J. y Meyer, G.D. (1996), "Industry environments and new venture formations in U.S. manufacturing: a conceptual and empirical analysis of demand determinants", *Journal of Business Venturing*, Vol. 11 No. 2, pp. 107-132.

Deeds, D. L., DeCarolis, D. y Coombs, J. (1999), "Dynamic capabilities and new product development in high technology ventures: An empirical analysis of new biotechnology firms", *Journal of Business Venturing*, Vol. 15, pp. 211- 229.

Dehning, B., Dow, K. E. y Stratopoulos, T. (2004), "Information technology and organizational slack", *International Journal of Accounting Information Systems*, Vol. 5, pp. 51-63.

Delbecq, A.L. y Mills, P.D. (1985), "Managerial practices that enhance innovation", *Organizational Dynamics*, Vol. 14 No. 1, pp. 24-34.

Demirbag, M., Koh, S.C.L., Tatoglu, E. y Zaim, S. (2006), "TQM and market orientation's impact on SMEs' performance", *Industrial Management & Data Systems*, Vol. 106 No. 8, pp. 1206-28.

Deshpandé, R., Farley, J. U. y Webster, F. E. Jr. (1993) "Corporate culture, customer organization, and innovativeness in Japanese firms: A quadrad analysis", *Journal of Marketing*, Vol. 57 No. 1, pp. 23-37.

Dibella, A., Nevis, E, C. y Gould, J. M. (1996), "Understanding organizational learning capability", *Journal of Management Studies*, Vol. 33, pp. 361-379.

Dibella, A., Nevis, E, C. y Gould, J. M. (1996), "Understanding organizational learning capability", *Journal of Management Studies*, Vol. 33, pp. 361-379.

Dixon, N. M. (1997), "The Hallways of learning", *Organizational Dynamics*, Vol. 25

No. 4, pp. 23-34.

Dodgson, M. (1993), "Organizational learning: a review of some literatures", *Organization Studies*, Vol. 14, pp. 375-394.

Douglas, T.J. and Judge, W.Q. (2001), "Total quality management implementation and competitive advantage. The role of structural control and exploration", *Academy of Management Journal*, Vol. 44 No. 1, pp. 158-169.

Dun & Bradstreet España, S.A. (2003). *Duns 50.000 Principales Empresas Españolas*, Publicaciones, Madrid.

Duncan, N.B. (1995), "Capturing flexibility of information technology infrastructure: A study of resource characteristics and their measure, *Journal of Management Information Systems*, Vol. 12 No.2, pp. 37-57.

Duncan, R. B. (1974), "Modifications in decision structure in adapting to the environment: some implications for organizational learning", *Decision Science*, Vol. 5 No. 4, pp. 707-725.

Duncan, R. y Weiss, A. (1979), "Organizational learning: implications for organizational design", en B. Staw (Ed.), *Research in organizational behavior*, JAI: Greenwich, CT, pp. 75-123.

Earl, M.J. (1989), *Management Strategies for Information Technologies*, Prentice-Hall, Englewood, NJ.

Easterby-Smith, M. (1997), "Disciplines of organizational learning: contributions and critiques", *Human Relations*, Vol. 50, pp. 1085-1113.

Edmondson, A. (1999), "Psychological safety and learning behavior in work teams", *Administrative Sciences Quarterly*, Vol. 44, pp. 350-383.

Edmondson, A. y Moingeon, B. (1998), "From organizational learning to the learning organization", *Management Learning*, Vol. 29 No. 1, pp. 5-20.

Eisenhardt, K. M. y Martin, J. A. (2000), "Dynamic Capabilities: What are they?", *Strategic Management Journal*, Vol. 21 No. 11, pp. 1105-1121.

Fineman S. (1996), "Emotional subtexts in corporate greening", *Organization Studies*, Vol. 17 No. 3, pp. 479-500.

Fiol, C. M. y Lyles, M. A. (1985), "Organizational learning", *Academy of Management Review*, Vol. 10, pp. 803-813.

Fitzpatrick, J. y Mottram, N. (1992), "Prospects for Europe's smaller regional airports", *Travel and Tourism Analyst, Vol.* 2, pp. 5-26.

Flynn, L.R. y Goldsmith, R.E. (1993), "A validation of the Goldsmith and Hofacker innovativeness scale", *Educational and Psychological Measurement*, Vol. 53, pp. 1105-1116.

Fontes, M. (2001), "Biotechnology entrepreneurs and technology transfer in an intermediate economy", *Technological forecasting and social change*, Vol. 66, pp. 59-74.

Fosfuri, A. y Tribó, J. A. (2008), "Exploring the antecedents of potential absorptive capacity and its impact on innovation performance", Omega, Vol. 36 No. 2, pp. 173-187.

Francis, G., Dennis, N., Ison, S. y Humphreys, I. (2007), "The transferability of the Low-Cost Model to long-haul airline operations", *Tourism Management*, Vol. 28, pp. 391-398.

Freel, M.S., (2000), "Do small innovating firms outperform non-innovators?", *Small Business Economics*, Vol. 14 No. 3, pp. 195–210.

Frew, A. (2000), "Information and communications technology research in the travel and tourism domain: Perspective and direction", *Journal of Travel Research*, Vol. 39, pp. 136-145.

Gabrielsson, M., Kirpalani, V. H. M., Dimitratos, P. Solberg, C. A. y Zucchella, A. (2008), "Born globals: Propositions to help advance the theory", *International Business Review*, Vol. 17, pp. 385-401.

García Morales, V.J., Lloréns Montes, F.J. y Verdú Jover, A.J. (2008), "The effects of transformational leadership on organizational performance through knowledge and innovation", *British Journal of Management*, Vol. 19 No.4, pp. 299-319.

García Morales, V.J., Lloréns Montes, F.J. y Verdú Jover, A.J. (2006), "Antecedents and consequences of organizational innovation and organizational learning in entrepreneurship", *Industrial Management & Data Systems*, Vol. 106 Nos. 1-2, pp. 21-42.

García Morales, V. J. y Martín Rojas, R. (2011) *Un estudio del aprendizaje organizacional desde la perspectiva de los centros educativos: Análisis empírico de una escala de medición*, Ediciones K&L: Padul (Granada).

