



**UNIVERSIDAD
DE GRANADA**

Facultad de Ciencias Económicas y Empresariales
Departamento de Organización de Empresas
Programa Oficial de Doctorado en Ciencias Económicas y Empresariales

TESIS DOCTORAL

**ESSAYS ON SOCIAL MEDIA
AND BUSINESS TRANSFORMATION**

**MENCIÓN DE DOCTORADO
INTERNACIONAL**

Tesis doctoral presentada por:
Jésica Braojos Gómez

Dirigida por:
Prof. Dr. Francisco Javier Llorens Montes
Prof. Dr. José Benítez Amado

GRANADA, 2018



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*A mi tía Rosa, por enseñarme
una gran lección de vida,
y a mi madre,
sin cuyo apoyo esto
no fuese sido posible.*

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INTRODUCCIÓN

1

1. INTRODUCCIÓN

Introducción

El uso de medios sociales como Facebook, Twitter, o LinkedIn está alcanzando un gran nivel de desarrollo en las empresas, cambiando la forma en la que las compañías intercambian información interna y externamente (Aral et al., 2013). Los medios sociales pueden ser usados por las empresas para mejorar sus actividades de negocio y ayudarles a generar valor a nivel corporativo y operativo (Aral et al., 2013). A nivel corporativo, los medios sociales permiten una mayor flexibilidad en la detección y explotación de oportunidades (Wagner y Wagner, 2013). A nivel operativo, permiten mejorar la relación con los clientes, lo que incrementa la confianza en la marca y lealtad del cliente, optimizando el valor de la empresa (Laroche et al., 2013; Trainor et al., 2014). Por ejemplo, empresas con buenas habilidades en el uso de medios sociales pueden interactuar de forma efectiva con clientes para incrementar las visitas de éstos a las tiendas generando así valor para la compañía (Rishika et al., 2013). Los medios sociales son, por tanto una fuente de generación de valor para la empresa.

La supervivencia organizacional depende de la habilidad para detectar continuamente nuevas oportunidades y de innovar ante los rápidos cambios del entorno (Duran et al., 2016). La interacción con los clientes a través de los medios sociales puede suponer una importante fuente de información para detectar esas nuevas oportunidades. A través de los medios sociales las empresas obtienen *feedback* del cliente para la creación de nuevos productos/servicios y el desarrollo y mejora de productos/servicios existentes. La opinión de los clientes ayuda por tanto a las empresas a entender las necesidades y expectativas del cliente sobre el producto/servicio (Yim et al., 2012). Por ejemplo, en 2008 Starbucks desarrolló la plataforma social “*MyStarbucksIdea*” para recopilar ideas de mejora de clientes. En esta plataforma los clientes pueden hacer sugerencias sobre numerosos aspectos relacionados con el producto/servicio, así como votar por ideas propuestas por otros usuarios. De esta forma, Starbucks ha conseguido desarrollar y mejorar cientos de nuevos productos y actividades (ej., nuevos sabores de café, disponibilidad de Wi-Fi en todas sus cafeterías) (Dong y Wu, 2015). En este ejemplo se ilustra el potencial que tiene la opinión del cliente en el desempeño innovador de la empresa y el papel fundamental que juegan las nuevas tecnologías (medios sociales) en el proceso.

Si bien los medios sociales externos (Facebook, Twitter, LinkedIn) son recursos gratuitos para cualquier organización que desee utilizarlos, un uso eficiente de los mismos requiere utilizar otro tipo de recursos organizativos. De esta forma, el nivel de desarrollo de la capacidad de medios sociales (habilidades de las

empresas para usar y explotar los medios sociales para ejecutar actividades de negocio) varía entre empresas, así como también varía el potencial que cada compañía tiene para transformar sus actividades de negocio basado en el uso de los medios sociales.

Según la perspectiva de las capacidades organizativas facilitadas por la tecnología de la información (TI) (Benitez y Walczuch, 2012), parece racional argumentar que la capacidad de medios sociales puede ayudar a las empresas a transformar sus actividades de negocio para mejorar su desempeño a partir del desarrollo de otras capacidades estratégicas u operativas (Benitez et al., 2018a). La clave en la generación de valor a partir de las TI no recae en el montante invertido, sino en el uso eficiente de los recursos de TI y su desarrollo conjunto con otras capacidades organizativas.

La literatura previa sobre medios sociales y desempeño organizativo explora de forma sucinta el efecto del uso de medios sociales como herramienta de marketing en aspectos tales como la lealtad hacia la marca, la satisfacción del cliente, o la atracción o deseo de compra (Goh et al., 2013; Rishika et al., 2013). Asimismo, se han empezado a explorar los efectos comparativos de medios sociales frente a medios más tradicionales (ej., Internet, televisión) en el valor de mercado de las empresas (Luo et al., 2013; Yu et al., 2013), y los efectos positivos de los medios sociales en el desempeño innovador de las compañías (Leonardi, 2014; Mount y Garcia, 2014). Aunque los medios sociales pueden ayudar a las empresas a desarrollar más y mejor sus actividades de negocio, debido a su novedad, la investigación sobre el impacto de los

medios sociales en la transformación de las actividades de negocio de las compañías es todavía emergente y muy limitada (Luo et al., 2013).

El objetivo principal de esta investigación es analizar si y cómo la capacidad de medios sociales ayuda a las empresas a transformar sus actividades de negocio para mejorar su desempeño organizativo.

1.1. Marco general de la tesis doctoral

Esta investigación doctoral está contextualizada en la literatura de Sistemas de Información. El impacto de los recursos de TI sobre el desempeño organizativo es un tema que ha suscitado gran interés en la literatura de Sistemas de Información. Numerosos trabajos abordan el concepto de valor de negocio de los recursos de TI, entendido como la generación de valor de la compañía motivado por un uso eficiente de los recursos de TI (Melville et al., 2004). Los resultados más destacados defienden una relación positiva e indirecta entre los recursos de TI y el desempeño organizativo (Pavlou y El Sawy, 2006; Devaraj et al., 2007). De esta forma, según la perspectiva de las capacidades organizativas facilitadas por la TI (Benitez y Walczuch, 2012), las capacidades de TI no consiguen directamente un desempeño organizativo superior, sino que necesitan de la ayuda de otras capacidades/ procesos organizativos intermedios o complementarios (Benitez et al., 2018a). Algunas de las variables que han servido como mecanismos intermedios o complementarios son la gestión del

talento, el aprendizaje organizativo, la gestión del conocimiento, o la flexibilidad de negocio (Ajamieh et al., 2016; Chen et al., 2017; Benitez et al., 2018a; Benitez et al., 2018b). En resumen, la clave en la generación de valor a partir de los recursos de TI no recae en el montante invertido, sino en el uso eficiente de los recursos de TI y su desarrollo conjunto con otras capacidades/procesos organizativos.

Siguiendo esta literatura, la presente investigación trata de estudiar un aspecto concreto del valor de negocio de los recursos de TI. Concretamente trata de analizar el impacto de la capacidad de medios sociales en el desempeño organizativo. Los medios sociales son tecnologías digitales que permiten la transferencia de información entre usuarios, y por tanto son entendidas como un recurso específico de TI. De esta forma, se extrapola el concepto de valor de negocio de los recursos de TI a los medios sociales, entendiéndose el valor de negocio de medios sociales como la generación de valor de la empresa motivada por un uso eficiente de los medios sociales (Dong y Wu, 2015). La presente investigación hace uso de la literatura previa de Sistemas de Información para contextualizar la generación de valor de las empresas facilitada por la capacidad de medios sociales.

Pese a la creciente importancia de las tecnologías digitales en las actividades de negocio y la generación de valor en las empresas, el impacto de los medios sociales sobre el desempeño organizativo se ha estudiado de forma muy limitada. A nivel conceptual algunos estudios describen el potencial de los medios sociales dentro de las empresas, dando recomendaciones para

tener éxito en su implantación (ej., la decisión consciente de la mejor plataforma social a implantar, el mejor momento y/o forma para hacerlo) (Culnan et al., 2010; Kiron et al., 2012). Otros estudios exploran el uso de medios sociales como herramienta de marketing para conseguir objetivos como la lealtad hacia la marca, la satisfacción del cliente, o la atracción o deseo de compra (Goh et al., 2013; Rishika et al., 2013). De forma más limitada se han explorado los efectos comparativos de medios sociales frente a medios más tradicionales (ej., Internet, televisión) en el valor de mercado de las empresas (Luo et al., 2013; Yu et al., 2013). Asimismo, empieza a suscitar gran interés el uso de los medios sociales como herramienta para la generación de nuevo conocimiento (Mahr y Lievens, 2012). En este sentido, algunos estudios de caso desarrollan la importancia de los medios sociales sobre el desempeño innovador de las empresas (Leonardi, 2014; Mount y Garcia, 2014). Por ejemplo, Jarvenpaa y Tuunainen (2013) muestran el caso de la aerolínea finlandesa Finnair, y cómo utiliza los medios sociales como herramienta para involucrar a los clientes en procesos de innovación. Resumiendo, el conocimiento empírico sobre el impacto de los medios sociales en el desempeño organizativo, a través del papel complementario o mediador de otras capacidades/procesos organizativos ha sido tímidamente explotado.

La literatura reciente indica que una estrategia de medios sociales y habilidades gestionando y explotando el contenido son necesarios para crear conocimiento necesario para mejorar el desempeño organizativo (Benitez et al., 2018a). Basado en

esta literatura, esta investigación doctoral propone la capacidad de medios sociales como la capacidad de facilitar el desempeño organizativo a través de una serie de capacidades/procesos organizativos.

1.2. Delimitación del tema objeto de estudio

El tema de la capacidad de medios sociales y su impacto en las actividades de negocio es un tema reciente en la literatura de Sistemas de Información. El impacto del uso de los medios sociales en las empresas se ha estudiado de forma limitada (Aral et al., 2013). Hasta el momento no se ha desarrollado el concepto de capacidad de medios sociales y de valor de negocio de medios sociales.

En esta investigación doctoral se estudia teóricamente y empíricamente el concepto de capacidad de medios sociales. En primer lugar, se conceptualiza de forma teórica el término capacidad de medios sociales como la habilidad para usar y explotar los medios sociales para ejecutar actividades de negocio. En este sentido, se diferencia entre medios sociales externos (Facebook, Twitter, blogs) y medios sociales internos (plataformas creadas por las empresas para uso interno). Los medios sociales externos son plataformas públicas de intercambio de información con usuarios externos (ej., clientes), mientras que los medios sociales internos son aquellas plataformas sociales creadas por las organizaciones y restringidas al uso de empleados. En segundo lugar, se analiza empíricamente el término capacidad de medios sociales. En una

primera aproximación al concepto, en base a los indicadores propuestos por Culnan et al. (2010), se mide el constructo con datos secundarios directamente recogidos de las plataformas de Facebook, Twitter y blogs. En un intento de recoger una mayor amplitud del concepto, en una segunda fase se desarrolla una escala de encuesta basada en estudios previos (Culnan et al., 2010; Kane et al., 2014a, 2014b). El constructo capacidad de medios sociales queda compuesto por tres dimensiones que consideran plataformas sociales externas e internas: *social media mindful planning* (planificación consciente de medios sociales), *social media management* (gestión de medios sociales), y *social media exploitation* (explotación de medios sociales). La planificación consciente de medios sociales se refiere a la habilidad de diseñar la estrategia de medios sociales (selección de la plataforma social a adoptar y objetivos empresariales de dicha plataforma). La gestión de medios sociales se refiere a la habilidad de gestionar el contenido creado y aportado en las plataformas sociales (información relevante, en tiempo y contenido). La explotación de medios sociales se refiere a la habilidad de explotar los datos obtenidos en las plataformas sociales para alcanzar los objetivos empresariales (ej., toma de decisiones). De esta forma, esta investigación doctoral se centra en delimitar de forma teórica y empírica el concepto de capacidad de medios sociales.

Valor de negocio de medios sociales se refiere al grado en que las empresas crean valor mediante el uso de los medios sociales (Melville et al., 2004; Dong y Wu, 2015). A pesar de la elevada popularidad de los medios sociales en las empresas, el valor de

negocio de medios sociales es un fenómeno reciente y su estudio empírico y teórico está en estado inicial (Lam et al., 2016). La mayoría de la investigación hasta el momento se ha centrado en explorar los efectos de la generación de contenido a través de los medios sociales externos (Facebook, Twitter) en la calidad percibida, reputación de marca, satisfacción del cliente, o la intención de compra (Goh et al., 2013; Hildebrand et al., 2013; Li et al., 2013; Rishika et al., 2013). Algunos estudios exploran el valor de negocio de medios sociales centrándose fundamentalmente en el desempeño financiero. Sin embargo, a pesar del potencial de los medios sociales para actividades de negocio (Leonardi, 2014), los trabajos sobre el valor de negocio de medios sociales son muy limitados.

El uso de los medios sociales puede mejorar el valor de las empresas mediante la interacción con los usuarios (Froehle, 2006; Kiron, 2012a). Las empresas pueden usar los medios sociales más allá de para simples temas comerciales o de marketing (ej., ventas, reconocimiento de la marca) (Kiron et al., 2013; Kane et al., 2014a). Los medios sociales son considerados como herramientas para ser usadas en toda la organización, especialmente claves para mejorar el desempeño innovador (ej., desarrollo de nuevos productos), el liderazgo (ej., reclutamiento y desarrollo de empleados), o el desempeño operativo (ej., mejoras en la producción por la interacción con proveedores y otros usuarios) (Kane et al., 2014a; Zhang y Benyoucef, 2016). En busca de un mayor entendimiento en la literatura de valor de negocio de medios sociales, en esta investigación doctoral se estudia el efecto de la capacidad de

medios sociales en el desempeño organizativo. Concretamente se centra en analizar el impacto de la capacidad de medios sociales en el desempeño innovador y de servicio al cliente.

Los medios sociales pueden ser especialmente claves en la innovación. Algunos estudios de caso ya muestran la importancia de usar los medios sociales para la innovación abierta (Leonardi 2014; Mount y Garcia, 2014). Los medios sociales permiten una mayor conectividad, colaboración, experimentación y transmisión de información en tiempo real, lo que facilita la innovación (Nambisan et al., 2017). A través de los medios sociales externos (Facebook, Twitter, blogs) e internos (Microsoft Yammer) los clientes y empleados pueden jugar un papel muy activo en las actividades de innovación (Aral et al., 2013; Jarvenpaa y Tuunainen, 2013). Los clientes pueden contribuir dando información sobre sus necesidades y expectativas mientras que los empleados pueden dar información acerca de los procesos internos y dar soluciones a problemas operativos, mejorando el proceso de desarrollo de nuevos productos. Por tanto, a través de los medios sociales las empresas pueden generar nuevo conocimiento para innovar con la ayuda de clientes y empleados.

La capacidad de medios sociales también puede influir en el desempeño del servicio al cliente. Una mayor interacción y participación del cliente a través de los medios sociales puede generar información sobre las necesidades y quejas de los clientes, lo que puede resultar en una mayor agilidad de la compañía para solventarlas (Kiron, 2012b; Kiron et al., 2013). Por tanto, las

empresas pueden usar los medios sociales para detectar fallos y mejorar el servicio prestado al cliente.

La simple adopción de los medios sociales por las empresas no garantiza el éxito. La literatura previa de Sistemas de Información apoya la idea de que la clave en la generación de valor a partir de la TI no recae en el montante invertido, sino en el uso eficiente de los recursos de TI y su desarrollo conjunto con otras capacidades/procesos organizativos (Benitez et al., 2018a). Así, los medios sociales son plataformas (recursos tecnológicos), cuyo grado de inversión y desarrollo podría ser heterogéneo entre organizaciones. La forma en la que las empresas usan el conocimiento y experiencia de clientes y empleados es fundamental. Para generar desempeño innovador y valor en la prestación del servicio es imprescindible gestionar de forma eficiente la gran diversidad de información y conocimiento obtenidos en los medios sociales. Resulta interesante conocer los procesos internos que deberían ser desarrollados para gestionar la información adquirida a través de los medios sociales para obtener un desempeño innovador y de servicio al cliente. Para ello, es imprescindible disponer de una serie de capacidades/procesos organizativos que ayuden a manejar dicha información. La presente investigación doctoral analiza el impacto de la capacidad de medios sociales en el desempeño innovador y de servicio al cliente tomando en consideración otras variables organizativas que median o moderan el proceso.

1.3. Objetivos de la investigación

El objetivo principal de esta investigación doctoral es analizar si y cómo la capacidad de medios sociales ayuda a las empresas a transformar sus actividades de negocio para mejorar su desempeño organizativo en el contexto de las empresas españolas y norteamericanas. Este objetivo puede ser escindido en varios objetivos específicos:

- Estudiar cuáles son los principales antecedentes que permiten a las empresas aprender a desarrollar una competencia de medios sociales.
- Analizar el efecto complementario de los medios sociales y recursos tecnológicos tradicionales en el desempeño organizativo.
- Estudiar el impacto de la capacidad de medios sociales sobre el resultado de innovación empresarial tomando en consideración otras variables organizativas que median el proceso.

Las preguntas de investigación sobre las que se fundamentan estos objetivos específicos son las siguientes:

- ¿Cómo aprenden las empresas a desarrollar una capacidad de medios sociales? ¿Cuáles son los antecedentes de la capacidad de medios sociales?
- ¿Influye la capacidad de medios sociales en el desempeño innovador? ¿De qué forma?

- ¿Influye la capacidad de medios sociales en el desempeño de servicio al cliente ¿De qué forma?
- ¿Existe complementariedad entre los medios sociales y los recursos digitales tradicionales para mejorar el desempeño empresarial?
- ¿De qué forma se gestiona la información obtenida a través de los medios sociales para conseguir un desempeño innovador?

Para la muestra se han considerado grandes empresas españolas y pequeñas empresas norteamericanas, teniendo presente que los criterios de tamaño son dispares entre países. Se han seleccionado empresas líderes en ventas, y por tanto más expuestas a desarrollar su desempeño innovador y de servicio al cliente.

En los siguientes apartados se muestran de forma más detallada los objetivos específicos a alcanzar.

1.3.1. Antecedentes en el desarrollo de la competencia en medios sociales

Algunos trabajos han planteado como motivaciones empresariales para usar medios sociales la presión social, argumentos basados en marketing (ej., creación de marca y promoción de nuevos productos), o la imagen de responsabilidad social corporativa (Sinclair y Vogus, 2011; Lee et al., 2013). No obstante, la literatura sobre antecedentes del uso de medios sociales en las empresas es muy limitada.

Uno de los objetivos específicos de esta investigación doctoral es la conceptualización de la competencia en medios sociales “*social media competence*” y la búsqueda de factores que favorecen su desarrollo. Se define la competencia en medios sociales como la capacidad de las empresas de usar y explotar los medios sociales (Facebook, Twitter, blogs) para ejecutar actividades de negocio. Facebook, Twitter y blogs son las plataformas sociales elegidas dado la gran importancia dada en estudios previos (Culnan et al., 2010) y las sugerencias recibidas por la Asociación Española de Responsables de Comunidad y Profesionales Social Media (AERCO-PSM), la mayor asociación española de gestores de comunidad y medios sociales.

Se exploran como posibles factores de desarrollo de la competencia en medios sociales los siguientes: la presión social competitiva, la capacidad de infraestructura tecnológica, la gestión de marketing, la gestión de la innovación y el tamaño empresarial. En este sentido, se profundiza en el estudio de los antecedentes del desarrollo de la habilidad de gestionar los medios sociales para ejecutar actividades de negocio.

1.3.2. Complementariedad de los recursos tecnológicos digitales: Medios sociales y tradicionales

Una vez definido el concepto de capacidad/competencia de medios sociales, se puede profundizar en el impacto de esta capacidad en el desempeño organizativo. El segundo objetivo específico de esta investigación doctoral explora el efecto

complementario de los recursos tecnológicos digitales de medios sociales (Facebook, Twitter, blogs) y otros recursos tecnológicos digitales más tradicionales (comercio electrónico) en el desempeño organizativo.

La literatura de Sistemas de Información ha estudiado vagamente la interacción entre tecnologías digitales sociales y tradicionales, principalmente focalizada en explorar el comportamiento del consumidor (Hildebrand et al., 2013; Rishika et al., 2013). El papel de los medios sociales y su interacción con tecnologías digitales más tradicionales como el *e-commerce* (comercio electrónico) en la habilidad de involucrar al cliente y obtener de éste información para mejorar la innovación de la empresa y su servicio al cliente no han sido estudiados hasta el momento.

Las nuevas tecnologías digitales, tales como los medios sociales y el comercio electrónico, son clave para la competitividad y supervivencia de las empresas (Benitez et al., 2018a). Las tecnologías digitales permiten a las empresas interactuar con el cliente, generando valor para las compañías. Las plataformas de medios sociales y de comercio electrónico pueden ser usadas por los clientes para interactuar con las empresas y otros clientes por multitud de razones (ej., conseguir información sobre productos/ servicios, incitar a otros usuarios y clientes a comprar el producto/ servicio o dar opiniones sobre el mismo). Un uso eficiente de ambos recursos tecnológicos (medios sociales y comercio electrónico) puede mejorar el desempeño organizativo. Basándonos en la teoría de la complementariedad de recursos y capacidades, esta investigación doctoral estudia el efecto complementario de los

medios sociales y el comercio electrónico como dos capacidades complementarias que generan valor en la empresa.

Mientras que las plataformas de medios sociales son fácilmente accesibles, la combinación eficiente con las aplicaciones de comercio electrónico pueden marcar la diferencia y ayudar a construir y mantener una ventaja competitiva basada en la complementariedad de recursos y capacidades (Ennen y Richter, 2010). Por tanto, los medios sociales y el comercio electrónico pueden mejorar el desempeño organizativo a través de la interacción con el cliente. En esta investigación doctoral se estudia el efecto complementario de la capacidad de medios sociales y de comercio electrónico, tratando de entender cómo generan valor a través de la participación de los clientes.

1.3.3. La capacidad de medios sociales y el desempeño innovador: Papel mediador de las capacidades organizativas

El último de los objetivos específicos trata de explorar el impacto de la capacidad de medios sociales sobre el resultado de innovación empresarial tomando en consideración una serie de capacidades organizativas que median el proceso.

La literatura previa de Sistemas de Información enfatiza el papel de las tecnologías colaborativas en el proceso de desarrollo de nuevos productos. Especial interés se muestra hacia la transparencia y la transferencia de conocimiento obtenido con el uso de recursos tecnológicos. Pavlou y El Sawy (2006) estudian empíricamente

el efecto de la TI en el desempeño innovador a través del efecto mediador de una serie de capacidades organizativas (habilidad para reconfigurar los recursos organizativos en respuesta a los rápidos cambios del entorno). Esta investigación doctoral amplía el estudio de Pavlou y El Sawy y analiza el efecto de los medios sociales en el desempeño innovador a través de una serie de capacidades organizativas.

Los medios sociales aportan información extensa y desestructurada, por lo que es necesario una serie de habilidades por parte de la empresa para poder manejar y gestionar dicha información. Por este motivo, se entiende necesario explorar cuáles son las capacidades organizativas necesarias para gestionar de forma eficiente la capacidad de medios sociales. Se estudian la orientación al mercado, coordinación, capacidad de absorción, mente colectiva, y flexibilidad de negocio como capacidades organizativas esenciales para reconfigurar la información obtenida y transformarla en innovación.

1.4. Estructura del trabajo de investigación

La presente tesis doctoral está compuesta por cinco capítulos que se agrupan en tres bloques: la introducción (Capítulo 1), el cuerpo central de la tesis o trabajos de investigación (Capítulos 2, 3, y 4), y las conclusiones finales (Capítulo 5).

En el Capítulo 1 se introduce el tema objeto de estudio: el valor de negocio de medios sociales. Se hace una breve síntesis del

estudio y evolución del uso empresarial de los medios sociales, así como se introduce la teoría sobre la que se sustenta el concepto de valor de negocio de medios sociales. En este sentido, se delimita el concepto de valor de negocio de medios sociales como la generación de valor de la empresa motivada por un uso eficiente de los medios sociales. Igualmente, se expone el interés actual por un mayor conocimiento y estudios empíricos sobre la forma en la que las empresas pueden usar los medios sociales para generar valor.

También en este capítulo se plantea el propósito general y los objetivos específicos de la presente tesis doctoral, a la vez que se presenta la relación de la capacidad de medios sociales con una serie de variables con el objetivo de generar valor en la empresa. Finalmente se justifica el interés académico y empresarial de esta investigación.

En el Capítulo 2 se introducen los antecedentes que permiten a las pequeñas empresas aprender a desarrollar las capacidades de medios sociales. En este capítulo se da una primera aproximación al concepto “*social media competence*”, entendido como la capacidad de las empresas en el uso de un conjunto de capacidades de medios sociales (Facebook, Twitter, blogs) en sus actividades de negocio. El modelo propuesto es contrastado en una muestra de 100 pequeñas empresas norteamericanas usando un set de datos secundarios.

En el Capítulo 3 se explora el efecto de la capacidad de medios sociales y *e-commerce* (comercio electrónico) de forma individual

y conjunta en el desempeño organizativo a través del papel mediador de la interacción con el cliente. La interacción del cliente se considera como un mecanismo intermedio a través del cual las tecnologías digitales (medios sociales y comercio electrónico) mejoran el desempeño organizativo. Se utiliza la interacción del cliente como mecanismo intermedio para explicar cómo convierten las empresas el uso de medios sociales y comercio electrónico en innovación y servicio al cliente. De nuevo, el modelo propuesto es contrastado en una muestra de 100 pequeñas empresas norteamericanas usando un set de datos secundario.

En el Capítulo 4, motivado por la perspectiva de las capacidades organizativas facilitadas por la TI, se explora el efecto indirecto de la capacidad de medios sociales en el desempeño innovador a través de una serie de capacidades organizativas. Asimismo, se amplía el concepto de capacidad de medios sociales como la capacidad de las empresas de usar plataformas sociales a nivel externo e interno para dar apoyo a actividades de desarrollo de nuevos productos. Esta investigación doctoral amplía el concepto de capacidad de medios sociales, considerando no sólo plataformas sociales externas (ej. Facebook, Twitter), sino también plataformas sociales internas (ej. Microsoft Yammer). El constructo capacidad de medios sociales queda compuesto por tres dimensiones que consideran ambas plataformas (externas e internas): *social media mindful planning* (planificación consciente de medios sociales), *social media management* (gestión de medios sociales), y *social media exploitation* (explotación de medios sociales). El modelo propuesto es contrastado en una muestra de 151 grandes empresas españolas usando datos de encuesta.