Garvin, D. A. (1993), "Building a learning organization", *Harvard Business Review*, Vol. 71 No. 4, pp. 78-91.

Ghosh, B.C., Liang, T.W., Meng, T.T. y Chan, B. (2001), "The key success factors,

distinctive capabilities, and strategic thrusts of top SMEs in Singapore", *Journal of Business Research*, Vol.51, pp. 209-221.

Giarratana, M.S. y Torrisi, S. (2010), "Foreign entry and survival in a Knowledge-intensive market: Emerging economy countries' international linkages, technology competences, and firm experience", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 85-104.

Gilbert, D.C. y Morris, L. (1995), "The relative importance of hotels and airlines to the business. *International Journal of Contemporary Hospitality Management"*, Vol. 7 No. 6, pp. 19-23.

Gilbert, M. y Cordey-Hayes, M. (1996), "Understanding the process of knowledge transfer to achieve successful technological innovation", *Technovation*, Vol. 16 No. 6, pp. 301-312.

Gillich, G. R., Amariei, D., Gillich, N. y Amariei O. I. (2009), "Premio- an electronic platform for entrepreneurial training", *Procedia Social and Behavioral Sciences*, Vol. 1 No. 1, pp. 2380-2384.

Ginsberg, A, y Buchholtz, A (1989), "Are entrepreneurs a breed apart? A look at the evidence", *Journal of General Management,* Vol. 15 No.2, pp. 32-40.

Glick, W.H. (1985), "Conceptualizing and Measuring Organizational and Psychological Climate: Pitfalls in Multilevel Research", *Academy of Management Review*, Vol. 10, pp. 601-616.

Goldsmith, R.E. (2001), "Using the domain specific innovativeness scale to identify innovative Internet consumers", *Internet Research-Electronic Networking Applications and Policy*, Vol. 11 No. 2, pp. 149-158.

Goldsmith, R.E. y C.F. Hofacker (1991), "Measuring consumer innovativeness", *Journal of the Academy of Marketing Science*, Vol. 19, pp. 209-221.

González Álvarez, N. y Nieto Antolín, M. (2007), "Appropriability of innovation results: An empirical study in Spanish manufacturing firms", *Technovation*, Vol. 27 No. 5, pp. 280-295.

González Álvarez, N. y Nieto Antolín, M. (2005), "Protection and internal transfer of technological competencies: The role of causal ambiguity", *Industrial Management & Data Systems*, Vol. 105 No. 7, pp. 841-856.

Goodale, J. C., Kuratko, D. F., Hornsby, J. S. y Covin J. G. (2010), "Operations management and corporate entrepreneurship: The moderating effect of operations control on the antecedents of corporate entrepreneurial activity in relation to innovation performance", *Journal of Operations Management*, Vol. 29, pp. 116-127.

Goodrich, J.N. (2002), "September 11, attack on America: A record of the immediate impacts and reactions in the USA travel and tourism industry", *Tourism Management*, Vol. 23, pp. 573-580.

Gopalakrishnan, S. y Damanpour, F. (1997), "A review of innovation research in Economics, Sociology and Technology management", *Omega*, Vol. 25 No. 1, pp. 15-28.

Grant, R.M. (1995), *Contemporary strategy analysis: Concepts, techniques, applications.* Second Edition, Cambridge, MA: Blackwell Publishers Inc.

Grinstein, A. y Goldman, A. (2006), "Characterizing the technology firm: an exploratory study", *Research Policy*, Vol. 35, pp. 121-143.

Guns, B. (1996), *The faster learning Organization; gain and sustain the competitive edge*, Pfeiffer & Company.

Guth, W. D. y Ginsberg, A. (1990), "Guest editors´ introduction: Corporate entrepreneurship", *Strategic Management Journal*, Vol. 11, pp. 5-15.

Hair, J.F., Anderson, R.E., Tatham, R.L. y Black, W.C. (1999) *Análisis Multivariante*. Prentice Hall, Madrid.

Hallak, R.; Brown, G. y Lindsay, N. J. (2011), "The place identity-performance relationship among tourism entrepreneurs: A structural equation modelling analysis", *Tourism Management*, In Press.

Hambrick, D.C. y Mason, P.A. (1984), "Upper Echelons: The Organizations as a Reflection of Its Top Managers", *Academy of Management Review,* Vol. 9 No. 2, pp. 193-206.

Harkness, W.L., Kettinger, W.J. y Segars, A.H. (1996), "Sustaining process improvement and innovation in the information services function: lessons learned at the Bose Corporation", *MIS Quarterly*, Vol. 20 No. 3, pp. 349–368.

Haro Domínguez, C., Ortega Egea, T. y Tamayo Torres, I. (2010), "Proactive orientation and its influence for technology acquisition". *Industrial Management & Data Systems*, Vol. 110 No.7, pp. 953-970.

Harvey, G. y Turnbull, P. (2006), "Employment relations, management style and flight

crew attitudes at low cost airline subsidiaries: The cases of british airways/Go and bmi/bmibaby", *European Management Journal*, Vol. 24 No. 5, pp. 330-337.

Hayek, F.A. (1945), "The use of knowledge in society", *American Economic Review,* Vol. 35, pp. 519–530.

Henderson, J. C. y Venkatraman, N. (1993), "Strategic alignment: Leveraging information technology for transforming organizations", *IBM Systems Journal*, Vol. 32 No. 1, pp. 4-16.

Henriques, I. y Sadorsky, P. (1999), "The relationship between environmental commitment and managerial perceptions of stakeholder importance", *Academy of Management Journal*, Vol. 42, pp. 87-99.

Hernández Mogollón, R., Cepeda Carrión, G., Cegarra Navarro, J. G. y Leal Millán, A. (2010), "The role of cultural barriers in the relationship between open-mindedness and organizational innovation", *Journal of Organizational Change Management*, Vol. 23 No.4, pp. 360-376.

Hitt, M.A., Johnson, R. y Moesel, D. (1996), "The market for corporate control and firm innovation", *Academy of Management Journal,* Vol. 39 No. 5, pp. 1084–1119.

Ho, L.A. (2011), "Meditation, learning, organizational innovation and performance", *Industrial Management & Data Systems*, Vol. 111 No. 1, pp. 113-131.

Hoffman, D.L. y Novak, T.P. (1996), "Marketing in hypermedia computer-mediated environments: conceptual foundations", *Journal of Marketing*, Vol. 60, pp. 50-68.

Hofstede, G. (1980), "Motivation, leadership, and organization: Do American theories apply abroad?", *Organizational Dynamics*, Vol. 9, pp. 42-63.

Homburg, C., Krohmer, H. y Workman, J.P. (1999) "Strategic consensus and performance: The role of strategy type and market-related dynamism", *Strategic Management Journal*, Vol. 20, pp. 339-357.

Hornsby, J. S., Naffziger, D. W., Kuratko, D. F. y Montagno, R. V. (1993), "An interactive model of the corporate entrepreneurship process", *Entrepreneurship: Theory and Practice*, Vol. 17 No. 2, pp. 29-37.

Hornsby, J.S., Naffziger, D.W., Kuratko, D.F. y Montagno, R.V. (1990), "Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment", *Strategic Management Journal*, Vol. 11, pp. 49-58.

Hubbard, D. (1989), "The hotel industry in sub-Saharan Africa and the Indian ocean", *Travel and Tourism Analyst*, Vol. 6, pp.19-39.

Huber, G.P. (1991), "Organizational learning: the contributing processes and the literatures", *Organizational Sciences*, Vol. 2 No.1, pp. 88-115.

Hurley, R.F. y Hult, G.T.M. (1998), "Innovation, market orientation, and organizational learning: an integration and empirical examination", *Journal of Marketing*, Vol. 62, pp. 42-54.

Hurt, Th., Joseph, K., y Cook, Ch. (1977), "Scales for the "Human Communication Research", Vol. 4 No.1, pp. 58-65.

Hurtado Torres, N. E., Cordón Pozo, E. y Senise Barrio, E. (2007), "Efectos de la cultura nacional en la relación entre orientación emprendedora y el resultado de la innovación de producto: el caso del sector farmacéutico", *Cuadernos Económicos del ICE*, Vol. 73, pp. 135-149.

Ireland, R. D., Hitt, M. A., Camp, S. M. y Sexton, D. L. (2001), "Integrating entrepreneurship and strategic management actions to create firm wealth", *Academy of Management Executive*, Vol. 15 No. 1, pp. 49-63.

Ireland, R.D., Covin, J.G., y Kuratko, D.F. (2009), "Conceptualizing corporate entrepreneurship strategy", *Entrepreneurship Theory and Practice*, Vol. 33 No.1, pp.19–46.

Itami, H. y Numagami, T. (1992), "Dynamic interaction between strategy and technology", *Strategic Management Journal, Vol.* 13, pp. 119-135.

Jankowski, J.E. (1998), "R&D: foundation for innovation", Research *Technology Management*, Vol. 41, pp. 14-20.

Jarillo, J.C. (1989) "Entrepreneurship and growth: The strategic use of external resources", *Journal of Business Venturing*, Vol. 4, pp. 133-147.

Jarvenpaa, S.L. y Ives, B. (1990), "Information technology and corporate strategy: a view from the top", *Information Systems Research*, Vol. 1 No. 4, pp. 351-376.

Jassawalla, A.R. y Sashittal, H.C. (2002), "Cultures that support product innovation processes", *Academy of management executive*, Vol. 16, pp. 42-54.

Jen-Hung, H. y Chia-Yen, L. (2006), "Empower Internet services in hotel industry - A customer service life cycle concept", *Journal of American Academy of Business*, Vol. 9 No. 1, pp. 99-103.

Jennings, D. F. y Lumpkin, J. R. (1989), "Functioning modeling corporate entrepreneurship: An empirical integrative analysis", *Journal of Management*, Vol. 15 No. 3, pp. 485-502.

Jiménez Barrionuevo, M. M. (2009), "Infuencia de la capacidad de absorber conocimiento en la capacidad estratégica intraemprendedora: Un modelo causal en empresas españolas" Tesis doctoral, Editorial Universidad de Granada, Granada.

Jones, G.K., Lanctot, A. Jr. y Teegen, H.J. (2000), "Determinants and performance impacts of external technology acquisition", *Journal of Business Venturing*, Vol. 16, pp. 255-283.

Jones, G.R. y Butler, J.E. (1992), "Managing internal corporate entrepreneurship: An agency theory perspective", *Journal of Management*, Vol. 18 No.4, pp.733-749.

Jöreskog, K.G. y D. Sörbom (1996), *LISREL VIII*, SPSS, Inc., Chicago.

Kale, P., Singh, H. y Perlmutter, H. (2000), "Learning and protection of proprietary assets in strategic alliances: building relational capital", *Strategic Management Journal*, Vol. 21, pp. 217-317.

Kanter, R.M. (1983), *The change master – Innovation & Entrepreneurship in the American corporation*, New York: Simon & Schuster.

Kearns, G.S. (2006), "The effect of top management support of SISP on strategic IS management: Insights from the US electric power industry", *Omega,* Vol. 34, pp. 236-253.

Kelley, D. (2010), "Sustainable corporate entrepreneurship: Evolving and connecting with the organization", *Business Horizons*, Vol. 54 No.1, pp. 73-83.

Kenneth, W.T. (2002), *La Motivación Intrínseca en el Trabajo*. Editorial Universitaria Ramón Areces: Madrid.

Kerpel, E. (1990), "Tourism Potential in Eastern Europe" *Travel and Tourism Analyst*, 1, 68-86.

Kim, D. H. (1993), "The link between individual and organizational learning", *Sloan Management Review*, Vol. 35, No. 1, pp. 37-50.

Kimberly, J. R. y Evanisko, M. J. (1981), "Organizational innovation: The influence of individual, organizational and contextual factors on hospital adoption of technological and administrative innovation", *Academy of Management Journal*, Vol. 24, pp. 689-713.

Kirzner, I. (1979), *Perceptions, Opportunity, and Profit*, University of Chicago Press: Chicago.