Finalmente, en el Capítulo 5 se resumen las principales conclusiones derivadas de los resultados empíricos de esta investigación doctoral, destacando las contribuciones teóricas más relevantes. En este capítulo también se señalan una serie de aplicaciones prácticas, especialmente relevantes para los responsables de Sistemas de Información y de Desarrollo de Nuevos Productos. Las limitaciones relativas al diseño de investigación y las futuras líneas de investigación son también detalladas en este apartado. El capítulo finaliza con una breve reflexión sobre las “Consideraciones Finales” del estudio.

1.5. Justificación e interés de la investigación

Los medios sociales son considerados un factor clave del éxito empresarial dado su carácter de colaboración e interacción entre directivos, empleados y clientes. La habilidad de las empresas en compartir y generar contenido online puede facilitar la transmisión de información (Goh et al., 2013), interacción y conexión con los clientes y empleados (Aggarwal et al., 2012; Rishika et al., 2013). Esta transmisión de información puede ser usada para mejorar el desempeño organizativo. Por ejemplo, los medios sociales son considerados factores de potenciales decisiones de compra ya que facilitan la información compartida, la interacción social, y la generación de contenidos (opiniones y recomendaciones) (Zhang y Benyoucef, 2016). Igualmente, los medios sociales pueden ayudar a las empresas a mejorar su innovación y servicio al cliente.

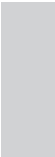
El fracaso en el desarrollo de nuevos productos puede deberse a un inapropiado ajuste con lo que los clientes necesitan. Por ejemplo, cuando en 2012 Google lanzó al mercado *Google Glass*, un dispositivo de visualización de realidad aumentada, no tuvo en cuenta que en aquel momento la sociedad no estaba preparada para esa revolución tecnológica. Tras dos años de producción, Google tuvo que parar de producir el producto debido a las pérdidas generadas. Este ejemplo muestra la necesidad de conocer las necesidades y reacciones de los clientes a tiempo.

Los medios sociales pueden ayudar a las empresas a reconocer las necesidades de los clientes en tiempo de forma que les permiten innovar y servir de forma adecuada al cliente. No obstante, la información generada en los medios sociales es demasiado extensa y desestructurada, por lo que las empresas necesitan gestionar de forma eficiente dicha información. En esta tesis doctoral se plantea el concepto de capacidad de medios sociales y su potencialidad para generar valor (desempeño innovador y de servicio al cliente) a partir de la interacción y mediación con otras capacidades organizativas.

Los estudios empíricos explicando el beneficio empresarial de los medios sociales son escasos. Considerando los *gaps* detectados en la literatura previa, existe oportunidad de realizar grandes contribuciones al campo de Sistemas de Información, así como de proporcionar respuestas de interés a directivos. El estudio de los medios sociales se encuentra en una etapa inicial y los argumentos sobre el valor generado por las empresas están por explorar empíricamente. Esta investigación doctoral pretende



explicar teóricamente y demostrar empíricamente cómo las empresas desarrollan una capacidad de medios sociales y si dicha capacidad puede ayudarles a generar valor.



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**HOW DO SMALL FIRMS LEARN
TO DEVELOP A SOCIAL MEDIA
COMPETENCE**

2

2. HOW DO SMALL FIRMS LEARN TO DEVELOP A SOCIAL MEDIA COMPETENCE?

Abstract

Social media can be leveraged to improve the firm's business activities to create value. Because small firms have a lower portfolio of financial resources to compete more effectively in the market, social media capabilities can become more important for small than large firms. However, prior research has failed in explaining the variables through which small firms can learn to adopt social media. Our study is a first effort to address this research gap. We propose a conceptual model in which social competitor pressure, IT infrastructure capability, two organizational capabilities (marketing management and innovation management) and firm size enable small firms to learn to develop a social media competence. The model is tested using the partial least squares-based structural equation modeling technique employing a unique secondary dataset on a sample composed of the 100 small U.S. firms included in the 2013 Forbes America's Best Small Companies

ranking. The empirical analysis suggests that IT infrastructure capability, social competitor pressure, marketing management and innovation management are key mechanisms through which small firms learn to develop a social media competence. The empirical analysis also suggests that social media competence is more important for the smallest manufacturing firms even among a sample of small firms.

Keywords: IT infrastructure, social competitor pressure, marketing management, innovation management, social media competence.

2.1. Introduction

Social media business practices (e.g., Facebook, Twitter, blogs, YouTube) are reaching a significant awareness nowadays among firms (Aral et al., 2013). About 80% firms listed in the Standard and Poor's 500 index use social media (Mahr & Lievens, 2012). More specifically, 53%, 46%, 20% and 11% of Fortune 500's firms leveraged Twitter, Facebook, blogs and forums respectively in their business activities (Culnan et al., 2010). Social media can be leveraged to improve the firm's business activities to gain business value (Aral et al., 2013). At corporate level, social media enables the firm's proficiency to sense and seize business opportunities and the reconfiguration of business resources (Wagner & Wagner, 2013). At operational level, firms leverage social media to improve their relationships with customers (in terms of product, brand, engagement and firm), which increases the brand trust to lead to a greater customer loyalty and business value (Laroche et al., 2013; Trainor et al., 2014).

Social media are a very recent phenomenon among firms and individuals at the real world and, consequently, the study of social media is in its initial stages. Our own comprehensive analysis on prior research on social media for business activities suggests that this research can be organized in three blocks of research. The first block of literature on social media is mainly oriented to information technology (IT) and business managers being its goal to describe the social media firms' behavior and provide suggestions for a successful implementation of social media at the real world (e.g., Culnan et al., 2010; Kiron et al., 2012). A second block of research has empirically examined the effect of social media firm's usage on the execution of marketing activities (i.e., the so-labelled social media marketing). For example, Goh et al. (2013) study the relationship between customer and firm participation in social media and find that the indirect comments of informative and persuasive customers has a stronger effect on purchase comparing to firm's messages. Similarly, Rishika et al. (2013) find that customer participation in social media increases customers' shopping visits and customer profitability. Finally, although in a very limited way, we find a third block of empirical research that has compared the effects of social media versus online conventional media (e.g., web traffic, Google search) on the stock market performance (Luo et al., 2013; Yu et al., 2013). However, additional research is needed to better understand how firms can leverage social media resources to create business value (Liu et al., 2014). Table 2.A1 (in the appendix) presents a summary of our comprehensive analysis of prior research on social media for business activities.

That being said, with two exceptions (Sinclair & Vogus, 2011; Lee et al., 2013) prior research has failed in explaining the variables through which firms can learn to adopt social media practices. Sinclair and Vogus (2011) found that large IT firms are more likely to adopt social media due to mimetic pressure and marketing arguments. In a similar way, Lee et al. (2013) find that corporate social responsibility is an antecedent of social media practices. Although the usage of social media is free for firms, it requires investing and deploying indirectly other business resources. Also, a social media capability (i.e., firms' proficiency in using and leveraging social media for business activities) can vary among firms. Small firms have a lower portfolio of financial resources to compete more effectively in the market, which suggests that social media capabilities can become more important/strategic for small than large firms. However, prior research has not paid attention to explain how small firms learn to develop social media capabilities. Our study is a first effort to address this research gap.

The goal of this research is to examine how small firms learn to develop social media capabilities. We look for the specific mechanisms through which firms can develop their social media capabilities before competitors do. Drawn from the Sinclair and Vogus's (2011) work, the institutional theory (Liang et al., 2007; Mignierat & Rivard, 2009), the theory of organizational capabilities (Teece, 2007), the IT-enabled organizational capabilities perspective (Benitez & Walczuch, 2012) and the organizational learning framework (Crossan et al., 1999; Argote & Miron-Spektor, 2011), we propose a conceptual model in which social competitor pressure,

IT infrastructure capability and two organizational capabilities (marketing management and innovation management) enable small firms to learn to develop of a social media competence (i.e., the firm's proficiency in using and leveraging Facebook, Twitter and blog capabilities). The model is tested using the partial least squares (PLS)-based structural equation modeling (SEM) technique employing a unique secondary dataset in a sample composed of the 100 small firms included in the 2013 Forbes America's Best Small Companies ranking.

The paper is organized as follows. Next, we introduce the theories and perspectives in which the proposed model is based and present the hypotheses development. The third and fourth sections show the research method (sample, data, and measures), and the empirical analysis and results. After that, the discussion of the results and final conclusions are presented. The manuscript finishes with a valuable appendix with our comprehensive analysis of prior research on social media for business activities and our additional empirical analyses.

2.2. Theory and hypotheses

2.2.1. The institutional theory, the organizational capabilities-based theory, the IT-enabled organizational capabilities perspective and the organizational learning framework

According to the institutional theory, the organizational behavior can be explained by two types of institutional pressure: Coercive and competitor pressure (DiMaggio & Powell, 1983). Coercive pressure refers to the political influence exerted on the firm by the national and regional governments. Competitor pressure refers to influence exerted on the firm by the industry rules and values, and the key competitors (Zhu & Kraemer, 2005). Thus, firms adapt their behavior to respond to the institutional pressure and look for environmental legitimacy to be accepted and survive in the long run (Liang et al., 2007). This study focuses on social competitor pressure that refers to the pressure exerted by competitors on the firm to adopt social media. We use the institutional theory to conceptualize social competitor pressure and to link social competitor pressure to the development of a social media competence.

The organizational capabilities-based theory suggests that firms design their strategies based on their organizational capabilities, which explains the difference in competitiveness among firms (Grant, 1996). Prior research on organizational capabilities has distinguished three types of organizational capabilities: Dynamic,

operational, and dual-purpose capabilities (Helfat & Winter, 2011). Dynamic capabilities refer to the firm's proficiency in building, integrating and reconfiguring its resource base in response to changes in the business environment (Teece, 2007). Operational routines are patterns of activities/processes that a firm performs at the operations level. Better execution of similar operational routines leads to superior firm performance (Peng et al., 2008). Operational capabilities are the firm's proficiency in using a collection of interrelated operational routines to solve operational problems and implement the operations strategy (Benitez et al., 2013; Wu et al., 2010). Dual-purpose capabilities refer to those organizational capabilities that can be developed and exploited at both corporate and operational level, that is, they are dynamic as well as operational capabilities (Helfat & Winter, 2011).

The theory of organizational capabilities provides a useful theoretical framework to conceptualize IT infrastructure capability, marketing management, innovation management, social media competence and to link IT infrastructure capability, marketing management and innovation management to the development of a social media competence.

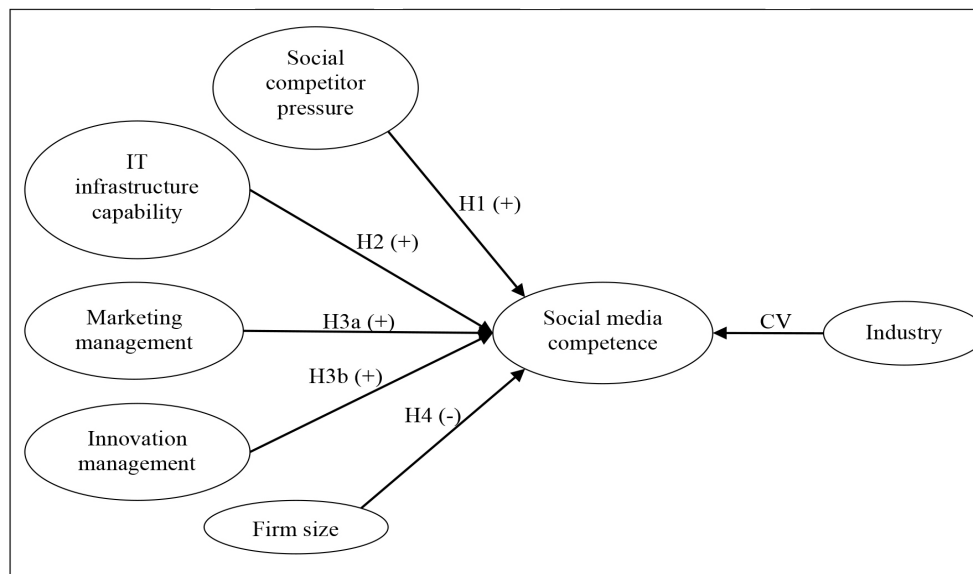
The IT enabled-organizational capabilities perspective has argued that organizational capabilities are key mechanisms through which IT helps firms to create value. Some examples of these capabilities are organizational learning, knowledge management, new product development, supply chain management or business flexibility (Tippins & Sohi, 2003; Tanriverdi, 2005; Lopez & Soto, 2010; Ranganathan et al., 2011). This study builds on the literature

of IT-enabled organizational capabilities to conceptualize and link theoretically IT infrastructure capability and social media competence.

Organizational learning is the firm's dynamic process of creating knowledge through the interaction of its individuals and groups in order to pursue organizational renewal. The process of learning is composed of four sub-processes: intuiting (process of discerning and creating something new/new knowledge), interpreting (process of explaining and codifying the new knowledge), integrating (process of sharing and transferring knowledge to organizational members), and institutionalizing (process of embedding the new knowledge into the firm through rules, routines, procedures and products) (Crossan et al., 1999). The organizational learning process is also influenced by the business environment and the degree of experience of the firm (Argote & Miron-Spektor, 2011; Crossan et al., 2011; Real et al., 2014). Organizational learning enables the combination of the firm's resources transforming them into organizational capabilities, thus increasing the firm's competitiveness (Lado et al., 1992). We use the organizational learning framework to explain how IT infrastructure capability, marketing management and innovation management enable small firms to learn to develop a social media competence.

Figure 2.1. presents our conceptual model.

Figure 2.1. Conceptual model (CV = Control variable)



2.2.2. *Social competitor pressure and social media competence*

Social competitor pressure refers to the influence exerted on the firm by the industry rules and values, and the key competitors (Zhu et al., 2006) to adopt social media. Thus, a focal firm responds to social competitor pressure by imitating the prior behavior of its key competitors in social media to address the environmental uncertainty, look for environmental legitimacy for being accepted and survive in the long run (Mignerat & Rivard, 2009; Sinclair & Vogus, 2011).

Drawn from the theoretical foundations of the organizational capabilities-based theory we introduce the construct social media competence, which is defined as the firm's proficiency in using and leveraging a portfolio of three social media capabilities: Facebook capability, Twitter capability and blog capability. We decided to focus on this portfolio of social media capabilities based on the emphasis given by prior managerial work on social media (e.g., Culnan et al., 2010) and based on the suggestions received from the Spanish Association of Community Managers and Social Media Professionals (in short, AERCO-PSM). AERCO-PSM is the major professional/practitioner association of community/social media managers in Spain. We assume these three social media platforms can be a good representation of the main social media used by firms around the world, including the U.S. market (i.e., the focus of this study). Facebook, Twitter and blog capabilities refer to the firm's proficiencies in using and leveraging Facebook, Twitter and blog(s) to execute business activities.

A social media competence can be started to develop in response to social competitor pressure. Prior research has found that one of the reasons for which firms invest in e-business technologies (Zhu & Kraemer, 2005; Zhu et al., 2006), enterprise resource planning systems (Benders et al., 2006; Liang et al., 2007) and new IT applications development (Weerakkody et al., 2009) is because their key competitors previously did. Drawn from this prior understanding, we argue that firms can also adopt social media because their key competitors already use and leverage social media for business activities.

Similarly, competitor pressure on firms to develop a social media competence can be greater to the extent the number of firms using social media is greater, developing a social media competence and generating business value from this social media competence (Shen et al., 2013; Kane et al., 2014). Thus, firms can respond to environmental uncertainty by imitating key competitors' social media adoption with a successful development of a social media competence to create business value avoiding a loss of legitimacy among their customers and maintaining/improving their competitiveness (DiMaggio & Powell, 1983; Sinclair & Vogus, 2011). We therefore hypothesize that:

***Hypothesis 1 (H1):** There is a positive relationship between social competitor pressure and social media competence.*

2.2.3. IT infrastructure capability and social media competence

IT infrastructure refers to the set of shared technical and human IT resources in the firm that provide the base for using multiple IT applications (Weill et al., 2002; Jukic et al., 2009; Suh et al., 2013). Technical IT resources include servers, computers, laptops, operating systems, software, electronic communication networks (email, Intranet, Extranet, wireless devices) and shared customer databases (Aral & Weill, 2007; Benitez & Ray, 2012). Human IT resources refer to the technical and business skills of IT managers and employees (Byrd & Turner, 2001; Zhu et al., 2006; Bardhan et al., 2010; Wang et al., 2015). IT infrastructure capability indicates

the firm's proficiency in leveraging its IT infrastructure by using multiple IT applications to acquire/provide accurate, timely, reliable, secure, and confidential information from/to key users (managers, employees, suppliers, customers, shareholders and regulators) (Bharadwaj, 2000; Pavlou & El Sawy, 2006; Tallon, 2008; Mithas et al., 2011; Benitez et al., 2013).

IT infrastructure capability can enable the firm to develop a social media competence. First, the firm's technical IT resources such as computers, laptops, operating systems, and electronic communication networks (e.g., wireless devices) are the base to early adopt social media and develop a social media competence through time and experience (Crossan et al., 2011). Similarly, human IT resources can help the firm to embed social media with the firm's IT applications to acquire/provide fine-grained data to enable key users to better made decisions at firm-level (Miro, 2014).

Second, firms with more experience and higher development of an IT infrastructure capability can develop more easily a social media competence due to its greater experience leveraging IT to acquire/provide timely information from/to the market. Third, we do know that IT infrastructure capability (i.e., a macro-IT capability) enables the development of other micro-IT capabilities (e.g., e-business/e-commerce capability) to finally create business value (Zhu & Kraemer, 2002; Zhu, 2004; Zhu & Kraemer, 2005; Zhu et al., 2006). It is rational to expect that IT infrastructure capability also enables to develop a social media competence (i.e., another micro-IT capability), that is, firms that pursue to develop an IT

infrastructure capability can also use their IT expertise to develop a social media competence, which suggests a positive relationship between IT infrastructure capability and social media competence.

Finally, the firm's proficiency in leveraging its technical and human IT resources enables to create, codify, share and embed new knowledge among the organizational members (Tanriverdi, 2005). To the extent this new knowledge is related to social media, it can facilitate the development of a social media competence (Crossan et al., 1999). Thus, we hypothesize the following:

***Hypothesis 2 (H2):** There is a positive relationship between IT infrastructure capability and social media competence.*

2.2.4. Organizational capabilities and social media competence

We argue that two organizational capabilities (i.e., marketing management and innovation management) also enable the firm to learn to develop a social media competence. Marketing management capability is the firm's proficiency in deploying market orientation into target markets through marketing strategy and marketing-mix processes (i.e., product management, pricing, selling, market communication and channel management) to provide superior customer value (Day, 1994; Morgan et al., 2009).

Innovation management capability is the firm's proficiency in experimenting and executing new management practices, (new) organizational structures and communication processes,

and (new) operational routines (e.g., new marketing concepts/processes) to develop new products and processes (Hamel, 2006; Birkinshaw et al., 2008; Peng et al., 2008; Mol & Birkinshaw, 2009; Battisti & Stoneman, 2010).

2.2.4.1. Marketing management and social media competence

Marketing management can enable the firm to learn to develop a social media competence. Market oriented firms are early adopters of social media to search and interact with their target customers with presence in social media, which in turn can enable these firms to develop a social media competence better and faster than their competitors (Lee et al., 2013). Specifically, considering social media as a mass phenomenon, firms with a superior marketing management capability should combine their conventional marketing channels (e.g., TV, radio) with the social media marketing channels (Luo et al., 2012), thus suggesting that marketing management can persuade firms to learn to use and leverage social media for marketing activities. In this sense, market oriented firms can learn to develop a social media competence by exploiting their prior understanding and codified knowledge on market communication and channel management.

Finally, marketing/business managers are the managers with more responsibilities on social media in contemporary firms (Kiron et al., 2012). The rationale is that marketing is the organizational function that mainly designs, develops and maintains the social

media contents of the firm (Kane et al., 2014). Therefore, we hypothesize that:

***Hypothesis 3a (H3a):** There is a positive relationship between marketing management and social media competence.*

2.2.4.2. Innovation management and social media competence

We argue that innovation management capability can be a key mechanism through which firms early adopt and better develop a social media competence. Innovative firms create, share and assimilate new knowledge and practices to shape novel capabilities better and faster than non-innovative firms (Real et al., 2014). Specifically, innovative firms search for experimentation and pursue to further develop new products which can persuade them to early adopt social media practices to absorb customers' (and other social media users') ideas on new products and/or product improvements (Camison & Villar, 2012; Kiron et al., 2012; Mahr & Lievens, 2012), which in turn can enable the development of a social media competence through accumulated knowledge and experience (Real et al., 2014). For example, Dell (i.e., an innovative firm) learned to leverage social media by creating a social media platform (i.e., Dell IdeaStorm) to enable innovative customers to participate in the research and development processes of the firm (Di Gangi et al., 2010). Also, it is likely firms with a higher innovation management capability have more innovative managers and employees, which are more open, proactive and

pioneer in using new information technologies (Nambisan et al., 1999), such as social media to better and faster develop a social media competence. Thus, it is rational to hypothesize that:

Hypothesis 3b (H3b): There is a positive relationship between innovation management and social media competence.

2.2.5. Firm size and social media competence

Social media are mainly adopted by the largest and smallest firms (Kiron et al., 2012), which suggests that there are competing arguments linking firm size and social media adoption. Although the usage of social media is free for firms, it requires investing and deploying in other business resources (e.g., human resource with expertise in leveraging social media such as community/social media managers) to leverage social media for business activities on an efficient way. Due to better and greater business resources at their command, large firms can early use social media and develop a social media competence on a faster way, which would suggest a positive relationship between firm size and the development of a social media competence (Sinclair & Vogus, 2011).

Alternatively, there are also some core arguments that suggest a negative relationship between firm size and the development of a social media competence. First, because small firms have a lower portfolio of financial resources to compete more effectively in the market (Daniel & Grimshaw, 2002), using and leveraging social media for marketing activities and getting more visibility remains crucial, as compared with large firms. Hokey Pokey is a small

Indian ice-cream manufacturer with a low marketing budget. This firm adopted and aggressively leveraged social media in 2009 for marketing activities, which improved its brand image and loyalty, revenues, and social media capabilities (Kumar & Mirchandani, 2012). This is a good example that provides anecdotal evidence supporting the rationale of small firms need to better and faster develop a social media competence.

Second, small firms are more agile in innovating and adopting new information technologies due to their lower need of coordination, and their more flexible organizational structures and business processes (Daniel & Grimshaw, 2002; Zhu & Kraemer, 2005). In this sense, prior information systems (IS) research found a negative relationship between firm size and the development of an e-business capability (e.g., Zhu et al., 2006). A similar relationship can be expected between firm size and social media capabilities. This would suggest that social media capabilities could be more important for small than large firms. In this study, we argue that small firms (even on a sample of small firms as our sample) can be persuaded to early and agilely adopt social media, which can enable them to better and faster develop a social media competence. Thus, we hypothesize that:

***Hypothesis 4 (H4):** There is a negative relationship between firm size and social media competence.*

2.3. Research methodology

2.3.1. *Sample*

We test the proposed model with a sample of the 100 small firms included in the 2013 Forbes America's Best Small Companies ranking (in short, the Forbes database), which includes the best 100 U.S. publicly small firms with sales under one billion dollars. This ranking is built and based on return on equity, sales growth and earnings growth over 2012 as well as the past five years. The firms of the sample come from 30 industries: Consulting (18 firms), IT (16), food manufacturing (seven), semiconductor manufacturing (six), healthcare (five), chemical (five) and other industries (43). On average, they had about 2335 employees and their sales in 2012 were 488.120 million dollars per firm.

2.3.2. *Data and measures*

We measure all our variables using an innovative secondary dataset that comes from eight different sources/databases. We started collecting the information from the 2013 Forbes database and using the name of each firm, we gathered the information from other databases.

An essential aspect of measurement specification is to understand the nature of relationships between measures and constructs (formative or reflective) since this choice determines the suitable methods for evaluating the measurement and structural

models (Jarvis et al., 2003). Formative constructs are characterized as follows: (1) the direction of causality is from indicators to constructs, such that changes in indicators cause changes in the constructs; (2) the indicators are not conceptually interchangeable since they do not have the same or similar content; (3) they do not have to co-vary with each other (Petter et al., 2007). Reflective constructs possess the reverse characteristics. The specification of constructs as formative or reflective is also an idiosyncratic decision of the author team.

2.3.2.1. Social competitor pressure

Social competitor pressure is operationalized as a formative second-order construct determined by Facebook pressure, Twitter pressure and blog pressure.

We measure Facebook pressure as a formative first-order construct determined by five indicators, which assess the average Facebook activity of the firm's key competitors (i.e., those firms operating on the same industry included in the 2013 Forbes database) in terms of number of past or future events, experience, number of fans on Facebook, updates and people talking about the competitors in Facebook, with information collected from the Facebook site of the firm's key competitors. Specifically, experience is measured as the average number of months that the key competitors operated in Facebook. We measure the average Facebook updates by scoring with 1: Low# or 5: High degree of content updating in Facebook. For each firm, we scored with

1/2/3/4/5 when the firm had made a comment on Facebook more than one month ago/in the last month/two weeks ago/in the last week/in the last two days respectively. After that, we estimate the average degree of content updating of the firm's key competitors. People talking about the competitors in Facebook refer to the average number of users that interacted with the firm's key competitors in Facebook within the last week before the data collection.

We measure Twitter pressure as a formative first-order construct determined by six indicators which evaluates the average Twitter activity for the firm's key competitors in terms of spent time, absolute experience, relative experience, number of tweets written in Twitter, number of followers on Twitter and updates, with information gathered from the Twitter site of the firm's key competitors and Twopcharts database (<http://www.twopcharts.com>). We measure the spent time as the average number of hours that the key competitors had spent in writing tweets. The absolute experience is measured as the average number of months that the key competitors operate in Twitter. The relative experience is measured as the average experience of the firm's key competitors on the total/global possible experience in Twitter (Twitter started on March 21st, 2006). We measure the average Twitter updates by coding with 1: Low# or 5: High degree of content updating in Twitter on a similar way as per the average Facebook updates mentioned above.

Finally, we measure blog pressure as a formative first-order construct determined by two indicators, which assess the average blog activity of the key competitors of the firm in terms of experience and updates of the blog(s), with equivalent measures as per Facebook/Twitter experience and updates. Social competitor pressure data were collected in February 2014.