Knight, G.A. (1997), "Cross-cultural reliability and validity of a scale to measure firm entrepreneurial orientation", *Journal of Business Venturing*, Vol. 12, pp. 213-225.

Knight, K.E. (1967), "A descriptive model of the intra-firm innovation process" *The Journal of Business*, Vol. 40 No.4, pp. 478-497.

Konings, J. y Roodhooft, F. (2002), "The effect of e-business on corporate performance: Firm level evidence for Belgium", *De Economist*, Vol. 15 No. 5, pp. 569-581.

Konrad, A.M. y Linnehan, F. (1995), "Formalized HRM structures: Coordinating equal employment opportunity or concealing organizational practice?", *Academy of Management Journal*, Vol. 38, pp. 787-820.

Koufteros, X., Babbar, S. y Kaighobadi, M. (2009), "A paradigm for examining second-order factor models employing structural equation modeling", *International Journal of Production Economics*, Vol. 120, pp. 633-652.

Kundo, S.C. y Vora, J.A. (2004), "Creating a Talented Workforce for Delivering Service Quality", *Human Resource Planning*, Vol. 27,pp. 40-51.

Langerak, F., Huntilk, E.J. y Robben, H.S.J. (2007), "The mediating role of new product development in the link between market orientation and organizational performance", *Journal of Strategic Marketing*, Vol. 15, pp. 281-305.

Lant, T.K. y Montgomery, D.B. (1987), "Learning from Strategic Success and Failure. *Journal of Business Responsibility"*, Vol. 15, pp. 503-517.

Larsen, T.J. y Sorebo, O. (2005), "Impact of Personal Innovativeness on the Use of the Internet Among Employees at Work", *Journal of Organizational and End User Computing*, Vol. 17, pp. 43-63.

Laudon, K., y Laudon, J. (2007), *Management information systems*. Prentice-Hall: New Jersey.

Law, R. y Jogaratnam, G. (2005), "A Study of Hotel Information Technology Applications", *International Journal of Contemporary Hospitality Management*, Vol. 17 No. 2, pp. 170–180.

LeBlanc, L.J., Nash, R., Gallagher, D., Gonda, K. y Kakizaki, F. (1997), "A comparison of US and Japanese technology management and innovation", *International Journal of Technology Management*, Vol. 13, pp. 601-614.

Lee, C., Lee, K. y Pennings, J. M. (2001), "Internal capabilities, external networks, and performance: A study on technology-based ventures", *Strategic Management Journal*, Vol. 22, pp. 615-640.

Lei, D., Slocum, J.W. y Pitts, R.A. (1999), "Designing organizations for competitive

advantage: the power of unlearning and learning", *Organizational Dynamics*, Vol. 28 No.3, 24-38.

Lengnick-Hall, C. A. (1992), "Strategic configurations and designs for corporate entrepreneurship: Exploring the relationship between cohesiveness and performance", *Journal of Engineering and Technology Managemnent*, Vol. 9, pp. 127-154.

Leonard-Barton, D. (1987), "The case for integrative innovation: An expert system at digital", *Sloan Management Review*, Vol. 29 No. 1, pp.7-19.

Leonard-Barton, D. (1992), "Core capabilities and core rigidities: A paradox in managing new product development", *Strategic Management Journal*, Vol. 13, pp. 111-125.

Leonard-Barton, D. y Deschamps, I. (1988), "Managerial influence in the implementation of new technology", *Management Science*, Vol. 34 No. 10, pp.1252-1265.

Levitt, B. y March, J. G. (1988) "Organizational learning", *Annual Review of Sociology*, Vol. 14, pp, 319-340.

Liao, J., Welsch, H. y Stoica, M. (2003), "Organizational absorptive capacity and responsiveness: An empirical investigation of growth-oriented SMEs", *Entrepreneurship: Theory & Practice*, Vol. 28 No. 1, pp. 63–85. ,

Lipshitz, R., Popper, M. y Oz, S. (1996), "Building learning organizations: the design and implementation of organizational learning mechanisms", *Journal of Applied Behavioral Science*, Vol. 32 No. 3, pp. 292-305.

Liu, S.S., Luo, X. y Shi, Y.Z. (2002), "Integrating customer orientation, corporate entrepreneurship, and learning orientation in organizations-in-transition: An empirical study", *International Journal of Research in Marketing*, Vol. 19, pp. 367-382.

Lloréns Montes, F. J., Ruiz Moreno, A. y García Morales, V. (2005), "Influence of support leadership and teamwork cohesion on organizational learning, innovation and performance: An empirical examination", *Technovation*, Vol. 25, pp. 1159-1172.

López Yepes, J. A. y Madrid Garre, M. F. (1996), "Cómo hacer de la empresa una organización aprendiente", *Economía Industrial*, No. 311, pp. 67-76.

Lynn, G.S., Skov, R.V. y Abel, K.D. (1999), "Practices that support team learning and their impact on speed to market and new product success", *Journal of Product Innovation Management*, Vol. 16, pp. 439–454.

March, J. G. y Olsen, J. P. (1975), "The uncertainty of the past: organizational learning

under ambiguity", *European Journal of Political Research*, Vol. 3 No. 2, pp. 147-171.

Marshall, C. (1990), "Practical Solutions to European Air Traffic Congestion", *Travel and Tourism Analyst*, Vol. 4, pp. 64–73.

Martín Rojas, R., García Morales, V. J. y García Sánchez, E. (2011), "The influence on corporate entrepreneurship of technological variables", Industrial Management & Data Systems, In press.

Martin, L.M. y Matlay, H. (2001), "Blanket's Approaches to Promoting ICT in Small Firms: Some Lessons from the DTI Ladder Adoption Model in the UK", *Journal of Internet Research*, Vol. 11, pp. 399-410.

Martinez Garcia, E. y Raya, J.M. (2008), "Length of stay for low-cost tourism", *Tourism Management*, Vol. 29, pp. 1064–1075.

Matthing, J., Kristensson, P., Gustafsson, A. y Parasuraman, A. (2006), "Developing successful technology-based services: The issue of identifying and involving innovative users", *Journal of Services Marketing*, Vol. 20 No.5, pp. 288–297.