2.3.2.2. IT infrastructure capability

We performed a structured content analysis of the 2013 firm's annual reports collected from the U.S. Securities and Exchange Commission Filing database, and measure IT infrastructure capability as the accumulated total number of firm's initiatives/mentions on technical and human IT resource infrastructure in 2013 (Luo et al., 2012). Specifically, based on Luo et al.'s (2012) and other prior works on IT infrastructure (e.g., Byrd & Turner, 2001; Aral & Weill, 2007; Benitez & Ray, 2012) we created a list with 35 keywords on technical and human IT resources (Table 2.1). We searched for all these keywords on the annual reports and carefully read the paragraph in which they appeared on the firm's report. We tried both using and not using their well-established acronym (e.g., 'Chief Information Officer' and 'CIO'), for all the keywords. We also looked for the two broadest terms related to IT infrastructure (i.e., information technology/IT and information systems/IS). We computed each same keyword once per paragraph (e.g., if server appears two times on the same

paragraph the score was 1). Repeating similar IT information on several paragraphs/sections of the report suggests that this IT information is critical for the firm. We thus computed all the times the keyword was mentioned although the same/similar information had been previously presented in the report. In this sense, we did not establish a limit to the number of paragraphs nor the accumulated total number of firm's initiatives/mentions.

2.3.2.3. Organizational capabilities

We operationalized marketing management as a formative first-order construct determined by two indicators: The first refers to advertising expenditure per employee, with information collected from COMPUSTAT database (Mithas et al., 2012). The second one refers to the relationship between the Chief Executive Officer (CEO) and the Chief Marketing Officer (CMO), with information collected from the firm's annual report and website. Specifically, we evaluate the CEO-CMO relationship as follows: we score with 1 whether CEO and CMO are the same person and score with 2 whether the CMO reported to the CEO (Li & Ye, 1999). These two indicators are measured for 2013.

Table 2.1. List of initiatives/mentions on the firm's IT infrastructure capability

IT infrastructure component	Reference	Keywords
<p>Technical IT resource infrastructure</p>	<p>Aral and Weill (2007), Luo et al. (2012)</p>	<p>Information technology (IT) Information system (IS) Computer/ personal computer (PC) Laptop Operating system Data center Server Web/ website Network Internet Intranet Electronic media Online E-commerce/ ecommerce E-mail/ email Database/ data Software Enterprise resource planning (ERP) Supply chain management (SCM)/SCM system Customer relationship management (CRM)/CRM system Data mining/ data mining system Business intelligence</p>
<p>Human IT resource infrastructure</p>	<p>Byrd and Turner (2001), Benitez and Ray (2012), Luo et al. (2012)</p>	<p>IT IS IT manager/ management Chief Information Officer (CIO) Chief Technology Officer (CTO) IT Vice-president IT leadership IT skills IT expertise IT employee/ worker/ workforce Helpdesk IT training IT solution</p>

We operationalize innovation management as a formative first-order construct determined by two indicators: First, we use the research and development expenditure per employee, with information gathered from COMPUSTAT database (Mithas et al., 2012). Second, we evaluate the degree of firm's innovativeness by creating a dummy variable on the absence (0) or presence (1) of the firm in the InformationWeek 500 database. This database annually publishes a list with the most innovative U.S. firms based on a well-known methodology. These two indicators are measured for 2013.

2.3.2.4. Firm size

We measure firm size as the natural logarithm of total assets in 2013 per firm (Luo et al., 2012), with information collected from the Forbes database.

2.3.2.5. Social media competence

This is our key endogenous variable which is operationalized as a second-order construct determined by three formative first-order constructs: Facebook capability, Twitter capability and blog capability (Culnan et al., 2010). These three capabilities are measured on an identical way as per social competitor pressure but related to the focal firm. In fact, we started collecting data and measures for social media capabilities. After that, we used these data to measure social competitor pressure for the key competitors

of each firm of the sample. All the measures related to social media competence were collected in February 2014.

2.3.2.6. Industry

Social media adoption can be dependent of the type of industry because customers of some industries are not usually in social media (e.g., customers of energy and utilities, and financial services firms) (Kiron et al., 2012; Kane et al., 2014), which limits the opportunity to create value from social media. We thus control for industry as a dummy variable (0: Manufacturing, 1: Service firm), with information collected from the 2013 Forbes database.

2.4. Empirical analysis and results

We employ PLS-based SEM to evaluate both the measurement and structural models. Specifically, we use the statistical software packages SmartPLS 2.0.M3 (Ringle et al., 2005) and SmartPLS 3.1.5 (Ringle et al., 2014). It is rational to use the PLS SEM technique in this research for the following reasons. First, PLS is a variance-based SEM technique that has been used in prior research (Peng & Lai, 2012). Second, the use of PLS has been recommended when theoretical knowledge about a topic is scarce (Petter et al., 2007; Barroso et al., 2010). This study examines how small firms learn to develop a social media competence. Insofar as our study covers a research problem that has not been examined in prior literature, it reveals the degree to which prior theory is limited and PLS

estimation is appropriate. Third, PLS works better with small data samples like those employed in this study, as compared with covariance-based SEM techniques (Chin, 2010). However, if we assume a medium effect size, the proposed model would require a minimum sample size of 97 to achieve a power of 0.800 and an alpha level of 0.05 (Cohen, 1988) while our sample size is 100, which suggests that 100 is a good sample size. Fourth, all of our constructs are identified as formative at both second- and first-order level, and PLS is more appropriate for estimating this type of model than for covariance-based SEM techniques, since the use of the latter has been shown to lead to identification problems (Chin, 1998). Finally, the use of PLS SEM is advisable to estimate models that employ secondary data, like our model (Gefen et al., 2011).

2.4.1. Measurement model evaluation

Formative constructs should be assessed differently than reflective constructs, since traditional assessments of validity and reliability (i.e., Cronbach's alpha, composite reliability and average variance extracted) do not apply well to formative constructs (Peng & Lai, 2012). We assess content validity, multi-collinearity, weights and loadings for our constructs (Petter et al., 2007). Weight refers to the relative contribution of an indicator to a construct, that is, the effect of an indicator on a construct, controlling for the effects of all other indicators on that construct. Loading is the absolute contribution of an indicator to the construct; that is, the bivariate

correlation between the indicator and the construct (Cenfetelli & Bassellier, 2009). Prior to data collection, we discussed by phone and email with two executives of AERCO-PSM our proposed model and asked for their opinion about the congruence between the measures and constructs employed in the study. These two executives are knowledgeable in community/social media management from a managerial point of view. We followed the suggestions of these two executives to refine the proposed model. As per the congruence between measures and constructs, they indicated that there was very good conceptual proximity between the measures and constructs. Overall, this shows satisfactory content validity.

We also examine multi-collinearity by calculating variance inflation factors (VIFs) at both second- and first-order level. Measures have a multi-collinearity problem if their VIFs are higher than 10 (Petter et al., 2007). VIF values range from 1.591 to 2.694 at second-order level, and range from 1.011 to 3.353 at first-order level, which suggests that multi-collinearity is not a problem in our data.

The bootstrap technique is well known and commonly used in PLS analysis to estimate the significance of weights, loadings and path coefficients. The minimum recommended number of subsamples to use with this procedure is 200. We perform a

bootstrap analysis with 500 subsamples (Chin, 1998; Benitez & Walczuch, 2012). A formative dimension/indicator should be retained when its weight is significant or when its weight is non-significant but its loading is (Cenfetelli & Bassellier, 2009). However, one formative indicator/dimension which weight and loading are non-significant can be retained at discretion of the author team to preserve the construct's content validity (Cenfetelli & Bassellier, 2009). All dimension loadings and/or weights are significant. We find that neither weight nor loading of nine indicators are significant. We remove six of these nine indicators from our measures. We decide to keep three indicators to preserve the content validity of the constructs Twitter pressure, Facebook capability and Twitter capability, and to conserve the consistency in the measures to assess social competitor pressure and social media competence. Table 2.A2 (in the appendix) presents the details of the measurement model evaluation at both second- and first-order level. Overall, this analysis suggests good properties for our measures (Chin, 2010).

2.4.2. Test of hypotheses

All our hypotheses are supported by the empirical analysis. H1 and H2 are supported at 0.01 level. H3a and H3b are supported at 0.01 and 0.05 level respectively. The analysis also supports H4 at 0.05 level. As per the control variable, the relationship between industry and social media competence is not significant, however, keeping this control variable in the empirical analysis provides more consistency to the model due to the direction and the level

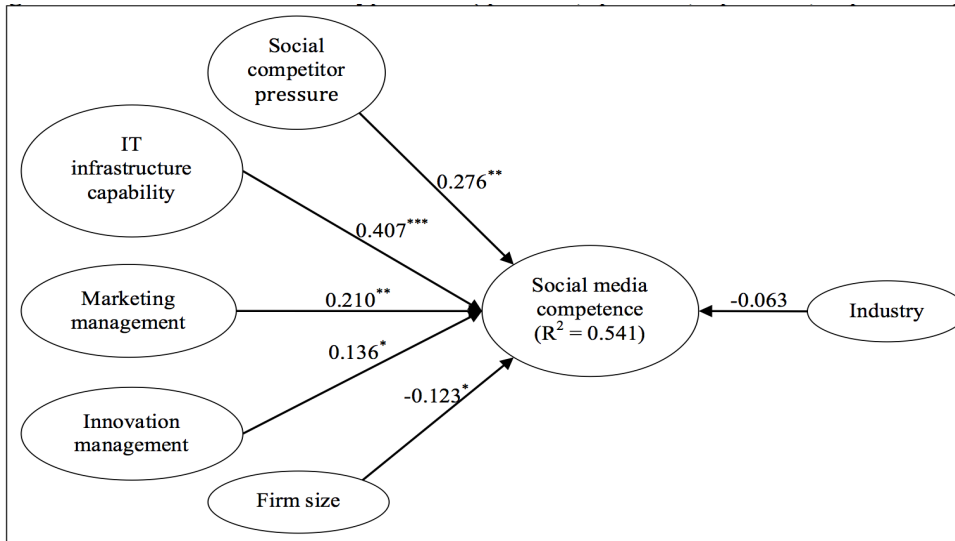
of significance of the five exogenous variables are kept even after controlling for industry (Devaraj et al., 2007). Figure 2.2. presents the results of the test of hypotheses.

The criteria for assessing model fit typically used in covariance-based SEM techniques cannot be used in a PLS estimation. In a PLS analysis, the values of the path coefficients, their level of significance, the effect size (f^2) values and the R^2 values are individual measures of the structural quality and explanatory power of the model (Chin, 2010). Path coefficients around 0.200 are considered economically significant. The path coefficients of the key constructs in our model range from -0.123^* to 0.407^{***} , being significant at the 0.05 level.

R^2 values of 0.19, 0.33 and 0.67 indicate weak, moderate and substantial explanatory power of the model respectively (Chin, 1998). The R^2 value for social media competence is 0.541, which indicates a moderate-substantial explanatory power. The f^2 value provides the relative size of each incremental effect/link introduced in the model. The f^2 values of 0.02, 0.15 and 0.35 indicate a weak, medium or large effect size (Leal et al., 2014). The f^2 values in the proposed model for social competitor pressure, IT infrastructure capability, marketing management, innovation management, firm size and industry are 0.083, 0.116, 0.061, 0.033, 0.035 and 0.004 respectively. Overall, this suggests the proposed model has satisfactory structural properties and a very good explanatory power.

Figure 2.2. Results of the test of hypotheses

([†]p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001)



2.4.3. Test of robustness

We check for the robustness of the proposed model in three ways. First, since it can be discussed that firms pursuing to develop a Facebook capability can also try to shape a Twitter/blog capability (and similarly for the relationship between our constructs and indicators), we estimate the first alternative model in which all the constructs are reflective at both second- and first-order level but every other relationships keep the same. Figure 2.A1. (in the appendix) presents this model, which yields similar results to those obtained in the proposed model (model of Figure 2.2.) but with a lower explanatory power ($R^2 = 0.479$). We also estimate a model in which the constructs are specified as formative at second-order level and reflective at first-order level. The results

are similar to the model of Figure 2.A1. The analysis of the first alternative model suggests that construct specification is not an issue in our data (Benitez et al., 2013).

Firm size can be also assessed through the natural logarithm of the number of employees (Benitez & Walczuch, 2012). In a second alternative model, we measure firm size as a formative first-order construct determined by the natural logarithm of both total assets and number of employees with information collected from the Forbes database (Figure 2.A2. in the appendix). In this model, the relationship between firm size and social media competence is close to significant (-0.099[†]) while the support for the other relationships is kept.

The development of a social media competence and the influence of social competitor pressure on this development can require of time and there can be a time selection bias (time effect) in our study associated with the date in which social media capabilities data were collected. We check for time selection bias by collecting data on social media capabilities in June 2014 and estimating a third alternative model in which we measure social media competence in June 2014 but every other measure/relationship keeps the same (Figure 2.A3. in the appendix). This third alternative model shows similar results to those obtained in the proposed model. In addition, we also correlate social media competence measured in February 2014 with social media competence measured in June 2014 and they are well correlated

($\beta = 0.998^{***}$). These analyses indicate that time selection bias is not a problem in our data. Overall, this test of robustness suggests that the proposed model is a very rational explanation of the data (Benitez & Ray, 2012).

2.4.4. Post-hoc industry multi-group analysis

The degree of social media adoption varies among industries since the customers of some industries do not use social media (Kane et al., 2014). We control for industry in the proposed model but this effect is not significant ($\beta = -0.063$). In addition, we conduct a post-hoc industry analysis to explore whether there are statistically significant differences between manufacturing and service firms in the effects involved in the proposed model. To do that, we perform the Henseler's multi-group analysis by using SmartPLS 3.1.5 (Table 2.2). We find a difference in the relationship between firm size and social media competence (H4) that is statistically significant. This analysis suggests that small manufacturing and large service firms are early developers of a social media competence, which specially reinforces the support for H4 for the case of small manufacturing firms.

Table 2.2. Post-hoc industry multi-group analysis

Coefficient	Manufacturing firms (N = 52)	Service firms (N = 48)	Is the difference in the beta coefficient statistically significant?
Social competitor pressure → Social media competence (H1)	0.197*	0.225**	No (not significant)
IT infrastructure capability → Social media competence (H2)	0.262**	0.409***	No (not significant)
Marketing management → Social media competence (H3a)	0.311**	0.263**	No (not significant)
Innovation management → Social media competence (H3b)	0.066	0.069	No (not significant)
Firm size → Social media competence (H4)	-0.219*	0.064*	Yes (p < 0.01)

2.4.5. Post-hoc business value of social media analysis

Social media can be leveraged at corporate and operational level to create business value. For example, firms with proficiency in using social media enhance the social interaction with customers to increase the customers' shopping visits and create business value (Rishika et al., 2013). Luo et al. (2013) find that social media predicts firm equity value better and more accurately than conventional online media (web traffic and Google search). We explore whether social media competence has a positive effect on stock market performance. We measure stock market performance

as the price/earnings ratio in February 2014 with information collected from Forbes database. This ratio is a good proxy of stock market performance because it assesses that the market will pay more to acquire the firm due to its potential to increase its future earnings. We add a link between social media competence to stock market performance in the proposed model but every other relationships keep the same (Figure 2.A4. in the appendix). We find a positive relationship between social media competence and stock market performance ($\beta = 0.356^{***}$), which reinforces the results obtained in very recent IS research on business value of social media (e.g., Luo et al., 2013).

2.5. Discussion and conclusions

2.5.1. Implications and key contributions to research

Although social media capabilities can become more important for small than large firms due to their lower portfolio of financial resources, prior research has failed in explaining why and how small firms learn to develop social media capabilities. This is a first effort to address this research gap. We find that IT infrastructure capability, social competitor pressure, and two organizational capabilities (marketing management and innovation management) are key mechanisms through which small firms learn to develop a social media competence. The empirical analysis also suggests that social media competence is more important for the smallest manufacturing firms even among a sample of small firms.

This research has two key contributions to the field. First, drawn from the organizational capabilities-based theory, we introduce the construct social media competence, which is defined as the firm's proficiency in using and leveraging a portfolio of three social media capabilities for business activities: Facebook capability, Twitter capability and blog capability. This is the first study focusing on firms' social media capabilities and competence, which also provides a package of useful measures that can be used in further research (with secondary and/or survey data).

How do small firms learn to develop a social media competence? Our analysis suggests that, in this order of importance, IT infrastructure capability, social competitor pressure, marketing management and innovation management are key mechanisms/ antecedents through which small firms learn to develop a social media competence.

It can be discussed that firms may not require an IT infrastructure capability to develop a social media competence. Social media is a public service that is provided by the social media provider (e.g., Facebook). We, however, argue that (and empirically examine whether) IT infrastructure can be a dual-purpose capability through which small firms also learn to adopt social media and develop a social media competence. IT infrastructure (i.e., computers, laptops, wireless devices) provides the foundation to use social media. Also, small firms early adopt social media once they assimilate the business benefits previously obtained from IT infrastructure capability (i.e., a macro-IT capability), and leverage this macro-IT capability/experience to learn to develop

a social media competence. These arguments are supported by the empirical analysis, which suggests that IT infrastructure capability is a key mechanism through which small firms early develop a social media competence.

Small firms also pursue to develop a social media competence when realize their key competitors have adopted social media and achieved business gains from social media. In this sense, social competitor pressure persuades small firms to adopt social media and develop a social media competence. This implies an interesting extension and development of institutional theory to the conceptual domain of social media adoption, a contemporary phenomenon.

Marketing management is another key capability that affects the firm's social media development. Small firms with a higher market orientation pursuing to provide a superior customer value complement their conventional marketing with social media marketing activities, which persuade them to develop a social media competence before competitors do. Similarly, more innovative firms early adopt social media, and better and faster develop a social media competence self-motivated by the social media-based opportunity related to absorb social media users' ideas on new products and/or product improvements.

Social media are mainly adopted by the largest and smallest firms (Kiron et al., 2012). Because small firms have a lower portfolio of financial resources to compete more effectively in the market, using and leveraging social media for marketing

activities and getting more visibility remains crucial, as compared with large firms. We thus argue that firm size is negatively related to the development of social media competence. The empirical analysis gives some support to this argument with a special emphasis on manufacturing firms. Prior IS research found a negative relationship between firm size and the development of an e-business capability (e.g., Zhu et al., 2006). We extend this body of research to the domain of social media competence. This study addresses a very novel research area. The second key contribution of this paper is to explain theoretically and test empirically some of the internal and external mechanisms through which small firms learn to develop a social media competence.

2.5.2. Limitations and future research lines

This research has also limitations. First, although the proposed model explains a significant portion of the variance of social media competence (i.e., 54.1%), of course, there can be other external factors and/or IT/organizational capabilities that can also affect how small firms learn to develop a social media competence. Drawn from this study, future research should examine the way to improve our model by adding other external factor and/or firm's capabilities. Second, this study only focuses on external social media capabilities (e.g., Twitter capability). We encourage IS scholars to extend our conceptualization, data collection and analysis to internal social media capabilities in future research. Third, our results can be only generalized to small firms in U.S. There can be key organizational differences (i.e., organizational

culture, number of employees and total revenues) between small U.S. and European/Asian firms, thus future research should explore whether our results can be extended to small European/Asian firms. Finally, prior research on business value of social media has mainly focused on the comparison between social media versus online conventional media in terms of their effects on the stock market performance (Luo et al., 2013; Yu et al., 2013). It is needed to perform additional research to better understand how social media capabilities influence firm performance. For example, studying how social media capabilities affect knowledge management capabilities (Omidvar et al., 2014) to improve the firm's innovative performance seems a promising line for further research.

2.5.3. Implications for managers

This study has also several lessons for managers. Small firms strategically adopt social media practices to develop a social media competence and pursue business gains. This research emphasizes the concept of social media competence and illustrates how small firms learn to develop a social media competence. Social media competence is the firm's proficiency in using and leveraging Facebook, Twitter and blog capabilities for business activities. Small firms can draw from their experience leveraging IT infrastructure to early adopt social media practices and faster develop a social media competence. Our analysis also indicates that some firms try to develop a social media competence to respond to social competitor pressure. In this sense, a firm should lead the social

media adoption in its industry in those cases the target customers are in social media. Market oriented firms use social media to attract their potential and current target customers and increase the engagement of these customers on their social media sites. Similarly, innovative firms early adopt social media to absorb social media users' ideas on new products and/or improvements of current products. As early adopters of social media, market oriented and innovative firms develop a social media competence before competitors do through time and experience. Finally, our analysis suggests that small manufacturing firms seem to lead the development of a social media competence as compared with large service firms.

2.6. Conclusion

This study is a first effort to examine how small firms learn to develop the proficiency in using and leveraging their social media capabilities. To do that, we perform an empirical investigation using a unique and innovative secondary dataset on a sample of 100 small U.S. firms. We find that IT infrastructure, social competitor pressure, marketing management and innovation management are key mechanisms/antecedents through which small firms early adopt social media, and better and faster learn to develop a social media competence.

APPENDIX CHAPTER 2

Figure 2.A1. Results of the first alternative model (reflective at both second- and first-order level)

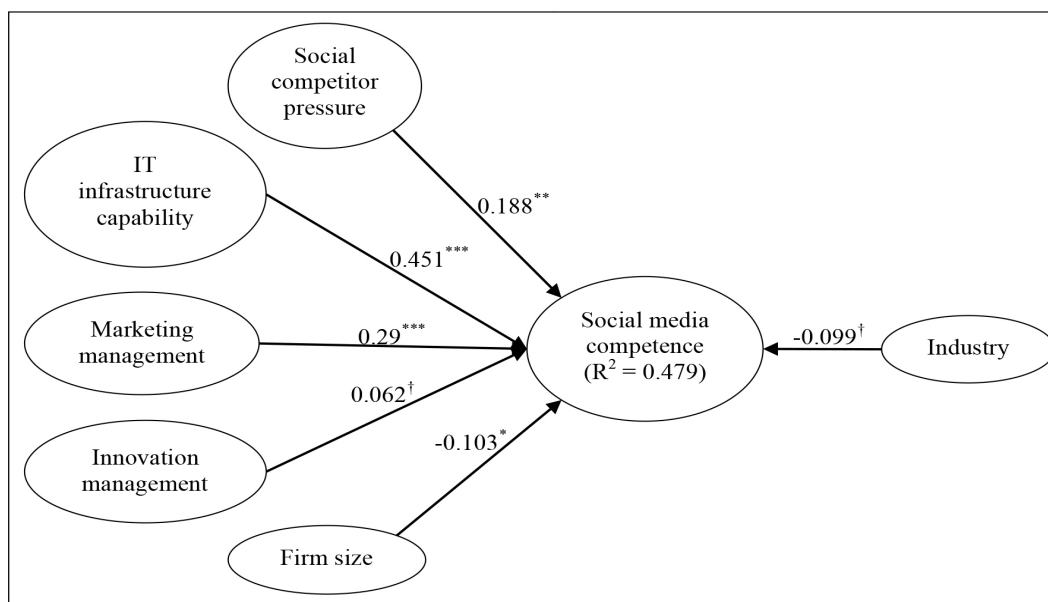


Figure 2.A2. Results of the second alternative model (alternative measure for firm size)

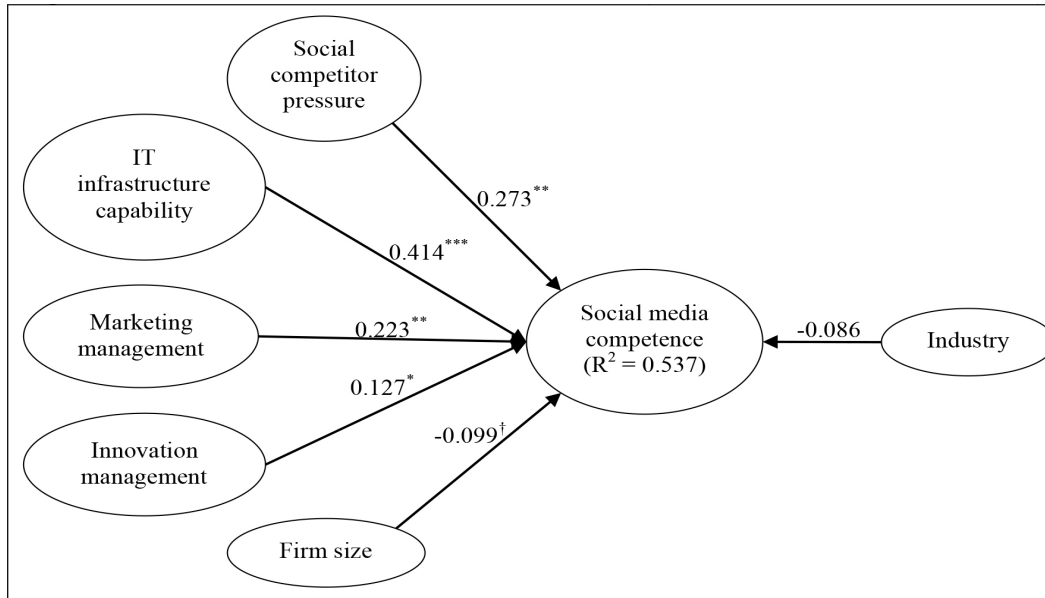


Figure 2.A3. Results of the third alternative model (social media competence measured in June 2014)

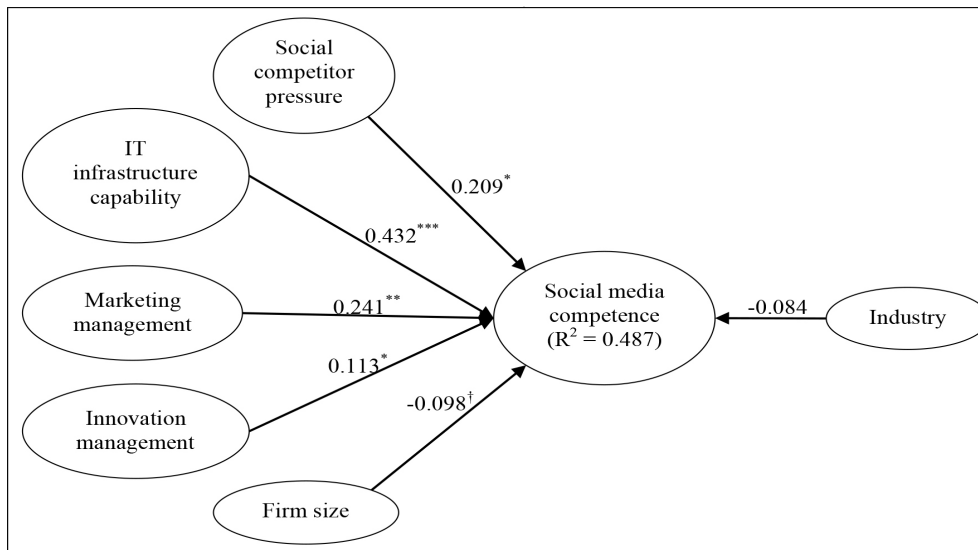


Figure 2.A4. Post-hoc business value of social media analysis

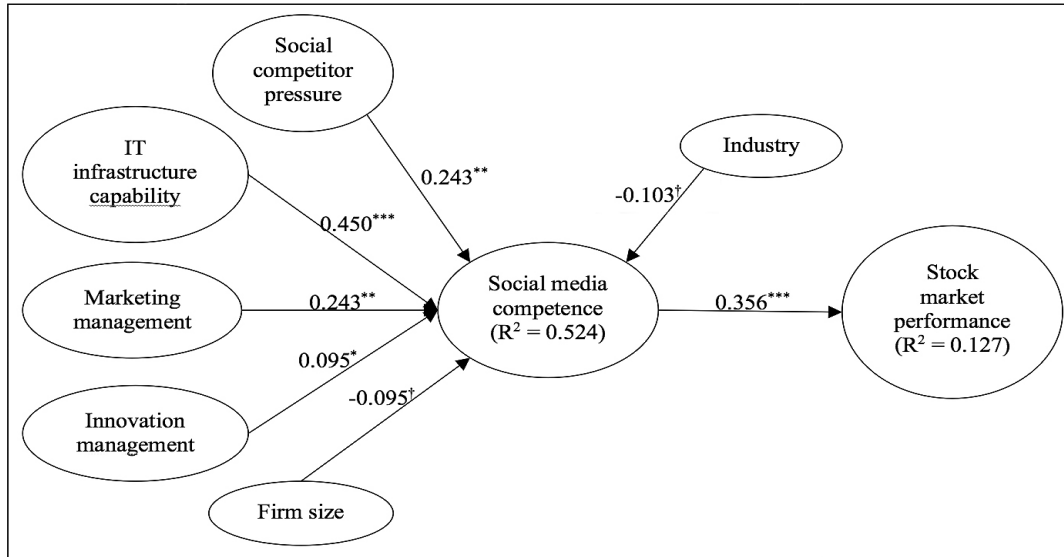


Table 2.A1. Comprehensive analysis of prior research on social media for business activities

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Casalo et al. (2010)	Relationship quality, community promotion and brand loyalty in virtual communities: Evidence from free software communities	International Journal of Information Management	To analyze the antecedents and consequences of the consumer engagement in virtual communities	Free software communities Empirical research: Survey to 215 members of 54 free software communities	User identification and satisfaction with the community are related to the participation in the community and promotion to non-members, which in turn increase the member loyalty to the community
Chai and Kim (2010)	What makes bloggers share knowledge? An investigation on the role of trust	International Journal of Information Management	To study the influence of trust into knowledge creation and sharing in blog usage	Blogs Empirical research: Survey to 485 college students	Trust in other bloggers, trust in the economic benefit (saving cost and time) of sharing knowledge and trust in the blog service provider positively affect the creation and sharing of knowledge in blogs
Culnan et al. (2010)	How large U.S. companies can use Twitter and other social media to gain business value	MIS Quarterly Executive	Describing the use of social media in large firms and studying the variables that can affect a successful social media implementation	Facebook, Twitter, blogs and forums Empirical research: Survey to the Fortune 500 firms and study in-depth of three Fortune 100 firms	For a successful implementation of social media, firms should execute strategies based on mindful adoption, community building and absorptive capability

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Koo et al. (2011)	Examination of how social aspects moderate the relationship between task characteristics and usage of social communication technologies (SCTs) in organizations	International Journal of Information Management	To study the influence of task characteristics on the use of social communication technologies and task performance	Blog and instant messaging Empirical research: Survey to 280 informants (executives/ owners and employees) from a sample of industrial Korean firms	Task characteristics facilitate the usage of social communication technologies to increase the task performance. Specifically, the use of blogs is suitable for tasks with procedures determined and known information

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Sinclair and Vogus (2011)	Adoption of social networking sites: An exploratory adaptive structuration perspective for global organizations	Information Technology & Management	To study whether management fashion, bandwagon diffusion and adaptive structuration are determinants of social media adoption at global large firms	Facebook, Twitter, YouTube and MySpace Empirical research: 72 global large firms	Large firms from IT industries are more likely to adopt social media tools These firms adopt social media due to mimetic pressure and marketing arguments (promoting products and building brand loyalty to achieve repeated purchases)
Huy and Shipilov (2012)	The key to social media success within organizations	MIT Sloan Management Review	To study the relationship between emotional capital and internal social media usage	Facebook Exploratory research: Comparative study of two cases	To improve the firm's internal communication, social media tools should increase emotional capital

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Kiron et al. (2012)	What managers really think about social business	MIT Sloan Management Review	Understanding the (real) importance that managers give to social media for business activities	Non-specified social media Empirical research: Survey to top executives from 3,478 respondents, 24 industries in 115 countries	The more willing to implement social media are smallest and largest firms, and most innovative industries Marketing/business managers are the most interested managers in the use of social media for business activities
Kumar and Mirchandani (2012)	Increasing the ROI of social media marketing	MIT Sloan Management Review	To explore the key success factors to create value from a social media marketing campaign	Facebook and Twitter Exploratory research: Case study	The word of mouth generated in the right social media platform by the right users enhances brand loyalty and firm's revenues
Mahr and Lievens (2012)	Virtual lead user communities: Drivers of knowledge creation for innovation	Research Policy	Examining how virtual user communities create knowledge	Forums Exploratory research: Case study	Virtual user communities can foster the creation of knowledge for innovation projects at firm-level

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Zhao et al. (2012)	Cultivating the sense of belonging and motivating user participation in virtual communities: A social capital perspective	International Journal of Information Management	To examine the factors that influence the intention to get / share knowledge in virtual communities	Taobao (forum for exchanging purchase knowledge and experiences in China) Empirical research: Survey to 279 university students	Familiarity, trust and perceived similarity positively affect the sense of belonging, which in turn influence the intention to get and share knowledge
Aral et al. (2013)	Introduction to the Special Issue 'Social media and business transformation': A framework for research	Information Systems Research	Introducing the main lines / opportunities of research related to social media	Conceptual	Because social media can transform the business models of firms, they highlight the importance of conducting research on social media for business activities. Specifically, they call for research on social media strategies / management and its measures, and on business value of social media

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Goh et al. (2013)	Social media brand community and consumer behavior: Quantifying the relative impact of user- and marketer-generated content	Information Systems Research	Studying the relationship between customers and firm engagement in social media with a repetitive customer purchase	Facebook Exploratory research: Case study	The indirect comments of informative and persuasive customers has a stronger effect on purchase than firm messages
He et al. (2013)	Social media competitive analysis and text mining: A case study in the pizza industry	International Journal of Information Management	Applying text mining method to social media content of three pizza firms to identify patterns of usage	Facebook and Twitter Exploratory research: Study of three cases	Pizza manufacturing firms leverage Facebook and Twitter to engage customers and build online communities
Laroche et al. (2013)	To be or not to be in social media: How brand loyalty is affected by social media?	International Journal of Information Management	To study the effect of social media on brand loyalty	Brand community Empirical research: Survey to 441 members of a brand community	Social media enable the relationship between customers and product/brand/firm/other customers, which in turn increase their brand loyalty

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Lee et al. (2013)	Social media for socially responsible firms: Analysis of Fortune 500's Twitter profiles and their CSR/CSIR ratings	Journal of Business Ethics	Exploring whether corporate social responsibility influence the firm's social media adoption	Twitter Empirical research: Secondary data for a sample of 222 Fortune 500's firms	More socially responsible firms are early adopters of social media and have a larger presence on social media Users are more willing to actively participate on social media from firms with greater corporate social responsibility
Luo et al. (2013)	Social media and firm equity value	Information Systems Research	Studying and comparing the effect of social media and online conventional media on the firm equity value	Blogs and consumer ratings Empirical research: Nine computer industry leaders	Social media predicts firm equity value better, faster, and more accurately than conventional online media (web traffic and Google search)

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Padilla and Aguila (2013)	Web and social media usage by museums: Online value creation	International Journal of Information Management	To examine the relationship between online strategies (web and social media usage), and value creation in museums	Facebook, Twitter, forums, YouTube, Flickr, MySpace and Wikis Empirical research: Interview, web content analysis and secondary data from the 40 world's most visited museums	They find three online strategies in world-class museums: Defenders (low degree of web and social media usage), analyzers (medium-high degree of web and social media usage), and prospectors (top web and social media adopters)
Papadopoulos et al. (2013)	Exploring the determinants of knowledge sharing via employee weblogs	International Journal of Information Management	Exploring the determinants of employee knowledge sharing via the firm weblogs	Blogs Empirical research: Survey to 175 employees from a sample of Thai firms	The employee self-confident to share knowledge with others, the perceived enjoyment and the reward expectations affect the knowledge sharing via the firm weblogs

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Rishika et al. (2013)	The effect of customers' social media participation on customer visit frequency and profitability: An empirical investigation	Information Systems Research	To study the impact of customer participation in social media on the customer-firm relationship and customer profitability	Facebook Exploratory research: Case study	Customer participation in social media increases customers' shopping visits and customer profitability. This effect is positively reinforced with loyal customers and a greater level of firm activity in the firm social media site
Schniederjans et al. (2013)	Enhancing financial performance with social media: An impression management perspective	Decision Support Systems	Studying the effect of social media-based corporate image strategies on firm performance	Blogs, forums Empirical research: Secondary data from 150 public firms in the pharmaceutical industry	Firm's corporate image strategies enabled by social media improve financial performance
Wagner and Wagner (2013)	Online communities and dynamic capabilities: A cross-case examination of sensing, seizing, and reconfiguration	Proceedings of the 19 th Americas Conference on Information Systems	Examining whether online communities enable the development of dynamic capabilities	Online communities Exploratory research: Study of eight cases	Online communities enable to sense, shape and seize opportunities. The effect of online communities on the reconfiguration of tangible and intangible resources is only partially supported

Authors	Paper title	Source	Research goal	Social media examined and research design	Key finding(s)
Yu et al. (2013)	The impact of social and conventional media on firm equity value: A sentiment analysis approach	Decision Support Systems	Studying and comparing the effects of social media and conventional media contents on the stock market performance	Twitter, blogs, forums Empirical research: 824 publicly traded firms across six industries	Social media contents have a stronger effect on firm stock performance than conventional media Social and conventional media have a strong interaction effect on stock market performance
Habibi et al. (2014)	Brand communities based in social media: How unique are they? Evidence from two exemplary brand communities	International Journal of Information Management	Comparing social media-based vs. traditional brand communities in terms of brand elements and value creation	Facebook Exploratory research: Analysis of the customer comments from Jeep and Harley Davidson sites on Facebook	Social media-based brand communities differ from traditional brand communities in five characteristics: Transparency, scale, lack of structure, the creation of brand sub-communities, and in the facility to create more visual messages
Trainor et al. (2014)	Social media technology usage and customer relationship performance: A capabilities-based examination of social CRM	Journal of Business Research	To examine how social media and its interaction with customer relationship processes affect customer relationship performance	Non-specified social media Empirical research: 308 top executives on a sample of U.S. firms	Social media jointly with customer relationship management develop capabilities to better serve customer needs

**Table 2.A2. Measurement model evaluation
at second- and first-order level**

Construct/indicator	VIF	Weight	Loading
Social competitor pressure			
Facebook pressure: Average Facebook activity of the key competitors in terms of:	2.147	0.030	0.739***
Number of events	1.437	0.255 [†]	0.675***
Experience	2.849	0.200	0.712***
Number of fans	1.134	-0.411**	-0.186 [†]
Updates	3.038	0.679*	0.897***
People talking about the key competitors	Dropped	Dropped	Dropped
Twitter pressure: Average Twitter activity of the key competitors in terms of:	2.694	0.481**	0.920***
Spent time	2.259	-0.108	0.232
Absolute experience	2.982	0.207	0.811***
Relative experience	Dropped	Dropped	Dropped
Number of tweets	Dropped	Dropped	Dropped
Number of followers	1.998	-0.277	0.073
Updates	3.353	0.932***	0.941***
Blog pressure: Average blog activity of the key competitors in terms of:	2.369	0.568**	0.942***
Experience	1.845	0.083	0.721***
Updates	1.845	0.942***	0.998***
Marketing management			
Advertising expenditure per employee	1.030	0.226	0.342*
CEO-CMO relationship	1.030	0.947***	0.975***
Innovation management			
Research and development expenditure per employee	1.011	0.722***	0.770***
Degree of the firm's innovativeness	1.011	0.640**	0.694***
Social media competence			
Facebook capability: Facebook activity of the firm in terms of:	2.225	0.085	0.723***
Number of events	1.134	0.029	0.340*

Experience	2.376	0.262	0.822***
Number of fans	1.105	-0.183	0.107
Updates	2.290	0.819**	0.973***
People talking about the firm	Dropped	Dropped	Dropped
Twitter capability: Twitter activity of the firm in terms of:	2.445	0.403*	0.846***
Spent time	2.097	0.182	0.458*
Absolute experience	2.555	0.523*	0.915***
Relative experience	Dropped	Dropped	Dropped
Number of tweets	Dropped	Dropped	Dropped
Number of followers	1.813	-0.283 [†]	0.173
Updates	2.770	0.525 [†]	0.928***
Blog capability: Blog activity of the firm in terms of:	1.591	0.645***	0.928***
Experience	1.874	0.057	0.711***
Updates	1.874	0.960***	0.999***

Table 2.A3. Correlation matrix

	1	1.1	1.2	1.3	2	3	4	5	6	6.1	6.2	6.3	7
1. Social competitor pressure	1												
1.1. Facebook pressure	0.739**	1											
1.2. Twitter pressure	0.920**	0.703**	1										
1.3. Blog pressure	0.942**	0.652***	0.736***	1									
2. IT infrastructure capability	0.595***	0.583**	0.533**	0.566**	1								
3. Marketing management	0.193*	0.106	0.208*	0.160 [†]	0.280**	1							
4. Innovation management	0.224**	0.219*	0.192*	0.215*	0.291**	0.191*	1						
5. Firm size	-0.106	0.113	-0.151 [†]	-0.065	0.003	-0.115	0.211*	1					
6. Social media competence	0.572**	0.422**	0.526***	0.539***	0.632***	0.412***	0.313***	-0.154 [†]	1				
6.1. Facebook capability	0.392***	0.452***	0.399***	0.328**	0.481**	0.329**	0.178*	-0.105	0.723***	1			
6.2. Twitter capability	0.468**	0.359**	0.475**	0.404**	0.522***	0.390***	0.243**	-0.166 [†]	0.846***	0.731***	1		
6.3. Blog capability	0.543***	0.372***	0.467***	0.540***	0.591***	0.353**	0.310**	-0.121	0.928**	0.534***	0.591***	1	
7. Industry	0.491***	0.509**	0.452**	0.455**	0.597**	0.053	0.277*	0.131 [†]	0.348**	0.294**	0.306**	0.311***	1

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**HOW DO SOCIAL COMMERCE-
IT CAPABILITIES INFLUENCE FIRM
PERFORMANCE? THEORY AND
EMPIRICAL EVIDENCE**

3

3. HOW DO SOCIAL COMMERCE-IT CAPABILITIES INFLUENCE FIRM PERFORMANCE? THEORY AND EMPIRICAL EVIDENCE

Abstract

We theorized that the development of two contemporary social commerce-IT capabilities (social media and e-commerce) enables firms to engage online customers to improve their firm performance. We tested this theory by employing a secondary dataset on a sample of U.S. firms. The empirical analysis supported our theory in both examining the effects of social media and e-commerce as two individual capabilities and as two complementary capabilities. This study provides a unique organizational theory and empirical evidence on how social commerce-IT capabilities influence firm performance through the online engagement of customers.

Keywords: Social commerce-IT capabilities, online customer engagement, firm performance, business value of IT.

3.1. Introduction

Contemporary digital technologies such as social media and e-commerce have become critical for a firm's competitiveness and survival (Benitez et al., 2018a). Social media and e-commerce platforms can be used by customers to interact with firms and other customers for multiple purposes (e.g., searching product/service information, providing product/service reviews, encouraging other current/potential customers to engage with the firm). Contemporary firms simultaneously use social media and e-commerce platforms building the so-called social commerce initiatives. Social commerce provides new social information sharing, which has been considered as a fundamental role in firm-customer interactions. For example, Papa John's (a leading firm in the pizza industry) simultaneously leverages social media and its e-commerce platforms to improve digital customer experience (Benitez et al., 2018a). Social commerce is thus a new concept and phenomenon characterized by the interplay of social media and e-commerce platforms influencing customers' participation/engagement and decision-making behavior (e.g., decision to buy a product/service) (Zhang & Benyoucef, 2016).

The firm's usage of digital technologies (e.g., social media, e-commerce) can improve firm performance by increasing the opportunity to interact with customers (Froehle, 2006; Kiron, 2012a). Contemporary firms use digital technologies beyond commercial purposes (e.g., branding, sales), particularly to improve innovation (e.g., new product development), leadership

(e.g., bolster recruitment and employee development), and operations (e.g., manufacturing, partner/supplier interaction) to create business value (Kane et al., 2014; Zhang & Benyoucef, 2016).

But simply investing in digital technologies does not guarantee the firm's success. Prior Information Systems (IS) literature has argued that the key in explaining information technology (IT)-based performance variation is how the firm leverages its IT resources (IT capabilities) instead of how much it invests in IT resources (Benitez et al., 2018a; Benitez et al., 2018b). Social media and e-commerce platforms are two IT resources whose degree of investment and deployment may be heterogeneous among firms. This study considers social media capability and e-commerce capability as two IT capabilities that refer to the firm's ability in leveraging social media and e-commerce, respectively. Social media capability is the firm's ability in using and leveraging social media platforms to execute business activities (Benitez et al., 2018a). E-commerce capability refers to the firm's ability in using and leveraging web technology to promote and sell its products (Zhu & Kraemer, 2002; Devaraj et al., 2007; Li et al., 2010). On the basis of the social commerce literature, this research specifically considers social media capability and e-commerce capability as two social commerce-IT capabilities because social media and e-commerce (and the firm's capabilities associated with the leveraging of these IT resources) are the two pillars of the social commerce initiatives.

Past IS literature on social commerce lacks a clear understanding on the interaction of social media and e-commerce from a firm's

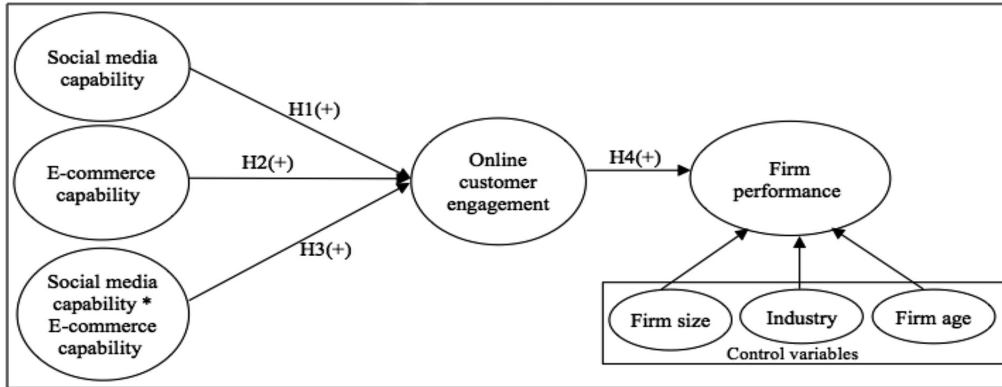
perspective and capabilities' view. Prior social commerce literature has mainly focused on the individual's perspective by exploring customer behavior (Hildebrand et al., 2013; Rishika et al., 2013). However, little has been studied on social commerce from a firm's perspective and capabilities' view. This study tries to fulfill this gap by conceptualizing and examining the individual and complementary effects of social commerce-IT capabilities (social media capability and e-commerce capability) on firm performance through the mediator role of online customer engagement.

This study builds on the IT-enabled organizational capabilities perspective and considers customer engagement as the intermediate mechanism through which social commerce-IT capabilities improve firm performance. The ability to interact with customers is critical to succeed in the business world; furthermore, customer engagement may be considered a mechanism to improve firm performance. Social media and e-commerce are digital technologies to connect and interact with customers. In this sense, the firm's ability in leveraging and inter-connecting digital technologies (i.e., social commerce-IT capabilities) may enable online customer engagement (degree of customers' involvement through online platforms) that is essential to improve performance. However, our understanding of this phenomenon is in its initial stages. The role of social commerce-IT capabilities in shaping online customer engagement and the effect of online customer engagement on firm performance are totally unclear (Xue et al., 2013; Ray et al., 2014). No prior IS literature has examined the

customer participation mechanisms through which social media and e-commerce capabilities may lead to firm performance.

This study tries to answer the general research question on whether and how social commerce-IT capabilities influence firm performance, which leads to the following specific research questions: (1) Do social media and e-commerce capabilities affect firm performance individually?; (2) Are social media and e-commerce complementary capabilities in affecting firm performance?; (3) Does online customer engagement mediate this relationship? In answering these research questions, we examine the impact of social commerce-IT capabilities (social media capability and e-commerce capability) both individually and jointly on firm performance. Drawn on the IT-enabled organizational capabilities perspective, we use online customer engagement as a core intermediate mechanism to explain how firms convert investments in social media and e-commerce capabilities in positive return in innovation and customer service. Our central thesis is that social media and e-commerce capabilities can improve firm performance by online engaging customers. Social media capability and e-commerce capability can individually and jointly facilitate the social (customer involvement with the firm's social media platforms) and conventional online customer engagement (customer involvement with the firm's web technology platform) to improve firm performance. Figure 3.1. presents the proposed conceptual model.

Figure 3.1. Conceptual model



There are two main gaps in the IS literature that we try to fulfill: (1) social commerce literature lacks an understanding on the interaction of social media and e-commerce from a firm's perspective and capabilities' view; and (2) business value of IT literature vaguely studies social media and e-commerce capabilities as a way to improve firm performance through customer engagement. The proposed theory was tested on a sample of U.S. firms. The empirical analysis supported our theory in both examining the effects of social media and e-commerce as two individual capabilities and as two complementary capabilities.

This research makes several contributions to the field of IS: (1) we conceptualize social commerce-IT capabilities and study its effects on performance from a firm's perspective and capabilities' view; (2) we provide a unique organizational theory and empirical evidence on how social commerce-IT capabilities influence firm performance through the online engagement of customers; and (3) we provide a rich validated set of secondary measures to evaluate

social commerce-IT capabilities, online customer engagement, and firm performance, which will be very useful for the further development of this research topic.

3.2. Theoretical background

3.2.1. Social commerce literature

Social commerce concept has received growing interest among IS scholars and practitioners (Zhang et al., 2014). Although there is no clear consensus and established definition of social commerce, there is a common understanding about its elements. Social commerce has been predominantly characterized by prior literature as an emerging phenomenon that consists of the interplay of two important elements: social media and e-commerce (Zhang & Benyoucef, 2016). This platform interaction enables customers to participate and interact, thus facilitating some decision-making behaviors, mainly related to commercial ends (e.g., decision to buy a product/service) (Liang et al., 2011). We draw from this prior literature to argue that social commerce involves the interaction of social media and e-commerce to influence different customers' behaviors such as customer engagement (e.g., social interaction and user-generated content).

Prior literature on social commerce has explored customers' behaviors and their effects on buying decisions (Chen & Shen, 2015; Zhang & Benyoucef, 2016). Social commerce platforms (i.e., social media and e-commerce platforms) are considered

as potential factors of buying decisions in the sense that they facilitate customers' behavior such as information sharing, social interaction, and user-generated content (e.g., giving reviews or recommendations) (Zhang & Benyoucef, 2016). We explore customers' behavior in a different way, by examining how customer engagement in social media and e-commerce can help firms to improve their innovation and customer service performance.

User behavior theme has dominated social commerce research (Zhang et al., 2014). Prior literature has mainly focused on exploring the impact of user-generated content on user's satisfaction, trust, loyalty, or perceptions toward company reputation (Hildebrand et al., 2013; Li et al., 2013) or on user's word of mouth, behavior toward shopping visits, and intention to purchase (Goh et al., 2013; Rishika et al., 2013). For example, Chen and Shen (2015) investigated the impact of relational factors (i.e., trust and commitment) on social commerce intentions (i.e., social shopping and social sharing) and the role of social support in relational factors. In summary, prior social commerce literature has focused on the individual's perspective by studying customer behavior.

Little was studied on social commerce from a firm's perspective. Some studies have empirically examined the business value of social media and e-commerce capabilities individually and mainly focused on financial performance. For example, Zhu and Kraemer (2002) studied the effect of e-commerce capability and IT infrastructure on firm performance. Kumar et al. (2013) studied how to use social media to improve word of mouth, sales, and

return on investment. Similarly, Lee et al. (2015) studied the effect of Facebook likes on sales performance, considering deal and product characteristics as moderator variables. In this sense, there is a lack of studies examining the impact of social commerce-IT capabilities (individually and as complementary capabilities) on firm performance. We draw on prior social commerce literature to theorize that the development of two social commerce-IT capabilities (social media and e-commerce) enables firms to online engage customers to improve their firm performance.

3.2.2. Conceptualization of social commerce-IT capabilities

This study is based on prior literature and focuses on two social commerce-IT capabilities: social media capability and e-commerce capability. First, we use the prior IS literature on IT capabilities to conceptualize social media and e-commerce as two IT capabilities. We consider social media capability and e-commerce capability as two IT capabilities that refer to the firm's ability in using and leveraging digital technologies. Social media capability is the firm's ability in purposely using and leveraging Facebook, Twitter, and corporate blog(s) to execute business activities (Benitez et al., 2018a). E-commerce capability refers to the firm's ability in using and leveraging web technology to promote and sell its products

(Zhu & Kraemer, 2002; Devaraj et al., 2007)¹. Second, based on the social commerce literature, this research specifically considers social media capability and e-commerce capability as two social commerce-IT capabilities because social media and e-commerce are the two key pillars of the social commerce initiatives. Social commerce-IT capabilities refer to the firm's ability in *leveraging* and *inter-connecting* social media and e-commerce (capabilities). This study examines these capabilities individually and as a complement. This is the way we extend the concept of social commerce to a firm's perspective and capabilities' view – i.e., one of the potential contributions of this manuscript to the IS research.