McCalman, J. (1998), "Self-managing teams in high technology manufacture: overcoming technological barriers", *Team Performance Management*, Vol. 4 No. 3, pp. 93-112.

McClelland, D. C. (1961), *The achieving society*, Van Nostrand, Princeton, NJ.

McGill, M. E. y Slocum, J. W. Jr. (1993), "Unlearning the organization", *Organizational Dynamics*, Vol. 22 No. 2, pp. 67-79.

McIvor, R., O'Reilly, D. y Ponsonby, D. (2003), "The Impact of Internet Technologies on the Airline Industry: Current Strategies and Future Developments", *Strategic Change*, Vol. 12 No. 1, pp. 31-47.

Mercader, J., Meroño, A.L. y Sabater, R. (2006), "Information Technology and Learning: Their Relationship and Impact on Organizational Performance in Small Business", *International Journal of Information Management*, Vol. 26 Vol. 1, pp. 16-29.

Midgley, D.F. y Dowling, G.R. (1978), "Innovativeness: The Concept and its Measurement", *Consumer Responsibility*, Vol. 4, pp. 229-242.

Miles, M.P. y Covin, J.G. (2002), "Exploring the practice of corporate venturing: some common forms and their organizational implications", *Entrepreneurship: Theory & Practice,* Vol. 26 No. 3, pp. 21-40.

Miller, D. (1983), "The correlates of entrepreneurship in three types of firms",

Management Science, Vol. 29, pp. 770–791.

Miller, D. y Friesen, P. H. (1980), "Momentum and revolution in organizational adaptation", *Academy of Management Journal*, Vol. 23, pp. 591-614.

Miller, D. y Friesen, P.H. (1982), "Innovation in conservative and entrepreneurial firms: Two Models of Strategic Momentum", *Strategic Management Journal*, Vol. 3 No. 1, pp. 1-25.

Miller, D., y Friesen, P.H. (1984), *Organizations: A Quantum View*, Prentice Hall: Englewood Cliffs, NJ.

Mills, J. y Law, R. (2004), *Handbook of consumer behaviour, tourism and the Internet*, Harworth Hospitality Press: New York.

Mintzberg, H. (1973), *The Nature of Managerial Work*, Prentice Hall: Englewood Cliffs, NJ.

Miró Arias, C., Leal Millán, A. G., Cepeda Carrión, G. A. y Miró Arias, M. A. (2010), "Clima de confianza, aprendizaje e innovación: Una metáfora biomimética", *Revista Europea de Dirección y Economía de la Empresa*, Vol. 19 No. 4, pp. 21-36.

Morrison, A.M., Jing, S., O'Leary, J.T. y Lipping, A.C. (2001), "Predicting usage of the Internet for travel bookings: An exploratory study", *Information Technology & Tourism*, Vol. 4 No. 1, pp. 15–30.

Murray, J.Y. y Kotabe, M. (1999), "Sourcing strategies of U.S. service companies: A modified transaction-cost analysis", *Strategic Management Journal*, Vol. 20, pp. 791-809.

Napolitano, G. (1991), "Industrial research and sources of innovation: a cross-industry analysis of italian manufacturing firms", *Research Policy*, Vol. 20, pp. 171-178.

Narver, J.C. y Slater, S.F. (1990), "The effect of a market orientation on business profitability", *Journal of Marketing*, Vol. 54, pp.20-35.

Nelson, R. R. y Winter, S. G. (1982), *An evolutionary theory of economic change*, Belknap Press and Harvard University Press: Cambridge, MA.

Nicolini, D. y Meznar, M. B. (1995), "The social construction of organizational learning: conceptual and practical issues in the field", *Human Relation*s, Vol. 48, pp. 727-746.

Nonaka I., Reinmoller P. y Toyama R. (2001), "Integrated information technology systems for knowledge creation", in Dierkes M., Berthoin-Antal A., Child J., Nonaka I., (eds.), *Handbook of organizational learning and knowledge*, Oxford University

Press, New York.

Nonaka, I. y Takeuchi, H. (1995), *The knowledge-creating company*, Oxford University Press: Oxford.

Nonaka, I., Takeuchi, H. y Umemoto, K. (1996), "A theory of organizational knowledge creation", *International Journal of Technology Management*, Vol. 11 No. 7/8, pp. 833-845.

OECD (2009) Guide to measuring the information society, Paris, available at http://www.oecd.org/sti/measuring-infoeconomy/guide (accesed 23 April 2011).

Olsen, M.D. y Connolly, D.J. (2000), "Experience-based travel", *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 41 No. 1, pp. 30-40.

Omerzel, D.G. y Antoncic, B. (2008), "Critical entrepreneur knowledge dimensions for the SME performance", *Industrial Management & Data Systems*, Vol. 108 No. 9, pp. 1182-1199.

Oorni, A. y Klein, S. (2003), "Electronic travel markets: Elusive effects on consumer behaviour", in A. J. Frew, M. Hitz, and P. O'Connor, (Eds.), *Information and Communication Technologies in Tourism*. pp. 29-38, Springer Wien: New York.

Osigweh, C. A. B. (1989), "Concept fallibility in organizational science", *Academy of Management Review*, Vol. 14, pp. 579-594.

Papatheodorou, A. (2002), "Civil aviation regimes and leisure tourism in Europe", *Journal of Air Transport Management*, Vol. 8, pp. 381-388.

Pavitt, K. (1984), "Sectoral patterns of technological change: towards a taxonomy and a theory", Research Policy Vol. 13 No.6, pp.343–373.

Pearce, J.A., Fritz, D.A. y Davis, P.S. (2010), "Entrepreneurial Orientation and the Performance of Religious Congregations as Predicted by Rational Choice Theory", *Entrepreneurship, Theory and Practice*. Vol. 34 No.1, pp. 219-248.

Petroni, A. y Panciroli, B. (2002), "Innovation as a determinant of suppliers' roles and performances: An empirical study in the food machinery industry", *Purchasing & Supply Management*, Vol. 8, pp. 135-149.