3.2.3. IT-enabled organizational capabilities perspective

IS literature on business value of IT has mainly argued IT capabilities to indirectly affect firm performance. This body of IS literature has shaped the so-called IT-enabled organizational capabilities perspective, which has argued that organizational/process capabilities are key mechanisms by which IT helps firms to create business value (Benitez et al., 2018d). Some examples of these intermediate mechanisms are talent management, organizational learning, knowledge management, supply chain management, operational competence, and business flexibility (Ajamieh et al., 2016; Chen et al., 2017; Benitez et al., 2018a; Benitez

1 From a broader level of definition and analysis, e-commerce/e-business technology capability can be defined as the firm's ability in using and leveraging web technology to exchange information within and outside the firm for buying and selling activities with suppliers and customers (Daniel & Grimshaw, 2002; Benitez et al., 2018c). Because our study was interested on the customer side of e-commerce and its effect on online customer engagement, we only focused on the web technology firm's usage to interact with customers (Xia & Zhang, 2010).

et al., 2018c; Benitez et al., 2018d). This perspective has emerged as the dominant framework to solve theoretically and empirically the IT productivity paradox in the literature on business value of IT. The ability to interact with customers is critical to succeed in the business world, then customer engagement may be considered a mechanism to improve firm performance. But companies need to have digital technology platform capabilities to engage customers. Social media and e-commerce are digital technologies to connect and interact with customers. In this sense, the firm's ability in leveraging digital technologies (i.e., social commerce-IT capabilities) may enable online customer engagement that may be essential to improve firm performance. This study builds on the literature of IT-enabled organizational capabilities to link indirectly theoretically social media and e-commerce capabilities (social commerce-IT capabilities) with firm performance through online customer engagement as a core intermediate mechanism.

3.2.4. The complementarity resource perspective

The complementarity resource perspective claims that complementarity among IT and business resources/capabilities can explain differences in other process capabilities and/or firm performance². Resources and capabilities have been previously treated as complementary constituents (Ennen & Richter, 2010). Ennen and Richter's (2010) literature review categorizes different constituents of complementary relationships and found that the

² The application of this perspective to the literature on business value of IT has been called also the moderation hypothesis of business value of IT/IT-enabled organizational capabilities perspective (for more details, please see Benitez & Walczuch, 2012).

majority of studies base on the complementarity of knowledge resources/capabilities with other resources/capabilities (e.g., Ravichandran & Lertwongsatien, 2005; King et al., 2008). For example, Teece (1986), when talking about complementarity in innovation, argued that the commercialization of innovation requires additional complementary downstream capabilities (i.e., marketing know-how) to succeed in the market. Also, Zhu and Kraemer (2002) studied the complementarity between e-commerce capability and IT infrastructure to explain efficiency and lower costs. Resource/capability complementarities play a key role in understanding differences in process capabilities and/or firm performance, when the presence of a resource/capability can exert the value of other resource/capability (Ennen & Richter, 2010). Adopting several resources/capabilities at the same time (complementarity) can generate greater outputs to the sum of the individual effects of resources/capabilities considered in isolation (Adegbesan, 2009; Ennen & Richter, 2010).

Recent IS literature on business value of IT has also given importance to study complementarity between IT resources/capabilities. For example, Benitez et al. (2018a) argued the complementarity between IT infrastructure capability and social media capability to develop knowledge ambidexterity (i.e., an organizational capability). We argue the complementarity between social media capability and e-commerce capability. While social media can be easily accessible through the market, combining with e-commerce applications can help to build and maintain some advantages over competitors because of complementarities.

We argue that the IT capabilities of social media and e-commerce, when working together, can improve firm performance through online customer engagement. In this sense, we consider social media and e-commerce as two complementary IT capabilities to increase firm performance. We use the complementarity resource perspective and the IT-enabled organizational capabilities perspective to explain theoretically the reinforcing effect of social media and e-commerce capabilities, and its influence on firm performance through online customer engagement.

3.2.5. The microfoundations approach

The microfoundations approach is a novel approach proposed in the Strategy field that decomposes the firm's frame into macro-level (firm-level) and micro-level (individual- or group-level) components (Teece, 2007; Barney & Felin, 2013). This approach can be considered as an extension/complement of the organizational capabilities-based theory that suggests that individual/group actions and interactions are the key source of firm heterogeneity in developing organizational capabilities and creating business value (Felin et al., 2012; Teece, 2012; Helfat & Peteraf, 2015). In this sense, the individual actions can explain a significant portion of firm-level outcome variance (Bala, 2013). We use the microfoundations approach to conceptualize online customer engagement as an individual behavior of the customer and to link social and conventional online customer engagement with firm performance. This study uses the microfoundations approach to explain how customer engagement creates business value in the field of IS.

3.3. Hypotheses development

3.3.1. Social commerce-IT capabilities and online customer engagement

3.3.1.1. Social media capability and online customer engagement

Social media capability is the firm's ability in purposely using and leveraging Facebook, Twitter, and corporate blogs to execute business activities (Benitez et al., 2018a). Social media is the first social commerce-IT capability examined in this study. Online customer engagement refers to the degree of customer's virtual emotional commitment, involvement, and motivation to participate and contribute to the firm's online business activities (Li et al., 2013; Ray et al., 2014). Prior IS research has classified IT-based media in social and conventional media (Luo et al., 2013; Yu et al., 2013). Drawn from this prior IS literature, we study two dimensions of online customer engagement: social online customer engagement and conventional online customer engagement. Social online customer engagement refers to the customer experience on interactions with the firm's social media platforms. Conventional online customer engagement refers to the customer experience on interactions with the firm's web technology platform.

Social media capability can enable the online engagement of customers. Online customer engagement requires firm's proficiency in social media. The customer's individual involvement in social

media and the firm's website (i.e., a customer's individual action) requires a prior firm's involvement and proficiency in social media. A good example is Coca Cola's social media capability. Coca Cola is positioned as one of the best companies in the world in managing social media. It can maintain a cohesive message on each of its different social media channels (e.g., Facebook, Twitter, Instagram, Tumblr), and its main purpose is to engage its audience, making people to be involved (e.g., @cocacola writes over 60 tweets that generate nearly 82000 engagements per month). One of its successful practices has been interacting directly with its audience (e.g., about 83% of @cocacola's tweets are direct and customized replies).

Social media are tools for mass collaboration between executives, employees, and customers (Kiron, 2012a), and the firm's ability in sharing, co-creating, discussing, and modifying user-generated content facilitates information sharing (Goh et al., 2013), interaction, and connection with customers (Aggarwal et al., 2012; Rishika et al., 2013), hence improving customer participation. For example, customers engage in the firm's social media platforms because they want to stay informed about the firm activities and about future launch of products, or because the collective intentions, social identity, and conception of group they perceive on the platform (Ore & Sieber, 2011). Moreover, providing a useful and enjoyable environment in social media influences customers to interact with others and return to the social media platform (Goel et al., 2013; Seol et al., 2016).

Finally, the development of a social media capability shows the firm's effort in cultivating trust with customers. Customers perceive the effort the firm makes in supporting the community; therefore, the risk to reveal personal information diminishes while the motivation to express reciprocity toward the trusted party may increase (Luo et al., 2010). Thus, the firm's effort to build a social media capability can increase the probability to online interact and engage with customers.

To sum up, the firm's ability in sharing, discussing, and generating useful and enjoyable content through social media can facilitate interaction with customers, who can feel more motivated to express their opinions and to reward the firm's effort in developing such content. We therefore hypothesize

Hypothesis 1 (H1): *There is a positive relationship between social media capability and online customer engagement.*

3.3.1.2. E-commerce capability and online customer engagement

E-commerce capability refers to the firm's ability in using and leveraging web technology to promote and sell its products (Zhu & Kraemer, 2002; Devaraj et al., 2007). E-commerce is the second social commerce-IT capability that is examined in this research. E-commerce can also enable the execution of individual actions such as social and conventional online customer engagement.

E-commerce platforms are specially characterized for giving information (Benitez et al., 2018c), which is one of the factors that motivate customer engagement. Giving personalized shopping and in-depth information on products strongly engages online shoppers and persuades them to revisit the firm's website for additional information (Eisingerich & Kretschmer, 2008). It can be critical to provide information on product features, product promotions/discounts, customer reviews, and information about contents related to the brand through the firm's website (Gu et al., 2012). Customers can be also motivated to use the firm's web site to achieve enjoyable, pleasurable, and affective online experiences (Guo et al., 2011). For example, Porsche uses its website to offer adventure tours to online engage customers and reinforce its brand equity, which provides Porsche customers a pleasurable and affective web experience. Finally, firms can also leverage their web technology to improve the relationships with customers (e.g., innovate in customer experience) to achieve a higher corporate reputation and a better market responsiveness (Li et al., 2013).

In conclusion, firms that use web technology for giving critical information (e.g., product features, promotions, brand issues) create an image of transparency that motivates customers to participate and buy in the website (e.g., ordering products) or social media platform (e.g., providing reviews). Thus, we hypothesize that

Hypothesis 2 (H2): *There is a positive relationship between e-commerce capability and online customer engagement.*

3.3.1.3. The complementarity between social media capability and e-commerce capability and its effect on online customer engagement

Drawn on the complementarity resource perspective and the social commerce literature, social media and e-commerce can be two complementary capabilities that facilitate online customer engagement. Social media and e-commerce inter-connection and integration can affect customer's behavior in many ways, as they offer customers valuable and reliable information on products and services (Liang et al., 2011; Zhang et al., 2014). When working together social media and e-commerce allow an open network structure, where relationship between firm and customers is more interactive because the firm can interact with customers more deeply and widely through social media.

According to the social commerce literature, jointly using social media and e-commerce platforms facilitates information sharing, supports social interaction, and enables user-generated content (e.g., giving valuable product information or product reviews) (Zhang & Benyoucef, 2016). Social media capability enables a better flow of information among customers. E-commerce capability is also a good source of information; however, e-commerce capability alone can be insufficient to engage customers to provide new knowledge (Benitez et al., 2018a). On the other hand, social media capability will be insufficient per se to sell the company products. In this sense, social media and e-commerce are often the "two sides of the same coin," where one side facilitates the interaction

and the other side facilities selling to customers. Social media and e-commerce complement each other. For example, SEUR (a leading express transport service in Spain) has used social media (i.e., Facebook and Twitter) to promote selling activities through its website, engage customers, and solve customer problems (Foncillas & Gonzalez, 2013).

To sum up, the inter-connection and integration of social media and e-commerce capabilities can improve the flow of information, the migration from one digital technology to another digital technology, and a better and deeper connection with customers, who may be more motivated to participate in the online social and conventional platforms (i.e., social media and e-commerce).

***Hypothesis 3 (H3):** There is a positive relationship between the complementarity (positive interaction effect) between social media capability and e-commerce capability, and online customer engagement.*

3.3.2. Online customer engagement and firm performance

We define firm performance as a multidimensional construct composed of two key ingredients (Mithas et al., 2011): innovation performance and customer service performance. Innovation performance refers to the outcomes obtained in the process of improving existing products/processes and/or developing new products/processes (Joshi et al., 2010; Benitez et al., 2018a). Customer service performance refers to the extent a firm fulfills customer needs and expectations obtaining better reliability and lower number of complaints (Ray et al., 2005; Mithas et

al., 2011; Xue et al., 2013; Gunarathne et al., forthcoming). We conceptualize our firm performance construct according to that described by Mithas et al. (2011). They considered firm performance as a multidimensional construct composed of four elements: organizational effectiveness (e.g., level of innovation), customer-focused performance (e.g., customer satisfaction or service performance), financial performance (e.g., revenue, profits, and earnings per share), and human resource performance (e.g., employees satisfaction). We focused on Mithas et al.'s (2011) elements that are theoretically supposed to be directly influenced by customer engagement: organizational effectiveness and customer-focused performance. Organizational effectiveness is similar to our innovation performance construct, and customer-focused performance is similar to our customer service performance. We focused on these two dimensions of performance as they are suggested to be directly influenced by customer engagement. Customers can provide the firm information about their desired and unfulfilled needs and ideas to improve innovation and customer service performance (Blazevic & Lievens, 2008). In addition, recent studies like Kane et al. (2014) showed that small firms (as the firms examined in this study) are increasingly using digital technologies with the main objective to improve their product innovation and customer service. In this sense, we are confident that the conceptualization and operationalization of our construct firm performance are consistent with prior top IS research. Definitions of the key constructs are summarized in Table 3.1.

Table 3.1. Definitions of key constructs

Construct	Definition	Informing source
Social media capability	Firm's ability in purposely using and leveraging Facebook, Twitter, and corporate blogs to execute business activities	Benitez et al. (2018a)
E-commerce capability	E-commerce capability refers to the firm's ability in using and leveraging web technology to promote and sell its products	Daniel and Grimshaw (2002), Devaraj et al. (2007), Li et al. (2010)
Online customer engagement	Online customer engagement refers to the degree of customer's virtual emotional commitment, involvement, and motivation to participate and contribute with the firm's online business activities	Li et al. (2013), Ray et al. (2014)
Firm performance	Performance of the firm composed of two elements: (1) innovation performance, which refers to the overall outcomes obtained in the process of improving existing products/processes and/or developing new products/processes and (2) customer service performance, which is the extent a firm fulfills customer needs and expectations obtaining better reliability and lower number of complaints	Ray et al. (2005), Joshi et al. (2010), Mithas et al. (2011), Xue et al. (2013), Benitez et al. (2018a)

Online customer engagement (i.e., social online customer engagement and conventional online customer engagement) can improve firm performance. Online customer engagement may improve innovation performance. First, opinions expressed by influential and experiential reviewers are the best sources to develop new products and serve customers. Online customer

involvement and participation provide the firm with data and information about specific new product/process ideas, concepts, and prototypes, which enable the firm to develop new products (Fang et al., 2008; Abrahams et al., 2012). Customers' opinions help the firm to better understand what the customer wants the product to be (Yim et al., 2012). For example, in 2008, Starbucks opened MyStarbucksIdea, a social platform to collect ideas from customers. Customers could make suggestions about a wide range of categories (products, experience and service, social issues) and vote for others' posts. Starbucks selected ideas most welcomed by users and innovated. On the basis of ideas provided by MyStarbucksIdea, the company introduced hundreds of new products and activities (e.g., new flavors of the coffee, or the availability of Wi-Fi in Starbucks stores) (Dong & Wu, 2015).

Second, online customer participation may improve the effectiveness of the new product development process. On the one hand, constant information sharing and communication with customers can help the firm in learning how customer needs evolve during the new product development process (Fang et al., 2008). On the other hand, improving communication can help employees and customers to work more cooperatively (Pavlou & El Sawy, 2006), and firms can benefit from knowledge, skills, and resources of their customers during the innovation process (Mahr et al., 2014). Then, information sharing and critical information about the product idea achieved by the online customer engagement give the firm the opportunity to prevent costly mistakes of developing products that do not fit customer needs, optimizing the innovation process (Fang et al., 2008).

Online customer engagement may also improve customer service performance. Online customer involvement can provide data and information on customer needs, preferences, and market trends, which enable the firm to better serve customers (Ray et al., 2014; Benitez et al., 2018a). This information provided in social media and/or the website can help firms to agilely manage and solve complaints (Kiron, 2012b; Kiron et al., 2013), thus improving customer service performance. For example, Menbur (a leading retailer in Spain that sells shoes and bags) uses social media as a customer service channel. Menbur uses customer comments and posts to detect failures and improve customer satisfaction. Menbur's social media capability has converted this company in a successful case study awarded by Facebook³.

To sum up, customers engaged in social media and web technologies provide the firm with data and information about new ideas for improving/developing products and improving customer service, which in turn improves innovation and customer service performance. Therefore, we hypothesize

Hypothesis 4 (H4): *There is a positive relationship between online customer engagement and firm performance.*

³ This information was extracted from an interview that we made to the Social Media Executive of Menbur in July 2015.

3.4. Research methodology

3.4.1. Sample

We tested the proposed model with the 100 small firms included in the 2013 Forbes America's Best Small Companies ranking (in short, the Forbes database), which includes the best 100 U.S. publicly small firms with sales under one billion dollars (Benitez et al., 2018a). We used as the sample all the firms (100) included in this database. The firms of the sample came from seven groups of industries: consulting (18 firms), IT (16), food manufacturing (seven), semiconductor manufacturing (six), healthcare (five), chemical (five), and other industries (43). On average, the firms of the sample had about 2335 employees and 488.120 million dollars of sales. Every firm in our sample had a website. 74%, 71%, and 35% of the firms included in the sample were active on Facebook, Twitter, and corporate blogs, respectively. Table 3.2 shows the descriptive analysis of the sample.

Prior IS research has contextualized several types of business value of IT studies on sample of firms included in well-known rankings (as the ranking used in this study) (e.g., Joshi et al., 2010; Benitez & Walczuch, 2012; Benitez et al., 2018a), which suggests that our decision in using the Forbes database was rational. We focused on this ranking for three reasons. First, because small firms have lower portfolio of financial resources to compete more effectively in the market, leveraging their investments in IT capabilities to online engage customers remains central, as compared with large firms (Benitez et al., 2018a). Second, the

firms included in the Forbes database are leaders in sales and performance and are supposed to outperform in innovation and customer service. Third, the majority of prior IS research on social media and business activities has focused on large firms (Luo et al., 2013; Kane et al., 2014). In this sense, another distinctive feature of our study is its focus on small firms.

Table 3.2. Descriptive analysis

Industry	Firms by sector	Facebook		Twitter		Corporate blogs	
		Number	%	Number	%	Number	%
Consulting	18	16	88.889%	13	72.222%	5	27.778%
IT	16	16	100%	16	100%	14	87.500%
Food manufacturing	7	5	71.429%	5	71.429%	3	42.857%
Semiconductor manufacturing	6	4	66.667%	4	66.667%	0	0%
Healthcare	5	3	60%	4	80%	2	40%
Chemical	5	1	20%	1	20%	0	0%
Other industries	43	29	67.442%	28	65.116%	11	25.581%
Total	100	74	74%	71	71%	35	35%

3.4.2. Data and measures

We measured all our variables using a secondary dataset that comes from nine different sources/databases. We started collecting the information from the 2013 Forbes database and using the name of each firm, we gathered the information from other databases. The measurement structure is determined by the relationship between indicators and constructs (Henseler, 2017). There are two categories of constructs: reflective (common factor constructs) and formative.

According to the most up-to-date methodological literature there are two types of formative measurements: composite formative and causal formative⁴. In composite-formative measurements: (1) construct is built by indicators; (2) indicator correlations are common but not required; (3) there is no measurement error; and (4) dropping an indicator can alter the meaning of the construct. In causal-formative measurement: (1) indicators cause the construct; (2) correlations among indicators are not expected; (3) there is measurement error at construct level; and (4) dropping an indicator increases measurement error (Benitez et al., 2017; Henseler, 2017). All constructs of this research were modeled as composite formative⁵ (in short, composite).

Drawn on the Culnan et al.'s (2010) and Benitez et al.'s (2018a) works, we measured social media capability as a multidimensional construct determined by Facebook capability, Twitter capability, and blog(s) capability with information collected from Facebook, Twitter, Twopcharts database (<http://www.twopcharts.com>), and firm's blog site in June 2014⁶. Social media capability was specified

4 Despite some statistical software packages seem to give the possibility to directly estimate casual-formative models, these models cannot be estimated directly, but they should be estimated by using a multiple-indicator-multiple causes model (Benitez et al., 2017; Henseler, 2017).

5 A clear distinction can be done between behavioral constructs and design constructs (or artifacts) (Benitez et al., 2017; Henseler, 2017). While behavioral constructs are usually modeled as common factor (reflective) models, composite formative should be the preferred choice for artifacts. These artifacts can be understood as theoretically justified constructions that consist of more elementary components (Benitez et al., 2018a). They are human-made objects that are typically created by managers, staff, or the firm itself and should be modeled as composite. The composite artifact serves as proxy for the concept under investigation and can be understood as a bunch of components (indicators) that compose the concept (composite artifact) (Henseler, 2017). Component selection represents how the author team understands the concept under investigation (Rueda et al., 2017).

6 We think that our social media capability construct is a good representation of how firms use external social media platforms to execute business activities. Facebook, Twitter, and corporate blog(s) are the most used external social media by firms around the world (Culnan et al., 2010). Moreover, our conceptualization and operationalization come from the conceptualization and operationalization of Benitez et al. (2018a), which is strongly supported by their empirical examination.

as composite at first- and second-order levels. We evaluated Facebook capability using the number of events, experience, and updated content by the firm with data collected from the Facebook site of the firm. Twitter capability was measured in terms of firm's spent time writing tweets, experience, and updated content by the firm with data collected from the Twitter site and Twopcharts database. Finally, we measured blog capability in a similar vein as per Facebook/Twitter firm's experience and updates.

We conducted a structured content analysis in June 2014 of the firm's website to measure e-commerce capability as a composite first-order construct through the accumulated total number of firm's web functionalities to interact with customers (Zhu & Kraemer, 2002). Drawn from Zhu and Kraemer, we focused on 13 e-commerce functionalities related to customers: four functionalities related to product information (e.g., if the website offered product availability information), five functionalities related to actions that facilitate transactions online (e.g., if it was possible to buy and view the order process cycle online), and four functionalities related to interaction and customization (e.g., if it was possible to log or configure product features online). Specifically, we codified whether the firm's website had the 13 particular e-commerce functionalities. We measured each functionality using a binary variable, representing whether the firm's website had the functionality, where zero was "no" and one was "yes." The final e-commerce capability index was created by transforming the binary variables of individual functionalities into a single measure and adding the accumulated total number

of firm's web functionalities. This measuring scheme was adapted from Zhu and Kraemer (2002). Table 3.3 presents the list of 13 e-commerce functionalities used to assess e-commerce capability (Zhu & Kraemer, 2002).

We measured online customer engagement as a composite third-order level construct determined by social online customer engagement (a second-order construct) and conventional online customer engagement (a first-order construct). Social online customer engagement was specified as a composite at first- and second-order level determined by Facebook customer engagement, Twitter customer engagement, and blog customer engagement, with information on the degree of customer activity, interaction, and contribution to Facebook, Twitter, and blog of the firm, collected from the firm's Facebook, Twitter, and blog sites from June to August 2014 (He et al., 2013; Kiron et al., 2013). Facebook customer engagement was measured through fan evolution, number of user comments, likes, and shares per firm's post with data from the firm's Facebook site. We assessed Twitter customer engagement in terms of firm's number of following, the evolution of followers, number of customer comments, favorites, and retweets per firm's tweet with data collected from the firm's Twitter site. Finally, blog customer engagement was measured as the number of customer comments and shares per firm's post.

**Table 3.3. List of e-commerce functionalities
(Zhu & Kraemer, 2002)**

Category	Functionality	Description
Information	Product information online	Product catalogue or other product availability information
	Search capability	If the website offers search engine to refine by needs
	Product review	Third party reviews or customer ratings
	Product update	If the website presents frequently asked questions and offers maintenance, support email, or other pre-and post-sales support
Transaction	Buy capability	If it is possible to buy online
	Online order tracking	If it is possible to view the order processing cycle
	Account management	If the customer can log and make easier the order or can benefit from personalized account or reward programs
	Return	Information, procedure, and mechanism to facilitate returns
	Security	Indications about the security of transactions, payment, and verification systems
Interaction and customization	Customization	Functionality to configure product features via website
	Customer registration	If you can log or subscribe to electronic bulletin system
	Online recommendation	If there exist dynamic real-time online product recommendations or other tools to provide recommendations to customers
	Real-time support (chat)	Instant messaging communication and open discussion forum

Conventional online customer engagement is a composite first-order construct measured as the degree of customer's contribution

to the firm's website. We evaluated the relative traffic rank position of the firm's website with data collected from Alexa database (<http://www.alexa.com>) from June to August 2014 (Heath et al., 2013). Alexa database provides a website ranking based on a combination of reach (the number of visitors in a given day) and page views (the total number of visits). The website with the highest combination of both measures is ranked #1. We evaluated the Alexa ranking per industry and performed the relative traffic rank position by calculating the rate of sectoral excellence (RSE) in web customer engagement for June, July, and August 2014 as follows: $1 - (\text{Rank position of the firm's website} / \text{Number of firms in the industry})$ (Benitez & Walczuch, 2012; Benitez et al., 2018a; Benitez et al., 2018b; Benitez et al., 2018d). Conventional online customer engagement was measured as the average RSE in web customer engagement from June to August 2014.

Firm performance is a composite second-order construct composed of two traditional dimensions of firm performance: innovation performance and customer service performance (Mithas et al., 2011). Innovation performance is a single construct that was measured as the firm's patent quality with data collected from the U.S. Patent and Trademark Office database in the period 2011-2014 (Benitez et al., 2018a). This three-year period smooths out the bias derived from a good or bad year (Tanriverdi, 2005). To evaluate patent quality, we first estimated a patent quality weighting ratio (PQWR), and then, we calculated the RSE in innovation (Benitez & Walczuch, 2012; Benitez et al., 2018a). PQWR was measured weighting the number of patents in 2011 by

the citations that these patents have obtained within a three-year window (Kleis et al., 2012). We calculated PQWR for 2011-2014 as follows: $PQWR_{2011-2014} = \text{Number of citations received by the firm's patents of 2011 in subsequent patents within 2012-2014} / \text{Number of published patents by the firm in 2011}$. RSE in innovation was calculated as follows: $1 - (\text{Firm's position in its industry in our PQWR ranking} / \text{Total number of firms in each industry in our PQWR ranking})$. The final measure of innovation performance was the RSE in innovation for 2011-2014.

Customer service performance is a composite first-order construct measured with information on the firm's reliability and honesty in serving customers collected from the Better Business Bureau (BBB) database (<https://www.bbb.org/>) in October 2014 (Ma et al., 2012). BBB is a non-profit organization that focuses on providing free business reviews based on firms' trust and honesty. BBB serves as intermediary between U.S. firms and nearly 1 million disputes from customers each year. Specifically, we used the number of solved complaints in the last three years (from October 2011 to October 2014) and the presence or absence of accreditation for implementing the BBB Code of Business Practices (based on the firm's trust and honesty) in October 2014 as two indicator proxies to measure customer service performance. Managing complaints to solve customers' problems is part of customer service performance (Gunarathne et al., forthcoming). The better the firm's ability to solve complaints, the better is the customer service performance. Then, it is rational to expect that firms that effectively solve complaints and are guided by a code

of practices for honesty are more reliable and outperformers for customers in terms of customer service. These two indicators are thus objective and credible to effectively measuring customer service performance⁷. We used the natural logarithm of the number of complaints that were solved by the firm during October 2011 - October 2014. The presence or absence of accreditation was measured as a dummy giving the value 1 if the firm possesses the BBB accreditation and 0 in other cases.

Finally, we controlled for firm size, industry, and firm age on firm performance (Mithas et al., 2011). We controlled for firm size on firm performance because firms with more organizational resources are more likely to invest in innovation and customer service practices (Benitez & Walczuch, 2012). We measured firm size as the natural logarithm of the number of employees in 2014 with information collected from COMPUSTAT database (Benitez et al., 2018a). Innovation and customer service performance can also depend on the industry in which the firm operates. We controlled for industry on firm performance by measuring industry as a dummy variable (0: Manufacturing, 1: Service firm) with information collected from the Forbes database (Benitez & Ray, 2012). As firm age can explain differences in organizational attitude toward innovation and performance, we also controlled

⁷ Traditionally, customer service has been related to the number of complaints (e.g., Ray et al., 2005; Ma et al., 2012). For example, Ray et al. (2005) operationalized customer service performance as the quality of the process of serving customers by using a complaint ratio. Recently, some IS literature gives much importance to analyze complaints on social media to provide customer service (e.g., Gunarathne et al., forthcoming). Being realistic, every firm receives complaints; then, effectiveness in managing them is essential. We go beyond the number of complaints and measure the firm's ability in solving complaints. We are not interested in measuring customer satisfaction but how effective is the company in handling complaints. In this sense, we consider and assume that solving complaints is an objective proxy to effectively measure customer service performance.

for firm age on firm performance. Firm age was calculated as the natural logarithm of the number of years in 2014 that the firm has been operating on its key industry with information collected from Forbes database (Chen et al., 2015). Our constructs were specified as composite at first-, second-, and third-order level (Henseler et al., 2016). Table 3.A1 in the appendix shows a summary of the measure definition and data sources for all the constructs employed in this study.

3.5. Empirical analysis and results

3.5.1. *Motivation of the method of estimation*

We tested the proposed model by using the structural equation modeling (SEM) technique. Specifically, we performed a partial least squares (PLS) path modeling⁸. It is appropriate to use PLS in this study as the method of estimation for the following reasons. First, PLS is a full-fledged SEM method of estimation that can conduct exact test of model fit, and it is suitable for

⁸ SEM is a statistical technique used to model complex relationships between latent variables/ constructs (unobserved variables) by configuring associations between indicators (observed variables) and constructs. PLS is a SEM method of estimation that creates proxies for latent variables as weighted sums of indicators. In a two-step approach, PLS first creates proxies for the latent constructs and then estimates path coefficients. The first step consists in an iterative PLS algorithm to estimate weights, reliabilities, and composite correlations (inner and outer weight estimations), thus obtaining the measurement model (relationship between latent variables and their indicators). The second step consists in using the previous weight scheme (relationship between latent variables and their indicators) to estimate path coefficients and loadings (Benitez et al., 2017). Both SEM and PLS are employed correctly in the context of this research because the proposed conceptual model of this study includes very complex measurement and structural relationships. However, on the basis of the suggestions of one of the reviewers of the panel, we re-estimated the proposed interaction model by using the latent variable scores and employing ordinary least squares as the method of estimation. This OLS estimation yielded similar results to those obtained for the interaction model (Table 3.5), which suggests that the method of estimation selection did not affect the results, and consequently, it is not an issue in this research.

empirical research development (Henseler et al., 2016). Second, PLS is an optimal method of estimation for composite models, as the proposed conceptual model (Henseler et al., 2014; Benitez et al., 2017). Third, PLS is the dominant and most used method of estimation in IS empirical research published in the leading IS journals (Polites et al., 2012; Benitez et al., 2018b; Benitez et al., 2018d). We used the statistical software package Advanced Analysis for Composites (ADANCO) 2.0.1 Professional (<http://www.composite-modeling.com/>) (Henseler & Dijkstra, 2015). ADANCO is a variance-based SEM software that models causal and predictive models by estimating composites, common factors, and single indicators.

Prior to performing the empirical analysis, we completed a statistical power analysis to determine the minimum sample size required to estimate the proposed model. Assuming an anticipated effect size of 0.200, a desired statistical power level of 0.800, five predictors (i.e., the number of links received by the construct Twitter engagement), and a confidence level of 0.95, the minimum required sample size to estimate the model is 91 (Cohen, 1988; Nitzl et al., 2016). Thus, our sample (100) had a good size to test the proposed theory.

3.5.2. *Confirmatory composite analysis*

Before testing the structural model, we checked for the external validity of our composite constructs by performing a confirmatory composite analysis (Henseler et al., 2014; Benitez et al., 2017). This analysis is useful to detect wrong assignment of indicators to constructs or wrong number of constructs (model misspecification). We evaluated the goodness of model fit for the saturate model (i.e., a model where there is free correlation among measurements) by examining the standardized root mean squared residual (SRMR), unweighted least squares (ULS) discrepancy (d_{ULS}), and geodesic discrepancy (d_G) (Henseler et al., 2016; Benitez et al., 2017). These measures of goodness of fit evaluate the discrepancy between the empirical correlation matrix and the model-implied correlation matrix. The lower they are, the better is the model fit (Henseler et al., 2014). Table 3.4 shows results of the saturate model fit evaluation for the first-, second-, and third-order constructs. All discrepancy values are lower than the 95%-quantile of the bootstrap discrepancies (HI_{95} values), which shows that with a 5% level of probability, the measurement structure of our composite constructs is correct. There is an empirical support for the structure of our composite constructs at first-, second-, and third-order levels. Then, we can proceed with the measurement model evaluation⁹ and the structural model evaluation.

⁹ This confirmatory composite analysis can be also considered as part of the measurement model evaluation (Benitez et al., 2017).

Table 3.4. Results of the confirmatory composite analysis

Discrepancy	First-order constructs			Second-order constructs			Third-order constructs		
	Value	HI ₉₅	Conclusion	Value	HI ₉₅	Conclusion	Value	HI ₉₅	Conclusion
SRMR	0.077	0.091	Supported	0.046	0.073	Supported	0.040	0.052	Supported
d _{ULS}	1.655	2.287	Supported	0.095	0.240	Supported	0.016	0.027	Supported
d _G	0.779	2.701	Supported	0.048	0.103	Supported	0.006	0.011	Supported

3.5.3. Measurement model evaluation

We assessed the multicollinearity, weights, and its level of significance, loadings, and its level of significance of the indicators and dimensions of our composite first-, second, and third-order constructs¹⁰ (Cenfetelli & Bassellier, 2009; Benitez et al., 2017). There is no multicollinearity problem if variance inflation factors (VIFs) of the indicators and dimensions are lower than 10 (Tanriverdi & Uysal, 2015; Benitez et al., 2018b). Except for one item pertaining to the Facebook engagement dimension, VIF values are well below 10. We dropped this item; therefore, multicollinearity is not a problem in our empirical analysis. A composite item/ dimension should be retained if its weight and/or loading are significant (Cenfetelli & Bassellier, 2009; Benitez et al., 2018b). We performed a bootstrap analysis with 5000 subsamples to obtain the significance level of indicator and dimension weights and loadings, and beta coefficients. All the indicator and dimension loadings and

¹⁰ Traditional evaluation of reliability and validity for reflective does not work well for composite models (Peng & Lai, 2012). All the constructs in our proposed model were specified as composite. Factor and composite models are evaluated differently (Benitez et al., 2017). First, content validity should be ensured by creating measures based on prior literature, interviews with executives, and/or the opinion of the author team. Then, a confirmatory composite analysis is performed to support the composite structure. Finally multicollinearity problems and significance of weights and loadings should be evaluated (Cenfetelli & Bassellier, 2009; Benitez & Ray, 2012).

weights are significant at 0.05 level. Overall, this analysis shows good measurement properties for the proposed model. Table 3.A2 in the appendix presents the details of the measurement model evaluation at first-, second-, and third-order levels.

3.5.4. Structural model evaluation

To test the hypotheses of the proposed model, we considered two models: (1) a baseline model, where we evaluate H1, H2, and H4; and (2) an interaction model, where we included the interaction term of social media capability and e-commerce capability to evaluate H3. To test the interaction model, we followed a two-stage approach to form the interaction term (social media capability * e-commerce capability) (Fassott et al., 2016). In the first stage, we ran the baseline model to obtain the construct scores of independent (i.e., e-commerce capability or social media capability)¹¹ and moderator variables (i.e., e-commerce capability or social media capability). In the second stage we built the interaction term as the product of the independent and moderator (i.e., e-commerce capability and social media capability) construct scores. The interaction term was then added to the interaction model in the second stage.

All the hypotheses were supported by the empirical analysis. Social media and e-commerce capabilities individually contribute to the development of online customer engagement (0.001

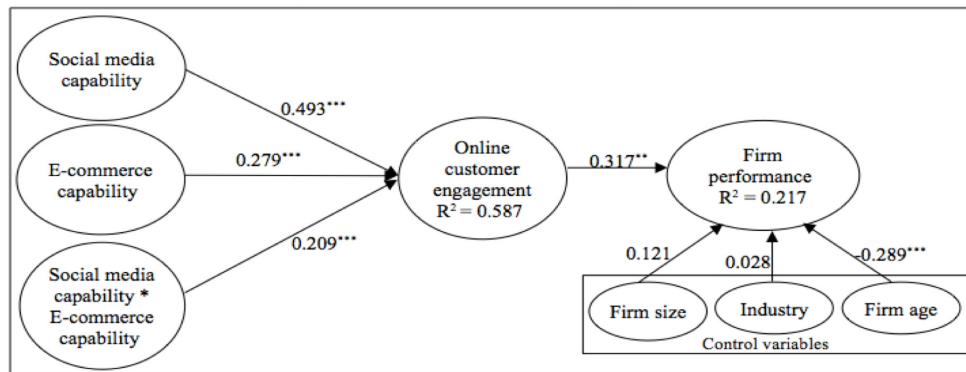
¹¹ Considering social media capability or e-commerce capability as the independent or the moderator variable does not matter. Both interpretations are valid (Spiller et al., 2013; Fassott et al., 2016).

level). In addition, online customer engagement improves firm performance (0.01 level). The interaction term of social media capability and e-commerce capability on online customer engagement was also supported (0.001 level), which means that social media and e-commerce capabilities jointly contribute to the development of online customer engagement. The effect of e-commerce capability (or social media capability) becomes larger when social media capability (or e-commerce capability) increases (Fassott et al., 2016).

The values of the beta coefficients, their level of significance, the effect size (f^2) values, and the R^2 values are individual measures of the explanatory power of the model. Beta coefficients around 0.200 are considered economically significant, and R^2 values higher than 0.200 indicate good explanatory power of the endogenous variables of the model (Benitez et al., 2018b). The beta coefficients of the hypothesized relationships range from 0.209^{***} to 0.493^{***}. H1, H2, and H3 were supported by the data with 0.001 level of significance, while H4 was significant at 0.01 level. The f^2 specifies the relative size of each incremental relationship included in the proposed model. The f^2 values of the key relationships of the model ranged from 0.100 to 0.399.

The R^2 value of the variable online customer engagement was 0.587, while that of firm performance was 0.217. Overall, this analysis shows a good explanatory power for the proposed model. Figure 3.2. shows the result of the interaction model.

Figure 3.2. Results of the test of hypotheses



Note: †p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001, one-tailed test.

We also evaluated the goodness of model fit for the structural model by examining the SRMR, d_{ULS} and d_G (Henseler et al., 2016; Benitez et al., 2017). SRMR values for the two models were well below the threshold of 0.080 (Henseler et al., 2014; Benitez et al., 2017). All discrepancy values for the two models were below the 99%-quantile of the bootstrap discrepancies, which means that, with a probability of 1%, we can claim that the proposed theory of social commerce-IT capabilities and firm performance is correct and capable to explain how the IT and corporate worlds function (Henseler & Dijkstra, 2015; Benitez et al., 2017) and how companies can create business value from their social commerce-IT capabilities investments. Table 3.5 provides detailed information of the structural model evaluation.

3.5.5. Test of time selection bias

We checked for potential time selection bias in the measures of social media capability, e-commerce capability, online customer engagement, and innovation performance in two ways (a double test). First, we checked for potential time selection bias by collecting data on social commerce-IT capabilities and online customer engagement in November and December 2017 and estimating several robust models. The development of social media and e-commerce capabilities and their influence on online customer engagement can require time; therefore, there can be a time effect bias in our study associated with the date in which data were collected. Then, we collected data in November 2017 for social commerce capabilities (i.e., social media and e-commerce capabilities) and in December 2017 for online customer engagement, leaving one-month time lapse. We measured social media capability by Facebook capability, Twitter capability, and blog capability with information collected from Facebook, Twitter, Twopcharts database, and firm's blog site in November 2017. E-commerce capability was measured as the accumulated total number of firm's web functionalities in November 2017. Online customer engagement is a composite third-order level construct determined by social online customer engagement and conventional online customer engagement. Social online customer engagement was determined by Facebook customer engagement, Twitter customer engagement, and blog customer engagement, with information collected from the firm's Facebook, Twitter, and blog site from November to December 2017. Conventional online

customer engagement was evaluated by the relative traffic rank position in Alexa database for November and December 2017. We estimated three robust models for this first test of time selection bias: (1) social commerce-IT capabilities measured in June 2014 and November 2017: we correlated social media/e-commerce capability measured in June 2014 and social media/e-commerce capability measured in November 2017. Results suggest a high correlation between measures. The beta coefficient between social media capability measured in June 2014 and November 2017 was 0.886^{***}. The beta coefficient between e-commerce capability measured in June 2014 and November 2017 was 0.812^{***}. These results give additional credibility to our social media and e-commerce capabilities measures. (2) Online customer engagement measured in June-August 2014 and November-December 2017: we correlated online customer engagement measured in the period from June to August 2014 and online customer engagement measured in the period from November to December 2017. Results show that the beta coefficient between the measures was 0.852^{***}, which gives additional credibility to our online customer engagement measure. (3) Social commerce-IT capabilities and online customer engagement in November-December 2017: we estimated a model in which social commerce-IT capabilities in November 2017 influences online customer engagement in November-December 2017. This alternative model provides results similar to those of the proposed model (Table 3.5), as social media capability is positively associated with online customer engagement ($\beta = 0.564^{***}$), and e-commerce capability is positively associated with online customer engagement ($\beta = 0.259^{***}$).

Second, we also checked for potential time selection bias in the operationalization of innovation performance (one of the dimensions of firm performance), by estimating two additional alternative models. In the first alternative model, we measured innovation performance as a single construct determined by the number of patents published in 2014 with information collected from U.S. Patent and Trademark Office database (Kleis et al., 2012). In the second alternative model, we measured innovation performance as a single construct determined by the RSE in innovation for 2014-2017 in a similar vein as we did for RSE in innovation for 2011-2014. First, we estimated a PQWR, and then, we built a ranking by industry, where the better the position of a firm, the greater is the PQWR, to subsequently calculate the RSE in innovation. PQWR was measured by weighting the number of patents in 2014 by the citations that these patents have obtained within a three-year window (2015-2017) (Kleis et al., 2012). Results in both cases are similar to those of the proposed interaction model, which gives robustness and additional credibility to our innovation performance measure. Table 3.A3 in the appendix shows the results of the test of time selection bias (robustness) for innovation performance. Overall, the results of this double test of time selection bias indicate that time selection bias is not a problem in our empirical analysis.

3.5.6. Test of endogeneity

Endogeneity may be caused between two variables by the omission of variables in a proposed model and by the existence of bidirectional relationships (Benitez et al., 2018d). Because it is debatable whether greater online customer engagement has a positive association with social media capability and e-commerce capability as well as online customer engagement may be affected by other variables (e.g., customer experience), we performed a test of endogeneity on the relationships between social media capability and online customer engagement and between e-commerce capability and online customer engagement. By using the firm's IT infrastructure capability as an instrumental variable of social media capability and e-commerce capability, the Hausman tests revealed that the relationships between e-commerce capability and online customer engagement ($\chi^2 = 1.0389$, d.f. = 1, $p = 0.308$) and between social media capability and online customer engagement appear unaffected by endogeneity ($\chi^2 = 3.0586$, d.f. = 1, $p = 0.080$). This analysis indicates that omitted variables and reverse causality are not a problem in the relationships between social media and e-commerce capabilities and online customer engagement in the context of this research (Benitez et al., 2018d).

Table 3.5. Results of the PLS estimation and results of the test of robustness

Beta coefficient	Baseline model	Interaction model	Mediation	Alternative model 1	Alternative model 2
Social media capability → Online customer engagement (H1)	0.530*** (7.557) [0.392, 0.666]	0.493*** (6.409) [0.337, 0.638]	0.493*** (6.410) [0.337, 0.638]		0.529*** (7.505) [0.390, 0.665]
E-commerce capability → Online customer engagement (H2)	0.297*** (3.472) [0.118, 0.456]	0.279*** (3.133) [0.105, 0.451]	0.279*** (3.132) [0.105, 0.451]		0.298*** (3.466) [0.118, 0.456]
Social media capability * E-commerce capability → Online customer engagement (H3)		0.209*** (3.107) [0.066, 0.330]	0.210*** (3.118) [0.067, 0.331]		
Online customer engagement → Firm performance (H4)	0.325*** (2.877) [0.081, 0.520]	0.317*** (2.780) [0.074, 0.515]	0.263** (2.257) [0.019, 0.472]	0.327** (2.899) [0.082, 0.520]	
Social media capability * E-commerce capability → Firm performance			0.127 (1.199) [-0.083, 0.323]		
Social commerce competence → Online customer engagement				0.731*** (15.797) [0.638, 0.819]	
Online customer engagement → Innovation performance					0.275** (2.770) [0.076, 0.464]

Beta coefficient	Baseline model	Interaction model	Mediation	Alternative model 1	Alternative model 2
Online customer engagement → Customer service performance					0.221* (1.932) [-0.009, 0.440]
Control variables					
Firm size → Firm performance	0.121 (1.164) [-0.100, 0.307]	0.121 (1.166) [-0.101, 0.308]	0.118 (1.151) [-0.101, 0.302]	0.121 (1.164) [-0.099, 0.307]	
Industry → Firm performance	0.027 (0.221) [-0.186, 0.284]	0.028 (0.233) [-0.186, 0.286]	0.075 (0.638) [-0.144, 0.315]	0.026 (0.218) [-0.187, 0.283]	
Firm age → Firm performance	-0.289** (3.816) [-0.431, -0.139]	-0.289** (3.804) [-0.431, -0.139]	-0.273** (3.514) [-0.421, -0.118]	-0.289** (3.822) [-0.431, 0.139]	
Firm size → Innovation performance					0.066 (0.761) [-0.111, 0.229]
Firm size → Customer service performance					0.106 (1.016) [-0.114, 0.293]
Industry → Innovation performance					-0.101 (0.942) [-0.297, 0.119]
Industry → Customer service performance					0.104 (0.983) [-0.099, 0.314]

Beta coefficient	Baseline model		Interaction model		Mediation		Alternative model 1		Alternative model 2	
	R ²	Adjusted R ²	R ²	Adjusted R ²	R ²	Adjusted R ²	R ²	Adjusted R ²	R ²	Adjusted R ²
Firm age → Innovation performance										-0.145 ⁺ (1.602) [-0.320, 0.037]
Firm age → Customer service performance										-0.263 ^{**} (3.448) [-0.405, -0.104]
Online customer engagement	0.542	0.533	0.587	0.574	0.587	0.574	0.535	0.530	0.541	0.532
Firm performance	0.222	0.189	0.217	0.184	0.229	0.188	0.223	0.191		
Innovation performance									0.107	0.069
Customer service performance									0.163	0.127
SRMR value		0.055		0.059		0.060		0.066		0.048
SRMR HI_{.99}		0.070		0.069		0.065		0.073		0.072
d_{ULS} value		0.203		0.194		0.196		0.195		0.182
d_{ULS} HI_{.99}		0.324		0.261		0.234		0.239		0.409
d_C value		0.080		0.090		0.084		0.079		0.079
d_C HI_{.99}		0.137		0.092		0.088		0.089		0.178
Effect size (f²)										
Social media capability → Online customer engagement (HI)		0.430		0.399		0.399				0.428

Beta coefficient	Baseline model	Interaction model	Mediation	Alternative model 1	Alternative model 2
E-commerce capability → Online customer engagement (H2)	0.135	0.132	0.132		0.135
Social media capability * E-commerce capability → Online customer engagement (H3)		0.100	0.100		
Online customer engagement → Firm performance (H4)	0.131	0.124	0.073	0.133	
Social media capability * E-commerce capability → Firm performance			0.016		
Social commerce competence → Online customer engagement				1.150	
Online customer engagement → Innovation performance					0.082
Online customer engagement → Customer service performance					0.056

3.5.7. Mediation analysis

We performed a post hoc mediation analysis by adding the direct effect of the social commerce-IT capabilities interaction term on firm performance. We performed a bootstrap analysis of 5000 subsamples to test the significance of the indirect effect (Zhao et al., 2010; Nitzl et al., 2016). We evaluated whether the indirect effect was significant to determine the type of mediation. In our analysis, the direct effect was not significant, while the indirect effect was significant at 0.05 level ($\beta = 0.055^*$), showing an indirect-only mediation (Zhao et al., 2010; Nitzl et al., 2016) (Table 3.6). The total effect was also significant at 0.05 level ($\beta = 0.182^*$). These results reinforce those obtained in the test of hypotheses and suggest that social media and e-commerce capabilities interaction positively affects firm performance through online customer engagement (Zhao et al., 2010; Benitez et al., 2017).

Table 3.6. Indirect effect analysis

Relationship	Direct effect	Indirect effect	Total effect
Social media capability * E-commerce capability → Firm performance	0.127 (1.199) [-0.083, 0.323]	0.055* (1.755) [0.001, 0.123]	0.182* (1.731) [-0.034, 0.378]

3.5.8. *Test of robustness*

Contemporary PLS path modeling requires a robustness test on the proposed model against alternative theoretical and empirical explanations (Benitez et al., 2016; Benitez et al., 2018b). In this sense, we checked for the robustness of the proposed theory in two ways. In the first alternative model, we considered social media capability and e-commerce capability as two dimensions of a same concept/construct, named social commerce competence (a third-order construct composed of social media capability and e-commerce capability). Results of this alternative model indicate that social commerce competence is positively related to online customer engagement ($\beta = 0.731^{***}$). This indicates that the operationalization of the phenomenon social commerce-IT capabilities does not affect the results of the study. In the second alternative model, we considered the dimensions of firm performance separately, keeping every other relationship the same. This means that the key endogenous variables of this model were innovation performance and customer service performance. Results obtained in the second alternative model yield similar results to those obtained in the proposed model (Figure 3.2.). This indicates that the operationalization of the construct firm performance does not affect the results of the study. As the proposed theory does not have a significantly worse estimated model fit, it is our best theoretical understanding of the research problem, and it is a more parsimonious theory, the proposed theory is preferred to the alternative models included in this test of robustness (Henseler et al., 2016; Benitez et al., 2017). Table 3.5 shows the details of this test of robustness.

3.6. Discussion and conclusions

3.6.1. *Summary of key findings*

This research examines the impact of two contemporary social commerce-IT capabilities (social media capability and e-commerce capability) on firm performance on a sample of U.S. firms. We theorized that the development of these social commerce-IT capabilities enables firms to online engage customers to improve their firm performance. The empirical analysis supports our theory. Specifically, the empirical analysis suggests that the social commerce-IT capabilities of social media and e-commerce positively individually influence firm performance through online customer engagement. The empirical analysis also supports our theory in examining the effects of social media and e-commerce as two complementary capabilities. The interplay of social media and e-commerce capabilities (i.e., social commerce) improves the flow of information and develop a better and deeper connection with customers, who may be more motivated to participate in the digital platforms (social media and e-commerce).

Firms that better leverage its social media and e-commerce achieve fine-grained customer knowledge by engaging customers virtually in social media and the firm's website. For example, Finnair (a Finland's national airline) ran some social media platforms (Facebook, Twitter, corporate blogs, YouTube, Pinterest) looking for innovative ideas from customers. After properly developing the community (e.g., offering support, reacting to

comments, giving information), Finnair obtained hundreds of ideas from community members. Some of the most voted ideas to implement were giving passengers a service of swapping books and offering vegetarian meals onboard (Jarvenpaa & Tuunainen, 2013). This example illustrated how a company with proficiency in social media can engage customers to acquire knowledge to innovate in product and service.

Overall, firm's social media and e-commerce capabilities individually and jointly motivate customers to participate, give opinions, interchange ideas, and create a sense of brand identification, commitment, and loyalty (Chen & Shen, 2015). This deep connection and interaction with/among customers are beneficial for firms.

3.6.2. Limitations and future research lines

This study has two main limitations. First, the findings of this study can be generalized only to the best small U.S. firms (included in the Forbes database). Future research should examine whether the results obtained in this study are kept in the context of other countries (e.g., European Union, Asia, LATAM) and/or other type of firms (e.g., micro-firms, other small firms, large firms). Furthermore, future research should compare whether small firms benefit more or less than large firms from social commerce. Second, the constructs social media capability and social online customer engagement were conceptualized and measured by covering Facebook, Twitter, and corporate blog(s),

which is consistent with prior IS research (Culnan et al., 2010; Benitez et al., 2018a). However, the focus only on these three external social media may constitute a limitation. Drawn on our study, we encourage IS scholars to develop the concepts of social media capability and social online customer engagement by extending our conceptualization and measures to other external social media (e.g., WeChat, LinkedIn, Instagram, or YouTube) and to enterprise social media (e.g., Microsoft Yammer). This line of research appears to be a very promising avenue for future fine-grained IS research. Finally, because our study was interested on the customer side of e-commerce and its effect on online customer engagement, we only focused on the web technology firm's usage to interact with customers. Future IS research should examine the supplier side of e-commerce and its effect on online customer engagement.

3.6.3. Contributions to IS research

This research has several contributions to the field of IS. First, this study conceptualizes social commerce-IT capabilities and analyzes their effects on performance from a firm's perspective and a capabilities' view. According to the social commerce literature, this research specifically considers social media capability and e-commerce capability as two social commerce-IT capabilities because social media and e-commerce are the two pillars of the social commerce initiatives. Social commerce-IT capabilities refer to the firm's ability in *leveraging* and *inter-connecting* social media and e-commerce (capabilities). These capabilities were examined

individually and as two complementary capabilities, which were supported by the empirical analysis.