Pitts, G. (2008), "Life as an entrepreneur: leadership and learning", *Development and learning in organizations*, Vol. 22 No. 3, pp. 16-17.

Plessis, M.D. y Boon, J.A. (2004), "Knowledge management in e-business and customer relationship management: South African case study findings", *International Journal of Information Management*, Vol. 27, pp.73-86.

Podsakoff, P.M. y Organ, D.W. (1986), "Self-reports in organization research: problems and prospects", *Journal of Management*, Vol. 12, pp. 531-544.

Polities, D. (2008), "Does prior start-up experience matter for entrepreneurs´ learning?", *Journal of Small Business and Enterprise development*, Vol. 15 No. 3, pp. 472-489.

Poon, A. (1993), *Tourism, technology and competitive strategies*, CAB International: Oxford.

Porter, M. (1980), *Competitive strategy: Techniques for analysing industries and competitors*, New York: Free Press.

Porter, M. (2001), "Strategy and the Internet", *Harvard Business Review*, Vol. 79 No. 3, pp. 63–78.

Porter, M.E. (1985), "Technology and competitive advantage", *Journal of Business Strategy, Vol.* 5 No. 3, pp. 60-78.

Prahalad, C. K. y Hamel, G. (1990), "The core competence of the corporation", *Harvard Business Review*, Vol. 63 No. 3, pp. 79-91.

Prajogo, D. I. y Ahmed, P. K. (2006), "Relationships between innovation stimulus, innovation capacity, and innovation performance" R&D Management, Vol. 36 No. 5, pp. 499-515.

Randoy, T. y Goel, S. (2003), "Ownership structure, founder leadership, and performance in Norwegian SMEs: Implications for financing entrepreneurial opportunities", *Journal of Business Venturing*, Vol. 18, pp. 619-637.

Ravichandran, T. y Lertwongsatein, C. (2005) "Effect of information systems resources and capabilities of firm performance: A resourced-based perspective", *Journal of Management Information Systems*, Vol. 21No. 4, pp. 237-276.

Ray, G., Muhanna, W. A. y Barnety, J. B. (2005), "Information Technology and the Performance of the Customer Service Process: A Resource-Based Analysis", *MIS Quarterly*, Vol. 29 No. 4, pp. 625-652.

Real, J.C., Leal, A. y Roldan, J.L. (2006), "Information technology as a determinant of organizational learning and technological distinctive competencies", *Industrial Marketing Management*, Vol. 35, pp. 505-521.

Rebentisch, E.S. y Ferretti, M. (1995), "A knowledge asset-based view of technology transfer international joint ventures", *Journal of engineering and technology management*, Vol. 12, pp. 1-25.

Rerup, C. (2005), "Learning from past experience: Footnotes on mindfulness and habitual entrepreneurship", *Scandinavian Journal of Management*, Vol. 21, pp. 451-472.

Rhee, B. V. D., Verma, R. y Plaschka, G. (2009) "The role of flexibility, delivery, and value-added services/support in the supplier selection process - Understanding tradeoffs in the supplier selection process", *International Journal of Production Economics* – Special Issue, Vol. 120 No. 1, pp. 127–149.

Robey, D., Boudreau, M.C. y Rose, G.M. (2000), "Information technology and organizational learning: A review and assessment of research", *Accounting Management and Information Technologies*, Vol. 10, pp. 125–155.

Rockart, J. W., Beath, C. M. y Goodhue, D. L. (1996), "Eight imperatives for the new IT organization", *Sloan Management Review*, Vol. 38 No. 1, pp. 43-56.

Rogers, E.M. (1995), *Diffusion of innovations*, Free Press: New York.

Ross, J. W., Beath, C.M. y Goodhue, D. L. (1996), "Develop long-term competitiveness through IT assets", *Sloan Management Review*, Vol. 38 No. 1, pp. 31-42.

Sambarmurthy, V., Bharadwaj, A. y Grover, V. (2003), "Shaping agility through digital options: Reconceptualizing the role of information technology in contemporaty firms", *MIS Quarterly*, Vol. 27 No. 2, 237-263.

Sampler, J.L. (1998), "Redefining Industry Structure in the Information Age", *Strategy Management Journal*, Vol. 19, pp. 345-355.

Sánchez Marín, G. y Aragón Sánchez, A. (2003), "Top Managers' Compensation, Strategic Orientations, and Firm Performance", *Management Research*, Vol. 1 No.1, pp. 27-44.

Satterlee, S. (2003), "The impact of low cost flights: Enter the cut-price jet set", *Financial Times*, April 15, pp. 1, available at http://www.ft.com/home/europe <FT.com> (accesed February 2008).

Scaglione, M., Schegg, R. y Murphy, J. (2009), "Website adoption and sales serformance in Valais' hospitality industry", *Technovation*, Vol. 29, pp. 625-631.

Schendel, D. (1990) "Introduction to the special issue on corporate entrepreneurship", *Strategic Management Journal,* Vol. 11, pp. 1-3.

Schollhammer, H. (1982), "Internal corporate entrepreneurship", in C.A. Kent, D.L. Sexton, y K.H. Vesper, eds., *Encyclopedia of Entrepreneurship*, Englewood Cliffs,

NJ: Prentice Hall, pp. 209-223.

Schumpeter, J. A. (1934), "The theory of economic development", 1st Edition, Harvard University Press, Cambridge, MA.

Senge, P., Kleiner, A., Roberts, C., Ross, R. B. y Smith, B. J. (1995), *La quinta disciplina en la práctica*, Granica: Barcelona (original en ingles: The fifth discipline fieldbook, 1994, Doubleday Publ: New York.

Senge, P., Roberts, C., Ross, R.B., Smith, B.J. y Kleiner, A. (1994), *The Fifth Discipline*, Fieldbook. Doubleday Publ,: New York.

Shan, W. (1990), "An empirical analysis of organizational strategies by entrepreneurial high-technology firms", *Strategic Management Journal, Vol.* 11, pp. 129-139.

Shane, S. and Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25, No. 1, pp. 217-226.

Shane, S. y Venkataraman, S. (2000), "The promise of entrepreneurship as a field of research", *Academy of Management Review*, Vol. 25 No. 1, pp. 217-226.

Shapero, A (1975), "The displaced, uncomfortable entrepreneur", *Psychology Today, Vol. 9 No. 6, pp. 83-88.*

Sharma, P. y Chrisman, J. J. (1999), "Toward a reconciliation of the definitional issues in the field of corporate entrepreneurship", *Entrepreneurship: Theory and Practice*, Vol. 23 No. 3, pp. 11-27.

Shaw, G. y Williams, A. (2009), "Knowledge Transfer and Management in Tourism Organisation: An Emerging Research", *Tourism Management*, Vol. 30, pp. 325-335.

Shepherd, D. A., Covin, J. G. y Kuratko, D. F. (2009), "Project failure from corporate entrepreneurship: Managing the grief process", *Journal of Business Venturing*, Vol. 24, pp. 588-600.

Shrivastava, P. (1981), *Strategic decision making process: The influence of organizational learning and experience*, Unpublished PhD Dissertation, University of Pittsburgh, Pittsburgh.

Shrivastava, P. (1981), *Strategic decision making process: The influence of organizational learning and experience*, Unpublished PhD Dissertation, University of Pittsburgh, Pittsburgh.

Sigala, M., Lockwood, A. y Jones, P. (2001), "Strategic implementation and IT: Gaining competitive advantage from the hotel reservations process", *International Journal of Contemporary Hospitality Management*, Vol. 13 No. 7, pp. 364-371.

Simon, H. A. (1969), *Sciences of the artificial*, MIT Press: Cambridge, MA.

Simpson, P.M., Siguaw, J.A. y Enz, C.A. (2006), "Innovation Orientation Outcomes: The Good and the Bad", *Journal of Business Research*, Vol. 59, pp. 1133-1141.

Simsek, Z. y Heavey C. (2011), "The mediating role of knowledge-based capital for corporate entrepreneurship effects on performance: A study of Small- to Medium-Sized firms", *Strategic entrepreneurship Journal*, Vol. 5 No. 1, pp. 81-100.

Simsek, Z., Lubatkin, M.H., Veiga, J. F. y Dino, R.N. (2009), "The role of an entrepreneurially alert information system in promoting corporate entrepreneurship", *Journal of Business Research*, Vol. 62, pp. 810-817.

Skerlavaj, M. y Dimovski, V. (2006), "Study of the mutual connections among Information-Communication Technologies, Organisational Learning and Business Performance", *Journal for East European Management Studies*, Vol. 11 No. 1, pp. 9-29.

Slater, S. F. y Narver, J. C. (1995), "Market orientation and the learning organization", *Journal of Marketing*, vol. 59 No. 3, pp. 63-74.

Slater, S.F. y Narver, J.C. (1994), *Market orientation isn't enough: Build a learning organization*, Marketing Science Institute: Cambridge (MA).

Slattery, P. y Litteljohn, D. (1991). The structure of Europe's economies and demand for hotel accommodation. *Travel and Tourism Analyst*, 4, 20-37.

Smith, K. G., Smith, K.A., Olian, J.D., Sims, H.P., O´Bannon, D.P. y Scully, J.A., (1994), "Top management team demography and process: The role of social integration and communication" *Administrative Science Quarterly, Vol.* 39 No.3, pp. 412-438.

Snow, C.C. y Hrebiniak, L.G. (1980), "Strategy, distinctive competence, and organizational performance", *Administrative Science Quarterly,* Vol. 25, pp. 317-335.

Spann, M., Adams, M. y Wortman, M. (1988), "Entrepreneurship: Definitions, Dimensions and dilemmas", *Proceedings of the U.S. Association for Small Business and Entrepreneurship*, pp. 147-153.

Spector, P.E. (2006), "Method variance in organizational research: Truth or urban legend?", *Organizational Research Methods*, Vol. 9, pp. 221-232.

Srivastava, A. y Lee, H. (2005), "Predicting order and timing of new product moves: the role of top management in corporate entrepreneurship", *Journal of Business Venturing*, Vol. 20, pp. 459-481.

Stata, R. (1989), "Organizational learning: the key to management innovation", *Sloan Management Review*, Vol. 30 No. 3, pp. 63-74.

Stevenson, H. H. y Jarillo, J. C. (1990), "A paradigm of entrepreneurship: Entrepreneurial management", *Strategic Management Journal*, Vol. 11, pp. 17-27.

Stewart, T. (1992), "Spain outbound", *Travel and Tourism Analyst*, Vol. 2, pp.53-71.

Stone, L.J. (2006), "Limitations of cleaner production programmes as organizational change agents. II. Leadership, support, communication, involvement and programme design", *Journal of Cleaner production*, Vol. 14, pp. 15-30.

Straub, D.W. (1994), "The effect of culture on IT diffusion: Mail and fax in Japan and the U.S.", *Information System Research*, Vol. 5 No.1, pp. 23-47.

Stuart, R., y Abetti, P. (1990), "Impact of entrepreneurial and management experience on early performance", *Journal of Business Venturing, Vol.* 5, pp. 151-162.

Swieringa, J. y Wierdsma, A. (1995), *La organización que aprende*, Addison Wesley Iberoamericana: Wilmington (original en ingles: *Becoming a learning organization*, 1992, Addison-Wesley: Reading, MA).

Tan, J. (2001), "Innovation and Risk-Taking in a Transitional Economy: A Comparative Study of Chinese Managers and Entrepreneurs", *Journal of Business Venturing*, Vol. 16 No. 4, pp. 359-376.

Tan, J. (2001), "Innovation and risk-taking in a transitional economy: A comparative study of Chinese managers and entrepreneurs", *Journal of Business Venturing*, Vol. 16 No. 4, pp. 359-376.

Teece, D. J., Pisano, G. y Shuen, A. (1997), "Dynamic capabilities and strategic management", *Strategic Management Journal*, Vol. 18 No. 7, pp. 509-533.

Teece, D.J. (1986), "Profiting from technological innovation: implications for integration, collaboration, licensing and public policy", *Research Policy,* Vol. 15 No. 6, pp. 285-305.