We study social commerce-IT capabilities' effects on performance from a firm's perspective. Majority of articles on social commerce explore customers' behavior from an individual's perspective. Literature on social commerce from the firm's perspective is in its infancy and primarily focuses on how to use social commerce to improve financial performance. In addition to helping customers in making purchase decisions, social commerce can help firms to improve their internal innovation and customer service processes. Recent literature has emphasized the role of online communities, for example, in open innovation success (Mount & Garcia, 2014) and in helping firms to understand how to better serve customers (Kane et al., 2014). This research contributes to the social commerce literature by studying social commerce from a firm's perspective and capabilities' view, specifically analyzing how firms take benefit of their social commerce-IT capabilities to improve innovation and customer service performance.

Second, we provide a unique organizational theory and empirical evidence on how social commerce-IT capabilities influence firm performance through the online engagement of customers. We find that firms that invest and develop social commerce-IT capabilities achieve tangible and intangible business benefits such as greater innovation and customer service performance. Few studies have conceptually and empirically examined the business value of social commerce-IT capabilities, that is, the impact of social commerce-IT capabilities on firm

performance through customer participation. This study provides a unique organizational theory and empirical evidence on how social commerce-IT capabilities influence firm performance through the online engagement of customers.

Third, the microfoundations approach suggests that individual/group member actions are the key source of firm heterogeneity in executing/developing organizational routines/capabilities and creating business value (Felin et al., 2012). For example, this approach argues that job processes and employee's characteristics are critical to explain the overcoming of diverse organizational capabilities (Hodgkinson & Healey, 2011; Teece, 2012). We use the microfoundations approach to conceptualize online customer engagement as an individual behavior of the customer and to explain how IT creates business value by considering online customer engagement as an individual behavior facilitated by social commerce-IT capabilities. This seems to be a promising venue for future research in the field of IS.

Finally, this research has also a methodological contribution. We provide a rich validated set of secondary measures to evaluate social commerce-IT capabilities, online customer engagement, innovation performance, and customer service performance that comes from nine high-quality databases from the industry (e.g., firm's annual reports, Facebook, Twopcharts). Future IS research can use these measures to explore these and/or other related research questions.

3.6.4. Implications for managers

Firms invest millions of dollars in IT but not all these investments generate the expected results (Benitez & Walczuch, 2012). This research provides useful lessons for IT managers. First, this study shows that the development of social media and e-commerce, i.e., two social commerce-IT capabilities, can improve firm performance through customer participation. Companies can take advantage of users' reviews to know what they are expecting in terms of new product development and new ways of serving and supporting customer service. Social and conventional online customer involvement and participation provide the firm critical information on customer needs and ideas for new product development and customer service support. For example, SAP exploits social media (i.e., Facebook, Twitter, YouTube, and LinkedIn) to directly communicate with customers, getting feedback from them, and hence providing information about new products and acting as a customer service function (Kiron, 2012c).

Second, this study explains how to engage customers to participate and give information online. On the one side, IT managers can learn that managing social commerce-IT capabilities (social media and e-commerce) can enable a better online customer engagement. On the other side, senior executives can see the strategic need of exploiting relationship among complementary resources if they suffer resource constraints. This study highlights the importance of jointly developing social media and e-commerce capabilities to improve performance.

Overall, we provide IT managers a simple, eloquent, and new explanation on how social commerce-IT capabilities affect firm performance. Social media and e-commerce capabilities create innovation and customer value by serving as the foundation to facilitate social and conventional online engagement. Thus, investments in social media and e-commerce create business value for companies. Social commerce-enabled customer engagement provides rich customer knowledge to innovate in product development and customer experience. Social commerce-IT capabilities matter.

APPENDIX CHAPTER 3

Table 3.A1. Construct name, measure definition, and data sources

Construct name	Measure description	Source
Social media capability	Facebook capability, Twitter capability, and blog capability	Second-order construct
Facebook capability: Facebook activity of the firm in terms of:	Number of events, experience, and updated content in June 2014	Facebook site of the firm
Number of events	Number of events published on Facebook (from 0 to 168)	Facebook site of the firm
Experience	Number of months operating in Facebook (from 0 to 77.996)	Facebook site of the firm
Updates	For each firm, we scored from 1 to 5 when the firm had made a comment on Facebook more than one month ago (1), in the last month (2), two weeks ago (3), in the last week (4), in the last two days (5)	Facebook site of the firm
Twitter capability: Twitter activity of the firm in terms of:	Spent time writing tweets, experience, and updated content in June 2014	Twitter site of the firm and Twopcharts
Spent time	Number of hours spent in writing tweets (from 0 to 219)	Twopcharts
Experience	Number of months operating in Twitter (from 0 to 75.565)	Twopcharts
Updates	For each firm, we scored from 1 to 5 when the firm had made a comment on Twitter more than one month ago (1), in the last month (2), two weeks ago (3), in the last week (4), in the last two days (5)	Twitter site of the firm
Blog capability: Blog activity of the firm in terms of:	Experience and updated content in June 2014	Blog site of the firm

Experience	Number of months operating in the blog (from 0 to 163.909)	Blog site of the firm
Updates	For each firm, we scored from 1 to 5 when the firm had made a comment on the corporate blog more than one month ago (1), in the last month (2), two weeks ago (3), in the last week (4), in the last two days (5)	Blog site of the firm
E-commerce capability	Accumulated total number of 13 firm's web functionalities to interact with customers in June 2014. This measure ranges from 0 to 13	Structured content analysis of the firm's website
Online customer engagement	Social online customer engagement and conventional online customer engagement	Third-order construct
Social online customer engagement	Facebook engagement, Twitter engagement, and blog engagement	Second-order construct
Facebook engagement: Facebook customer engagement in terms of:	Fan evolution, number of user comments per firm's post, likes per firm's post and shares per firm's post from June to August 2014	Facebook site of the firm
Fan evolution	$(\text{Number of fans in September}_{2014} - \text{Number of fans in June}_{2014}) / \text{Number of fans in June}_{2014}$ (from 0 to 1.294)	Facebook site of the firm
Number of comments per post	$\text{Users' comments from June}_{2014} \text{ to August}_{2014} / \text{Firm's comments from June}_{2014} \text{ to August}_{2014}$ (from 0 to 223.790)	Facebook site of the firm
Number of likes per post	$\text{Number of likes from June}_{2014} \text{ to August}_{2014} / \text{Firm's comments from June}_{2014} \text{ to August}_{2014}$ (from 0 to 4600.894)	Facebook site of the firm
Number of shares per post	$\text{Number of shares from June}_{2014} \text{ to August}_{2014} / \text{Firm's comments from June}_{2014} \text{ to August}_{2014}$ (from 0 to 735.213)	Facebook site of the firm

Twitter engagement: Twitter customer engagement in terms of:	Number of following, the evolution of followers, number of customer comments per firm's tweet, favorites per firm's tweet and retweets per firm's tweet from June to August 2014	Twitter site of the firm
Number of following	Number of following in August ₂₀₁₄ (from 0 to 24472)	Twitter site of the firm
Follower evolution	(Number of followers in September ₂₀₁₄ - Number of followers in June ₂₀₁₄) / Number of followers in June ₂₀₁₄ (from -0.045 to 0.864)	Twitter site of the firm
Number of customer tweets per firm tweet	Users' tweets from June ₂₀₁₄ to August ₂₀₁₄ / Firm's tweets from June ₂₀₁₄ to August ₂₀₁₄ (from 0 to 1.655)	Twitter site of the firm
Number of favorites per tweet	Number of favorites from June ₂₀₁₄ to August ₂₀₁₄ / Firm's comments from June ₂₀₁₄ to August ₂₀₁₄ (from 0 to 20.943)	Twitter site of the firm
Number of retweets per tweet	Number of retweets from June ₂₀₁₄ to August ₂₀₁₄ / Firm's comments from June ₂₀₁₄ to August ₂₀₁₄ (from 0 to 7.593)	Twitter site of the firm
Blog engagement: Blog customer engagement in terms of:	Number of customer comments per firm's post and shares per firm's post from June to August 2014	Blog site of the firm
Number of comments per post	Customer comments from June ₂₀₁₄ to August ₂₀₁₄ / Firm's comments from June ₂₀₁₄ to August ₂₀₁₄ (from 0 to 7.800)	Blog site of the firm
Number of shares per post	Shares in Facebook, Twitter, LinkedIn, Google + from June ₂₀₁₄ to August ₂₀₁₄ / Firm's comments from June ₂₀₁₄ to August ₂₀₁₄ (from 0 to 335.351)	Blog site of the firm

Conventional online customer engagement	RSE in web customer engagement = $1 - (\text{Rank position of the firm's website} / \text{Total number of firms in the industry})$. The final score of the RSE was calculated as the mean average for the months of June, July, and August 2014 (from 0 to 1)	Alexa
Firm performance	Innovation performance and customer service performance	Second-order construct
Innovation performance	$RSE_{2011-2014}$ in innovation = $1 - (\text{Firm's position in its industry in our PQWR ranking} / \text{Total number of firms in each industry in our PQWR ranking})$	U.S. Patent and Trademark Office
Customer service performance	Number of solved complaints in the last three years and a dummy variable (0 = Absence, 1 = Presence of BBB accreditation) in October 2014	BBB
Number of solved complaints	Natural logarithm of the number of solved complaints from October 2011 to October 2014	BBB
Awarded firm	Absence (0) or possession (1) of accreditation based on the BBB Code of Business Practices in 2014	BBB
Firm size	Natural logarithm of the number of employees in 2014	COMPUSTAT
Industry	Dummy variable (0: Manufacturing, 1: Service firm)	Forbes
Firm age	Natural logarithm of the number of years in the industry in 2014	Forbes

Table 3.A2. Measurement model evaluation at first-, second-, and third-order level

	Mean	S.D.	VIF	Weight	Loading
Social media capability (composite second-order construct)					
Facebook capability: Facebook activity of the firm in terms of (composite first-order construct)			2.334	0.356***	0.871***
Number of events	5.510	18.549	1.111	0.252***	0.532***
Experience	33.773	25.582	2.260	0.476***	0.908***
Updates	2.740	2.223	2.219	0.480***	0.902***
Twitter capability: Twitter activity of the firm in terms of (composite first-order construct)			2.644	0.433***	0.917***
Spent time	17.280	32.149	1.306	0.383***	0.745***
Experience	35.752	27.651	2.114	0.434***	0.870***
Updates	2.750	2.285	2.254	0.384***	0.878***
Blog capability: Blog activity of the firm in terms of (composite first-order construct)			1.596	0.356***	0.809***
Experience	17.266	31.681	1.913	0.545***	0.920***
Updates	1.255	1.949	1.913	0.543***	0.919***
E-commerce capability (composite single indicator)	6.110	2.685		1.000***	1.000***
Online customer engagement (composite third-order construct)					
Social online customer engagement (composite second-order construct)			1.307	0.415**	0.769***
Facebook engagement: Facebook engagement of the customer in terms of (composite first-order construct)			1.045	0.481***	0.623***
Fan evolution	0.113	0.210	1.001	0.490***	0.489***
Number of comments per post	5.933	25.296	1.513	0.490***	0.781***

Number of likes per post	100.923	485.299	1.513	0.490***	0.769***
Number of shares per post	12.008	75.025	Dropped	Dropped	Dropped
Twitter engagement: Twitter engagement of the customer in terms of (composite first-order construct)			1.059	0.596***	0.751***
Number of following	1065.960	2902.486	1.477	0.361***	0.742***
Follower evolution	0.091	0.147	1.510	0.153*	0.601***
Number of customer tweets per firm tweet	0.129	0.277	1.250	0.234***	0.367**
Number of favorites per tweet	0.826	2.630	6.057	0.254***	0.850***
Number of retweets per tweet	0.652	1.229	7.668	0.363***	0.932***
Blog engagement: Blog engagement of the customer in terms of (composite first-order construct)			1.016	0.459***	0.553***
Number of comments per post	0.171	0.954	1.008	0.694***	0.751***
Number of shares per post	8.796	40.508	1.008	0.662***	0.723***
Conventional online customer engagement (composite single indicator)	0.474	0.286	1.307	0.731***	0.932***
Firm performance (composite second-order construct)					
Innovation performance (composite single indicator)	0.167	0.309	1.006	0.760***	0.807***
Customer service performance (composite first-order construct)	1.554	1.880	1.006	0.592**	0.653***
Number of solved complaints	0.854	0.281	1.508	0.624***	0.861***
Awarded firm	0.165	0.373	1.508	0.499***	0.914***

Table 3.A3. Test of time selection bias (robustness) for innovation performance

Beta coefficient	Interaction model		First alternative model		Second alternative model	
Social media capability → Online customer engagement (H1)	0.493***		0.494***		0.493***	
E-commerce capability → Online customer engagement (H2)	0.279***		0.276***		0.279***	
Social media capability * E-commerce capability → Online customer engagement (H3)	0.209***		0.211***		0.209***	
Online customer engagement → Firm performance (H4)	0.317**		0.237*		0.264**	
Control variables						
Firm size → Firm performance (control variable)	0.121		0.136		0.115	
Industry → Firm performance (control variable)	0.028		0.045		-0.023	
Firm age → Firm performance (control variable)	-0.289***		-0.301***		-0.341***	
R²	R²	Adjusted R²	R²	Adjusted R²	R²	Adjusted R²
Online customer engagement	0.587	0.574	0.588	0.575	0.587	0.574
Firm performance	0.217	0.184	0.179	0.144	0.205	0.171
SRMR value	0.059		0.055		0.061	
SRMR HI₉₉	0.069		0.063		0.069	
d_{ULS} value	0.194		0.164		0.204	
d_{ULS} HI₉₉	0.261		0.220		0.258	
d_G value	0.090		0.081		0.096	
d_G HI₉₉	0.092		0.085		0.090	

Note: In the first alternative model, innovation performance is measured as number of patents published in 2014. In the second alternative model, innovation performance is measured as RSE in innovation for 2014-2017.

Table 3.A4. Correlation matrix

	1	1.1	1.2	1.3	2	3	3.1	3.1.1	3.1.2	3.1.3	3.2	4	4.1	4.2	5	6	7
1. Social media capability	1																
1.1. Facebook capability	0.871***	1															
1.2. Twitter capability	0.918***	0.750***	1														
1.3. Blog capability	0.808***	0.525***	0.600**	1													
2. E-commerce capability	0.548***	0.476**	0.578***	0.354***	1												
3. Online customer engagement	0.693***	0.552**	0.678***	0.561***	0.588**	1											
3.1. Social online customer engagement	0.650***	0.538***	0.613***	0.532***	0.518***	0.868**	1										
3.1.1. Facebook engagement	0.371***	0.327**	0.318***	0.323***	0.316***	0.524***	0.623***	1									
3.1.2. Twitter engagement	0.504***	0.449**	0.522***	0.326***	0.395***	0.654**	0.751***	0.206*	1								
3.1.3. Blog engagement	0.373***	0.247**	0.326***	0.398***	0.287**	0.493**	0.553***	0.042	0.123	1							
3.2. Conventional online customer engagement	0.543***	0.410***	0.554***	0.432***	0.494***	0.855***	0.484**	0.274**	0.368**	0.292**	1						
4. Firm performance	0.355***	0.278**	0.362***	0.274**	0.329***	0.376***	0.252**	0.218*	0.129†	0.153†	0.398**	1					
4.1. Innovation performance	0.325***	0.277**	0.265**	0.310***	0.288**	0.290**	0.140†	0.218*	0.060	-0.001	0.365***	0.612***	1				
4.2. Customer service performance	0.222*	0.159†	0.273*	0.131†	0.215*	0.273*	0.221*	0.124	0.122	0.194*	0.250**	0.837***	0.080	1			
5. Firm size	0.053	0.061	0.069	0.004	-0.053	0.005	-0.008	-0.169*	0.084	0.051	0.018	0.050	-0.002	0.065	1		
6. Industry	0.260**	0.242**	0.201*	0.240**	-0.032	0.077	0.087	-0.127	0.164†	0.110	0.044	0.132*	-0.038	0.193*	0.292**	1	
7. Firm age	-0.232**	-0.206*	-0.182*	-0.220*	-0.021	-0.166*	-0.192*	-0.066	-0.226*	-0.057	-0.092	-0.313**	-0.157†	-0.287**	0.278**	-0.156†	1

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**SOCIAL MEDIA CAPABILITY AND
NEW PRODUCT DEVELOPMENT
PERFORMANCE: AN EMPIRICAL
INVESTIGATION**

4

4. SOCIAL MEDIA CAPABILITY AND NEW PRODUCT DEVELOPMENT PERFORMANCE: AN EMPIRICAL INVESTIGATION

Abstract

Failures in new product development (NPD) can be attributed to failures in matching products to customers' needs. Social media users can interact with the firm giving feedback that can help to create products that better match customers' needs. This study conceptualizes *social media capability* as the firm's proficiency in leveraging internal and external social media to support NPD activities, and it examines its role in NPD performance. Drawing on the information technology (IT)-enabled organizational capabilities perspective, we propose an indirect role of social media capability in NPD performance through the mediating role of dynamic capabilities (market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility). The research model was tested using partial least squares path modeling on a sample of 151 large Spanish firms. We find that

social media capability improves NPD performance by helping firms to develop a portfolio of dynamic capabilities. This study theoretically develops and empirically captures the *social media capability* construct, and it contributes to the IT strategy and the business value of IT literatures by demonstrating the indirect role of social media capability in NPD performance through dynamic capabilities.

Keywords: Social media capability, dynamic capabilities, new product development performance, business value of IT.

4.1. Introduction

Organizational survival depends on the ability to continually detect new opportunities and innovate in rapidly-changing environments (Duran et al., 2016). Failures in new product development (NPD) can be attributed to failures in matching products to customers' changing needs. For example, Google failed when released the "Google Glass" in 2012. Google glass is a hands-free device with some smartphone functionalities. After two years of production Google stopped producing Google Glass in 2015 admitting that the world was not prepared to this technological revolution. The main explanations of this failure are due to privacy and security concerns. Although useful for certain professional industries like medicine, Google Glass functionalities were not readily apparent to society. A misfit occurred between customers' needs and the innovation. At that moment society

was not prepared to this innovation. This example illustrates the importance of capturing customers' needs and reactions on time.

Organizations seek to establish bidirectional relationships to co-create value with internal (i.e., employees¹) and external stakeholders (e.g., customers) to pursue innovation activities. Firm's information technology (IT) initiatives such as digital technologies have a prominent role in executing new and disrupted innovation activities (Nambisan et al., 2017). IT enables better connectivity, collaboration, experimentation, and real-time information sharing, which in turn facilitates innovation (Blazevic & Lievens, 2008).

Enterprise (e.g., Microsoft Yammer) and external (e.g., Facebook, Twitter) social media - an idiosyncratic new IT - may have become a critical channel where employees and customers can play an active role in NPD activities (Aral et al., 2013; Jarvenpaa & Tuunainen, 2013). Social media can help organizations to create value through employees' and customers' contributions. Employees can contribute in enterprise social media by giving information about internal processes and possible solutions to a given problem, while customers can contribute in external social media by giving and sharing information about their needs and expectations, and products. Collaboration with employees and customers is often called "co-creation." However, simply co-creating with employees and customers through social media may be insufficient to impact NPD performance. Some internal

1 In this manuscript we refer to employees as all organizational members (executive and non-executive employees).

capabilities may be needed to transform the co-created knowledge into marketable and profitable NPD. The manner in which the organization handles and leverages knowledge and expertise from employees and customers will be key to create NPD business value.

When using social media to co-create with employees and customers, conflicting opinions can occur, and internal capabilities (e.g., understanding customers' needs and detecting valuable information) are needed to facilitate NPD success. First, confronting ideas from employees and customers can appear, and the firm's ability to understand the market and respond to customers' needs (i.e., market orientation) can increase NPD success. Second, information regarding different activities of the NPD process (e.g., concept generation, prototyping, product testing) can also be leveraged. The ability to share this information and synchronize business tasks (i.e., effective coordination), while acquiring, assimilating, transforming, and exploiting the co-created knowledge (i.e., absorptive capacity) can enable NPD success effectively. Finally, the ability to understand the knowledge possessed by others (i.e., collective mind) and quickly respond to new opportunities (i.e., business flexibility) can help organizations to take advantage in being the first in bringing a new product/service to the market (Pavlou & El Sawy, 2006; Benitez et al., 2018a). In summary, social media can provide the organization with a vast amount of information and the organization's ability to search and process that information with dynamic capabilities (i.e., market orientation, coordination capability, absorptive

capacity, collective mind, business flexibility) may be crucial to develop new products that address customers' expectations and leverage employee's input. Accordingly, we propose that dynamic capabilities are required as mediating processes to transform the use of social media into better NPD performance.

Organizations such as Starbucks, Nestle, IBM, Dell (Dong & Wu, 2015), Microsoft, Ducati (Nambisan & Baron, 2009), Heineken (Lee & Van Dolen, 2015), and Danone (Beyersdorfer et al., 2011) have successfully managed creative ideas provided by employees and customers through social media. Nestle is an excellent example of using enterprise social media to capture ideas from its employees. The organization created the enterprise social media "Ideas4all" as a way to motivate employees to participate in the innovation process. In less than four years, 3,500 new ideas were generated from which 350 were considered for implementation, and 80 were finally introduced. In the spirit of customer co-creation, Ducati established the social media platform "Tech Cafe" to obtain technical knowledge and generate new ideas (e.g., mechanical and technical designs) from its customers (Nambisan & Baron, 2009). Microsoft obtained substantial product improvements due to customers' suggestions on its social media. Many of the ideas for Microsoft PowerPoint2000 tools were originated in customer discussion forums (Nambisan & Baron, 2009). These practical examples demonstrate the ability of organizations to leverage social media to improve their NPD performance.

Despite the high reach of popularity of social media in organizations in the real world, empirical studies explaining

their business benefits are scarce. Prior Information Systems (IS) research have focused in exploring the effect of firm-generated content and user-generated content on user's quality perceptions or satisfaction (Hildebrand et al., 2013) and on user's behavior to repurchase or word-of-mouth intentions to recommend to others (Goh et al., 2013). However, despite the potential of using online communities for open innovation activities (Leonardi, 2014), there is very limited understanding on the effect of social media on the innovation process. To the best of our knowledge, none study has explored the internal processes that should be developed to properly manage the information obtained through social media to facilitate NPD performance at organizational level.

Pavlou and El Sawy (2006) empirically explained the effect of IT leveraging competence on NPD performance through the mediating effects of dynamic capabilities. Extending this work, we conceptualize *social media capability* as the firm's proficiency in leveraging internal and external social media to support NPD activities, and examine its role in NPD performance taking into account the mediating role of a proposed set of dynamic capabilities (i.e., the ability to reconfigure resources in response to rapid changes in the business environment).

We explore the mediating effect of dynamic capabilities, as essential capabilities needed to reconfigure the knowledge obtained through social media to transform knowledge into innovation. We specifically consider the dynamic capabilities of market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility. Market orientation refers

to the organization's ability to understand the market and respond to customers' expectations. Coordination capability refers to the organization's ability to allocate resources, assign task and synchronize employees to effectively work together. Absorptive capacity is the organization's ability to acquire, assimilate, transform, and exploit internal and external knowledge into the organization. Collective mind refers to the organization's ability to integrate thoughts talking the same "language". Business flexibility refers to the organization's ability to rapidly change the operational processes, organizational structure, and strategies to sense business opportunities and serve customers' requirement (Benitez et al., 2018a). This study will try to answer the following research question: How does social media capability influence NPD performance?

The central thesis of the study is that organizations can leverage social media to increase NPD performance by developing dynamic capabilities. First, social media capability facilitates the co-creation of knowledge with employees and customers, which in turn enables the development of dynamic capabilities (market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility). Second, dynamic capabilities transform knowledge into innovation to improve NPD performance. The research model was tested by performing a partial least squares (PLS) path modeling with a combination of survey and secondary data from a sample of 151 large firms. Results show that social media capability improves NPD performance. This relationship is mediated by dynamic capabilities.

This study has several contributions to the IS research. First, this research conceptualizes, measures, and tests a novel construct called *social media capability*. Second, this paper also contributes to literature on IT strategy and business value of IT by theoretically explaining and empirically demonstrating the business value of social media capability on NPD performance.

4.2. Theoretical background

4.2.1. NPD performance in the IT context

Prior IS literature emphasizes the role of collaborative IT tools in the NPD process. For example, Bala et al. (2017) study the effect that several collaboration technologies have in developing a collaboration capability and enhancing collaboration satisfaction in a NPD process. Reid et al. (2016) examine how the use of IT collaborative resources improves the pre-development stage performance and NPD team collaboration. Other studies focused on the effect of IT usage on innovation performance (Blazevic & Lievens, 2008; Kleis et al., 2012). Special focus placed on transparency and knowledge sharing obtained by using IT resources. For example, Blazevic and Lievens (2008) theoretically investigated how companies use different electronic interaction channels to co-produce knowledge with customers for innovation tasks. In general, the literature has concluded that the collaborative use of IT tools has a positive role in the NPD process.

Studies on IT capabilities and NPD performance mainly describe the need of some processes (e.g., knowledge management) (Chen et al., 2015) or dynamic capabilities (e.g., market orientation, absorptive capacity) (Pavlou & El Sawy, 2006; Joshi et al., 2010) mediating the relationship between IT capabilities and NPD performance. For example, Joshi et al. (2010) focus on potential and realized absorptive capacity to study the role of IT on innovation, and they find that knowledge capabilities enabled by IT improve innovation. Overall, prior literature generally specifies the mediating processes or capabilities that underlie the impact of IT on organizational performance with dynamic capabilities being the most common mediator.

4.2.2. Dynamic capabilities

Dynamic capabilities are seen as powerful capabilities to create business value (Grant, 1996). They refer to the organization's ability to reconfigure resources in response to rapid changes in the environment (Teece, 2007). Many studies in IS research have demonstrated the role of dynamic capabilities in the creation of business value. Other IS studies examined the effect of dynamic capabilities on NPD performance. For example, Pavlou and El Sawy (2006) studied the role of IT leveraging competence on NPD performance through the mediating effects of dynamic capabilities. In sum, prior IS literature on the IT-enabled organizational capabilities perspective has shown dynamic capabilities as a typical mediating mechanism in the role of IT in facilitating organizational performance.