Teece. D. J., G. Pisano y A. Shuen (1990), "Firm capabilities, resources and the concept of strategy", *Consortium on Competitiveness and Cooperation Working Paper*, University of California at Berkeley 1990, Center for Research in Management, Berkeley, CA, pp. 90-99.

Thatcher, J.B. Srite, M., Stepina, L.P. y Liu, Y. (2003), "Culture, Overload and Personal Innovativeness with Information Technology: Extending the Nomological Net", *Journal of Computer Information Systems*, Vol. 44 No. 1, pp. 74-81.

Torkkeli, M. y Tuominen, M. (2001), "The contribution of technology selection to core competencies", *International Journal of Production Economics*, Vol. 77, pp. 271-284.

Torrisi, S. (1988), *Industrial Organization and Innovation: An International Study of the Software Industry*, Edwar Elgar, Cheltenham, U.K.

Treacy, M. y Wiersema, F. (1993), "Customer Intimacy and Other Value Disciplines", *Harvard Business Review*, Vol. 71, pp. 84-94.

Tsai, K.H. y Wang, J.C. (2009), "External technology sourcing and innovation performance in LMT sectors: An analysis based on the Taiwanese technological innovation survey", *Research Policy*, Vol. 38, pp. 518-526.

Tse A., Sin, L., Yim, F. y Heung, V. (2005), "Market orientation and hotel performance", *Annals of Tourism Research*, Vol. 32 No. 4, pp. 1145-1147.

Turton, B.J. y Mutambirwa, C.C. (1996), "Air transport services and the expansion of international tourism in Zimbabwe", *Tourism Management*, Vol. 17 No. 6, pp. 453-462.

Tushman, M.L. y Anderson, P. (1986), "Technological discontinuities and organizational environments", *Administrative Science Quarterly*, Vol. 31, pp. 94-102.

Van Gils, A. (2005), "Management and governance in Ducth SMEs", *European Management Journal*, Vol. 23 No.5, pp. 583-589.

Venkatraman, N. y Ramanujam, V. (1986), "Measurement of business performance in strategy research: A comparison of approaches", *Academy of Management Review*, Vol. 11 No. 4, pp. 801-814.

Verdú Jover, A. J., Lloréns Montes, F. J. y García Morales, V. J. (2006), "Envirnoment-Flexibility Coalignment and Performance; An Analysis in Large Versus Small-Firms", *Journal of Small Business Management*, Vol. 44 No. 3, pp. 334-349.

Vesper, K. H. (1984) "Three faces of corporate entrepreneurship: A pilot study", in J. A. Hornaday, F. Tarpley, Jr., J. A. Timmons & K. H. Vesper (Eds.), *Frontiers of Entrepreneurship Research*, Wellesley, MA: Babson College.

Wang, C.L. y Ahmed, P.D. (2004), "The development and validation of the organizational innovativeness Construct using confirmatory factor analysis", *European Journal of Innovation Management*, Vol. 7 No.4, pp. 303-313.

Weick, K. E. (1979), *The social psychology of organizing* (2nd Ed.), Addison-Wesley: Reading, MA.

Weill, P. y Broadbent, M. (1998), *Leveraging the New Infrastructure. How Market Leaders Capitalize on Information Technology*, Harvard Business School Press, Boston.

Westphal, J.D. y Fredickson, J.W. (2001), "Who directs strategic change? Director experience, the selection of new CEOs, and change in corporate strategy", *Strategic Management Journal*, Vol. 22, pp. 1113-1137.

Wild, R.S.,Griggs, K.A. y Downing,T. (2002), "A framework for e-learning as a tool for knowledge management", *Industrial Management & Data Systems*, Vol. 102 No. 7, pp. 371-380.

Wood, M.S. y McKinley, W. (2010), "The production of entrepreneurial opportunity: A constructivist perspective", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 66-84.

Woolley, J. (2010), "Technology emergence through entrepreneurship across multiple industries", *Strategic Entrepreneurship Journal*, Vol. 4, pp. 1-21.

Yip, G.S. (1982), *Barriers to entry: A Corporate-Strategy Perspective*, Lexington Books, Lexington, MA.

Zahra, S. A. (1995), "Corporate entrepreneurship and financial performance: The case of management leveraged buyouts", *Journal of Business Venturing*, Vol. 10, pp. 225-247.

Zahra, S. A. (1996), "Technology strategy and new venture performance: A study of corporate-sponsored and independent biotechnology ventures", *Journal of Business Venturing*, Vol. 11, pp. 289-321.

Zahra, S.A. (1991), "Predictors and financial outcomes of corporate entrepreneurship: an exploratory study", *Journal of Business Venturing*, Vol. 6 No. 4, pp. 259-85.

Zahra, S.A. (1993), "Environment, corporate entrepreneurship, and financial performance: a taxonomic approach", *Journal of Business Venturing,* Vol. 8 No.4, pp. 319-340.

Zahra, S.A. y Covin, J. G. (1995), "Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis", *Journal of Business Venturing*, Vol. 10, pp. 43-58.

Zahra, S.A. y Garvis, D.M. (2000), "International corporate entrepreneurship and firm performance: the moderating effect of international environmental hostility", *Journal of Business Venturing*, Vol. 15 Nos. 5-6, pp. 469-492.

Zahra, S.A. y Covin, J. G. (1995), "Contextual influences on the corporate

entrepreneurship-performance relationship: A longitudinal analysis", *Journal of Business Venturing*, Vol. 10, pp. 43-58.

Zahra, S.A. y Garvis, D.M. (2000), "International corporate entrepreneurship and firm performance: the moderating effect of international environmental hostility", *Journal of Business Venturing*, Vol. 15 Nos. 5-6, pp. 469-492.

Zaltman, G., Duncan, R. y Holbek, J. (1973), *Innovations and organizations,* Wiley: New York.

Zien, K.A. y Buckler, S.A. (1997), "Dreams to market: Crafting a culture of innovation", *Journal of Product Innovation Management*, 14, pp. 274-287.

Zmud, R.W. (1984), "An examination of "Push-Pull" theory applied to process innovation in knowledge work", *Management Science*, Vol. 30, pp. 727-738.