4.2.3. Business value of social media

Business value of social media refers to the extent to which organizations can obtain firm value from the use of social media such as enterprise and external social media platforms (Melville et al., 2004; Dong & Wu, 2015). The usage of enterprise and external social media by organizations is a new phenomenon and the theoretical and empirical understanding of business value of social media is in initial stages (Lam et al., 2016; Benitez et al., 2018b). The majority of past research has focused on the role of external social media in marketing activities. Prior IS research has focused in exploring the effect of firm-generated content and user-generated content on user's quality perceptions or satisfaction (Hildebrand et al., 2013) and on user's behavior to repurchase or word-of-mouth intentions to recommend to others (Goh et al., 2013). Although recent IS managerial literature focuses on the organization's usage of social media to create business value by developing organizational capabilities (e.g., agility, coordination) (Kiron, 2012; Kane, 2015), prior IS academic research has failed in examining dynamic capabilities as the pathways through which social media can create business value (Wagner & Wagner, 2013). An exemption is the Dong and Wu's (2015) work that examines the business value of online communities by testing the effect of two dynamic capabilities enabled by online communities (ideation capability and implementation capability).

Social media can be especially critical in innovation. Some conceptual and case studies highlight the importance of using online communities for open innovation (Leonardi, 2014; Mount

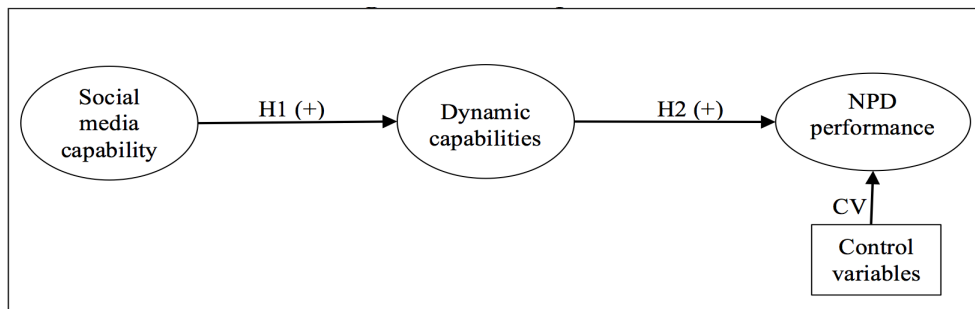
& Garcia, 2014). For example, Jarvenpaa and Tuunainen (2013) show the case study of Finnair, a Finland's national airline, and how it utilizes social media tools to engage customers in the open co-creation process. Some recent literature argues that simply entering in the social media platform does not involve customers to contribute with innovative ideas (Goh et al., 2013). A social media strategy and some ability to manage and exploit content are needed to properly create knowledge from social media (Culnan et al., 2010). Building on this emerging literature, we seek to propose the construct of social media capability as an IT capability that is likely to facilitate NPD performance through dynamic capabilities.

4.3. Research model and hypotheses development

IT-enabled capabilities perspective is an emerging perspective in IS research on business value of IT that suggests that IT indirectly influence organizational performance by developing organizational capabilities. This body of literature advocates that IT capabilities need some other internal intermediate processes or capabilities to enhance organizational performance. Examples of these intermediate organizational capabilities include business flexibility, absorptive capacity, entrepreneurial culture, or proactive management (Tanriverdi, 2005; Rai et al., 2006; Mithas et al., 2011; Benitez & Walczuch, 2012; Benitez et al., 2018a). Social media capability is theorized as a type of IT capability of the organization. Extending the IT-enabled capabilities perspective to the social media context, we propose that social media capability indirectly

affects NPD performance by developing dynamic capabilities. Although social media can enable collaboration and bring a great number of ideas, this new knowledge does not directly influence organizational performance. Social media capability existence does not merely guarantee NPD success. Our study proposes an indirect impact of social media capability on NPD performance through the development of the following dynamic capabilities: market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility). Figure 4.1. shows the conceptual model.

Figure 4.1. Conceptual model



4.3.1. Conceptualization of the key constructs

4.3.1.1. Social media capability

Recent studies (e.g., Kiron et al., 2012) show social media as business tools, and not only as marketing applications. Social media are considered as mechanisms for the entire organization and all its business functions and daily decision-making, moving

beyond strictly marketing practices (Kiron et al., 2013; Kane et al., 2014a). Social media tools can be especially critical for innovation by serving as interactive channels where employees and customers provide innovative knowledge.

However, simply launching a social media site does not readily drive users to participate with innovative ideas (Jarvenpaa & Tuunainen, 2013). Organizations should develop the expertise and learning to leverage enterprise and external social media, which suggests that the proficiency in using and leveraging social media is heterogeneous among organizations. In this sense and based on the literature of IT capabilities, this study introduces and theorize *social media capability* as an IT capability that refers to the organization's proficiency to use and leverage internal (enterprise social media platforms such as Microsoft Yammer) and/or external social media platforms (e.g., Facebook, Twitter, LinkedIn, YouTube) to execute business activities. Internal social media platforms are created by the organization and restricted to the employees use, while external social media platforms are public sites to interchange information with external stakeholders, such as customers. Specifically, we rely upon the social media literature to conceptualize the construct social media capability as the means to leverage social media to improve NPD performance.

Recent managerial literature on social media (Culnan et al., 2010; Kane et al., 2014a, 2014b) highlights social media mindful adoption as one of the key ingredients to develop a proficiency in using social media. Social media mindful adoption refers to carefully thinking the best social media to adopt, the right moment

and the best way to implement them. In this regard, based on this prior literature (Culnan et al., 2010; Kane et al., 2014a, 2014b), interviews with six social media executives, and suggestions provided by the Spanish Association of Community Managers and Social Media Professionals (in short, AERCO-PSM)², we conceptualize the construct of *social media capability* as composed of three key ingredients / dimensions: social media mindful planning, social media management, and social media exploitation. Social media mindful planning refers to the organization's ability to carefully design the social media strategy of the organization, that is, selecting the social media platform to adopt and deciding the goals of the social media adoption (Culnan et al., 2010). Social media management refers to the organization's ability to purposely manage the content created and provided on the social media (e.g., providing and monitoring relevant, timely, and accurate content in enterprise and external social media). Social media exploitation refers to the organization's ability to exploit social media data to achieve the firm's goals (e.g., supporting daily decision-making, or getting new ideas to innovate). Table 4.1 provides the definitions of the key constructs of this study.

4.3.1.2. *Dynamic capabilities*

Dynamic capabilities refer to the firm's proficiency in integrating and reconfiguring resources (e.g., knowledge) in response to rapid changes in the business environment (Teece, 2007). This study focuses on five critical dynamic capabilities for NPD:

² AERCO-PSM is the major managerial association of social media executives and community managers of Spain, the country where the study has been performed.

market orientation, coordination capability, absorptive capacity, collective mind, (Pavlou & El Sawy, 2006; Pavlou & El Sawy, 2011) and business flexibility (Benitez et al., 2018a), as defined in Table 4.1.

4.3.1.3. NPD performance

NPD performance refers to the outcomes of the process of making changes on existing products and/or developing new ones. It is the overall value creation achieved or obtained in the NPD process (Pavlou & El Sawy, 2006; Fang et al., 2008). NPD process consists in bringing a new product to the market from the idea generation to the product launch (Kim & Atuahene, 2010).

Table 4.1. Definitions of key constructs

Construct	Definition	Dimensions	Informing source
Social media capability	Organization's ability in leveraging internal and/or external social media platforms to execute business activities	<p><i>Social media mindful planning:</i> ability to carefully design and plan the social media strategy of the organization</p> <p><i>Social media management:</i> organization's ability to purposely manage the content created on the social media</p> <p><i>Social media exploitation:</i> organization's ability to exploit social media data to achieve the firm's goals</p>	Culnan et al. (2010), Kane et al. (2014a, 2014b)
Dynamic capabilities	Organization's proficiency in integrating and reconfiguring resources in response to rapid changes in the business environment	<p><i>Market orientation:</i> organization's ability to envision and respond to market by proposing products and processes that fit customer needs</p> <p><i>Coordination capability:</i> organization's ability to allocate resources, assign tasks and synchronize employees to effectively work together.</p> <p><i>Absorptive capacity:</i> ability to acquire, assimilate, transform, and exploit internal and external knowledge into the organization</p> <p><i>Collective mind:</i> organization's ability to integrate the thoughts and interaction patterns of multiple individuals</p> <p><i>Business flexibility:</i> organization's ability to rapidly change the operational processes, organizational structure, and strategies to sense business opportunities and serve customer requirement</p>	Pavlou and El Sawy (2006), Teece (2007), Benitez et al. (2018a)
NPD performance	Outcomes of the process of making changes on existing products and/or developing new ones	Extent to which the product meets customer needs, and achieves sales, market share, profit margin, and return on assets objectives during the first 24 months of its life in the market	Pavlou and El Sawy (2006), Fang et al. (2008), Kim and Atuahene (2010)

4.3.2. Social media capability and dynamic capabilities

Social media capability may facilitate the internal and external social co-creation process, which in turn may enable dynamic capabilities. On the one hand, enterprise social media facilitate the exchange of information among employees, enhancing the interaction and cooperation of cross-functional teams (Huy & Shipilov, 2012). On the other hand, organizations can leverage external social media to benefit from customers' inputs (Mahr & Lievens, 2012). Customers can express opinions or ideas about existing or future products, thus contributing to the creation of new knowledge. Employees and customers provide knowledge, which can help the organization to improve its capabilities. The manner in which the organization handles and leverages knowledge and expertise from employees and customers is key to create NPD value. We thus expect social media capability to facilitate an improvement into a set of the organization's dynamic capabilities: market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility, as we explain below.

4.3.2.1. Social media capability and market orientation

Social media are tools for collaboration that help the organization to rapidly connect and interact with employees and customers (Kiron, 2012). In this regard, social media enable the organization to deploy a bidirectional relationship with employees and customers. The organization's proficiency in planning, managing, and exploiting social media content stimulate discussion and

dialog with users, hence improving their participation and interrelatedness in the value creation (Aggarwal et al., 2012; Rishika et al., 2013). Customers can collaborate with their opinions helping the organization to better understand the market (what and when the customer wants the product to be), which facilitates market orientation capability (Li et al., 2014). Better insights on customers' needs can help firms to understand the market, making possible to provide suitable services fitting the organization's offer with their expectations. Overall, social media capability may increase market orientation, as the more knowledge external members co-produce, the more and the quicker the organization learns about their current and future expectations (Blazevic & Lievens, 2008; Gnyawali et al., 2010).

4.3.2.2. Social media capability and coordination capability

Social media platforms facilitate the exchange of information among employees, enhancing the interaction and cooperation of cross-functional teams to work together (Huy & Shipilov, 2012). Organizations that enhance interactions on their social media platforms are more able to coordinate their activities. Information provided by employees and customers can help to properly coordinate activities, which enable the development of the coordination capability. Employees can provide information and suggestions about how to improve internal business processes of the organization. This internal cooperation tends to better understand the process, thus enhancing coordination efficiency (e.g., reducing transaction costs of inter-organizational

collaborations). For example, Siemens uses an enterprise social media called Technoweb and the collaborative knowledge created on the social media helps in solving daily operational problems. Technoweb facilitates real-time information exchange to find hidden knowledge. Therefore, work time is saved and problems are solved in a faster and more efficient way thanks to the employees' collaboration and shared knowledge among experts on this enterprise social media (Lakhani et al., 2015). Overall, information sharing can help organizations to coordinate in a more cooperative and effective way.

4.3.2.3. Social media capability and absorptive capacity

Social media capability may enable the development of an absorptive capacity. Social media are the ideal enterprise and external platforms to capture internal and external knowledge (Benitez et al., 2018b). The greater the number of knowledge opportunities, the greater the chances of absorbing new useful knowledge. First, analyzing relevant and timely knowledge on social media (i.e., social media management) can make the organization more able in acquiring new product concepts. Second, using social media as a source of big data (i.e., social media exploitation) can help to better assimilate and interpret knowledge. Third, exploiting social media data to get new ideas (i.e., social media exploitation) can generate a new thinking and transforming knowledge. Finally, using social media data to give new business solutions can lead to exploit new or existing

knowledge (Benitez et al., 2018b). In summary, social media capability can facilitate absorptive capacity.

4.3.2.4. Social media capability and collective mind

Social media capability may lead to collective mind. Organizations may leverage information provided by employees and customers in social media to collectively manage tasks to adapt the internal business processes of the organization, which enables a collective mind. Social media can increase the relational phenomena creating a sense of community, conception of group, and a sense of commitment in the NPD process (Jarvenpaa & Tuunainen, 2013). Firm's proficiency in creating a useful and enjoyable environment on social media (i.e., social media management) promotes deeper relationships between the members of the community, making them more willing to interact and collaborate in the community (Kane et al., 2009; Seol et al., 2016). Enterprise and external social media are collaborative technologies that enable work and develop a collective spirit among the employees. In sum, it is plausible to expect that the unique experience of information sharing enabled by social media can help members of the organization to collectively manage tasks (Fang et al., 2008).

4.3.2.5. Social media capability and business flexibility

Social media capability may increase business flexibility. Enterprise and external social media are agile platforms that enable a faster,

timelier, and flexible real-time information among employees, and between the organization and customers, which may facilitate the rapid change of operational processes (operational flexibility) and business strategies (strategic flexibility) to sense and seize new business opportunities (Blazevic & Lievens, 2008; Lee & Van Dolen, 2015). Additionally, enterprise social media empower employees and enable the agile communication among employees to facilitate the change of organizational structures and communication processes, thus increasing structural flexibility (Benitez et al., 2018a). For example, Danone's capability in using enterprise social media (called Dan 2.0) empowered the organization's members beyond their job tasks. Dan 2.0 was an interactive channel through which Danone's employees can communicate in an agile way. When trying to launch a breakfast biscuits marketing campaign in Finland, LU France and LU Norway employees forewarned Danone about the fact that Finns did not eat biscuits for breakfast. This valuable knowledge made Danone succeed by shifting the breakfast biscuits marketing campaign to a mid-morning snack based on the knowledge exchange among employees in Dan 2.0 (Beyersdorfer et al., 2011). This real world example illustrates the role of enterprise social media platforms in increasing business flexibility.

Taken together, social media capability offers the organization with information about the market and the organization's internal functioning. This information can help to understand better the market, and can be shared across the organization's functional areas, making possible a proper synchronization and collective

managing of the organization tasks. At the time new learning can be performed and innovative opportunities can be quickly sensed and seized. To sum up, planning, management, and exploitation of enterprise and external social media enable the firm to co-create knowledge with employees and customer to learn, better understand, coordinate the firm, and respond to the customer new product expectations, thus developing organization's dynamic capabilities. We therefore hypothesize that:

***Hypothesis 1 (H1):** There is a positive relationship between social media capability and dynamic capabilities.*

4.3.3. Dynamic capabilities and NPD performance

Dynamic capabilities may increase NPD performance. An internal management of knowledge, by envisioning customer needs, coordinating tasks, acquiring, assimilating, transforming, exploiting knowledge, integrating thoughts, and quickly responding to business opportunities, can help the organization to better succeed in the NPD process. Then, the organization's proficiency in developing market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility can enhance NPD performance, as elaborated in detail below.

4.3.3.1. Market orientation and NPD performance

Knowing customer preferences is a prerequisite for successful NPD. Then, if the organization has the ability to invoice customer needs, then, it will succeed in developing products. Market orientation helps the firm to propose and design a product that fit customer needs (Pavlou & El Sawy, 2006). The organization's proficiency in designing products that satisfy customers and better fit their needs can positively influence the outcomes of the NPD process (e.g., increasing the rate of sales of the new product, having superior customer preferences comparing to competitors' products).

4.3.3.2. Coordination capability and NPD performance

The ability to manage work units and dependencies among resources helps to implement new ways of doing things (Pavlou & El Sawy, 2006). The appropriate synchronization among the employees' tasks and resources can help the organization to better control the development costs (Fang et al., 2008). In addition, matching tasks ensures a timely new product launch and the adequate allocation of resources may induce a more effective and efficient way to solve problems, this enhancing NPD performance.

4.3.3.3. Absorptive capacity and NPD performance

A process of learning is essential in building NPD performance (Pavlou & El Sawy, 2006). We use the organizational learning

framework to explain the process of learning in NPD. Organizational learning refers to the process of learning consisting in four sub-processes: (1) creating new knowledge; (2) explaining and codifying the new knowledge; (3) sharing and transferring the new knowledge; and (4) embedding the knowledge through rules, procedures, and forms (March, 1991; Crossan & Berdrow, 2003). Absorptive capacity helps the organization to acquire (by creating), assimilate (by explaining), transform (by sharing), and exploit (by implanting) existing/new knowledge to generate/learn new product concepts. Organizations that monitor knowledge (e.g., recognizing and exploiting knowledge) are capable to take advantage of it (Culnan et al., 2010). For example, organizations that learn faster (i.e., superior absorptive capacity) can design and build new products before competitors. Then, organizations that are able to acquire, assimilate, transform, and exploit existing and new knowledge are more likely to easily improve NPD performance (Pavlou & El Sawy, 2006).

4.3.3.4. Collective mind and NPD performance

The ability to integrate thoughts and interaction patterns provides a collective understanding among employees, which can enhance the NPD process. Knowing the knowledge possessed by others (i.e., collective mind) can ensure timely product design and launch. Having the ability to speak in the same “language” may reduce communication errors during the NPD process, hence enabling the product’s speed to the market (Fang et al., 2008).

4.3.3.5. *Business flexibility and NPD performance*

The organization's ability to rapidly change the operational processes, organizational structure, and strategies to sense business opportunities and serve customer requirement may increase NPD performance. The organization's flexibility in managing operational processes (e.g., managing upstream and downstream supply chain partners) increases the probability to sense new supply chain innovations (Benitez et al., 2018a). Similarly, a flexible structure empowers employees on their task performance, which facilitates more creative thinking and new ideas development to increase NPD performance (Roberts & Grover, 2012). Finally, the ability to rapidly change strategies can help in taking advantage of new opportunities (Benitez et al., 2018a). Being able to quickly sense and seize opportunities allows the organization to take advantage against competitors to bring new products to market, thus enhancing NPD performance (Tallon & Pinsonneault, 2011).

In sum, dynamic capabilities may transform social media-enabled knowledge into innovation to improve NPD performance. Therefore, we hypothesize that:

Hypothesis 2 (H2): *There is a positive relationship between dynamic capabilities and NPD performance. Table 4.2 summarizes the proposed hypotheses.*

Table 4.2. Process description

Process	Motivation	First step	Second step	Main arguments
H1: From social media capability to dynamic capabilities	Proficiency in managing social media platforms helps to capture new knowledge from employees and customers. However, some internal capabilities are needed to convert this knowledge into innovation	Firms design a social media strategy, manage, and exploit content on social media to co-create knowledge with employees	Knowledge created in the prior step is managed and integrated into the firm	<p>Proficiency in designing the social media strategy, managing content, and exploiting social media data facilitates co-creation with employees and customers, which in turn enables:</p> <ul style="list-style-type: none"> - Better understanding of the market (i.e., market orientation) - Synchronization of tasks (i.e., coordination capability) - Learning of new things (i.e., absorptive capacity) - Collective understanding (i.e., collective mind) - Flexibility in changing the organization's operational processes, structure, and strategies (i.e., business flexibility)
H2: From dynamic capabilities to NPD performance	Firms integrate and manage knowledge by a set of dynamic capabilities (i.e., market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility) to create NPD value	Knowledge created is managed and integrated into the firm	Business value is created in a NPD context. New products are created and existing products are improved	<p>Dynamic capabilities help the organization to convert social media-enabled knowledge into innovation, as follows:</p> <ul style="list-style-type: none"> - Market understanding helps to fit customers' expectations with suitable products - Synchronization tasks help to better control the development costs - Knowledge acquisition, assimilation, transformation and exploitation help to generate new solutions - Collective knowledge reduces communication errors, ensuring timely product launch - Faster operational, structural, and strategy transformation help to timely bring products to market

4.4. Research methodology

4.4.1. *Sample and data*

Since no public dataset offers all the information needed to address our research question, we conducted a survey. The survey instrument was developed following the guidelines provided in prior research (Pavlou & El Sawy, 2006). We pre-tested the questionnaire with seven IT/business executives. Additionally, we performed a Q-sorting test with four Ph.D. students knowledgeable of the research topic. The sorters correctly classified 63.43% of the items in the intended dimensions, which suggests a high level of agreement and acceptable construct validity (Moore & Benbasat, 1991). Prior to the survey administration, we performed a selection of industries that were highly active in running NPD projects (Pavlou & El Sawy, 2006) and that usually invest in IT and social media (Kane et al., 2014a), which included the following industries: consumer goods, manufacturing, automotive, entertainment, chemical, information and communications, healthcare services, education, and professional services. In this regard, we selected a list of the 1826 most admired large firms in Spain in the 2015 Actualidad Economica database (<http://www.actualidadeconomica.com/>) pertaining to the selected industries. Actualidad Economica is a Spanish business magazine that annually compiles and publishes organizational data for the most admired organizations in Spain (Benitez et al., 2018a). We focused on the Spanish market because the degree of maturity and the raise of awareness of social media usage for Spanish firms in the

last few years. An executive report elaborated by CB Consulting highlights that 76.7% of Spanish firms use social media for business activities in 2014. This percentage was expected to increase until 90.4% to the end of 2017.

We outsourced the survey administration to a well-established consulting vendor with a high degree of expertise administering questionnaires in Spain, and we provided the list of 1826 organizations to the vendor. The consulting vendor dedicated two workers from Tuesday to Thursday mornings during 20 days to contact organizations by phone. Each worker dedicated four hours per day, and the duration of the survey was about 16 minutes on average. The vendor was able to contact with a top executive of 934 organizations from which they received 151 valid questionnaires from the 5th of April 2016 to the 18th of May 2016, giving an effective response rate of 16.167%. In this regard, the sample of this study is composed by 151 organizations that come from seven industries: 47 firms (31.130%) operated in the consumer goods, 32 (21.190%) in manufacturing sectors, 21 (13.910%) in automotive industries, 19 (12.580%) in entertainment, 13 (8.610%) in chemical, 11 (7.280%) in information and communications, and the rest (eight firms, 5.300%) in other industries (i.e., healthcare services, education, and professional services). On average, the total revenues of the sample organizations in 2016 were 121.080 million Euros, and they had about 677 employees.

We employed one key knowledgeable informant per firm to answer the questions included in the questionnaire (Table 4.A1 in the appendix). Questionnaires were completed by senior

marketing executives (Chief Marketing Officer, Marketing Vice President, Marketing Manager, Community Manager) (50.330%), IT executives (Chief Information Officer, IT Vice President, IT Manager) (23.180%), and other business executives (NPD Executive, Chief Executive Officer, Operations Vice President, Corporate Development Officer, Human Resource Manager) (26.500%). We also asked the key informants for a self-evaluation of their degree of expertise and competence in answering the survey. The item “How knowledgeable did you feel in answering all the questions included in this questionnaire?” (1: Very low, 5: Very high) was included at the end of the questionnaire (Tanriverdi, 2005). The average value for this item was 3.830 (S.D.: 0.810), which suggests that the key informants had a high level of competence to answer the questions included in the survey.

Previously to perform the empirical analysis, we checked the minimum sample size required to test the research model. Assuming an anticipated medium effect size, a statistical power level of 0.800, an alpha of 0.05, and nine predictors (i.e., number of items of absorptive capacity construct), the minimum required sample size for our sample was 113 (Cohen, 1988). The final sample size was 151 organizations, which suggests an acceptable sample size to test the statistical significance of the relationships included in the research model.

We used survey data to measure social media capability, dynamic capabilities, NPD performance, organization age (control variable), IT investment (control variable), and innovation investment (control variable). Organization size (control variable),

and industry (control variable) are measured with information collected from the Actualidad Economica database in December 2015.

4.4.2. Measures

4.4.2.1. Social media capability

We conceptualize and introduce the construct *social media capability*. As prior IS research has not provided a prior scale to measure this construct, social media capability is a newly developed scale. Based on prior literature (Culnan et al., 2010; Kane et al., 2014a, 2014b), interviews with six social media executives, and suggestions provided by AERCO-PSM, we conceptualize the construct social media capability as a second-order construct determined by three first-order constructs: social media mindful planning, social media management, and social media exploitation. The three dimensions were specified as composite at first-order level.

4.4.2.2. Dynamic capabilities

Dynamic capabilities is a second-order composite construct determined by a set of capabilities: market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility. We adopted the scales from Pavlou and El Sawy (2006) to measure market orientation, coordination capability, and collective mind, with four items each, and absorptive capacity

with nine items. Business flexibility was measured with eight items by adapting the composite scales previously validated by Benitez et al. (2018a). These dynamic capabilities were specified as composite at first-order level.

4.4.2.3. NPD performance

NPD performance is a first-order composite construct measured with five composite items by adopting the scales from Pavlou and El Sawy (2006), and Kim and Atuahene (2010).

4.4.2.4. Control variables

Organization size, industry, organization age, IT investment, and innovation investment were included as control variables on NPD performance. Differences in NPD performance can be attributed to differences in the quantity of resources that are available. Thus we controlled by organization size on NPD performance by measuring organization size through the natural logarithm of the number of employees in 2016 with information collected from Actualidad Economica database (Mithas et al., 2011; Benitez & Walczuch, 2012). Inter-industry differences can make some industries more favorable than others towards NPD. We thus controlled for industry on NPD performance by measuring industry as a composite construct as follows. We classified industries in seven groups, determining the dominant group (i.e., the most important industry) as the group of reference (Benitez

et al., 2017). The group of reference was consumer goods. Then, we created for each observation six dummy indicators (industry group *i*) giving the value 0 if it does not pertain to this industry, and 1 if it does. Finally, industry was computed as a first-order composite construct composed by six indicators (i.e., six groups of industries), thus yielding a construct with equidistant measures (Henseler et al., 2016).

As the degree of experience can also affect NPD performance, we controlled by organization age through the natural logarithm of the number of years the organization has been in the market in April-May 2016 (Mithas et al., 2011; Benitez et al., 2018b). We included a single-item question on the number of years the organization has been in the market in the questionnaire. The organization's investment in IT and innovation initiatives can also affect NPD performance. Finally, we controlled for IT investment and innovation investment by asking the key informant the degree of annual IT and innovation investment on total turnover in their firm (1: Very low, 5: Very high).

4.5. Empirical analysis

The research model was empirically tested with PLS path modeling. PLS is an appropriate method of estimation in this research for the following reasons: (1) PLS is full-fledged structural equation modeling technique that can test for exact model fit (Henseler et al., 2016; Benitez et al., 2017); (2) PLS is particularly useful for models that contain multidimensional constructs, as the research

model (Hair et al., 2012); (3) PLS is an optimal method to estimate composite models (as our research model) (Henseler et al., 2014, 2016; Rigdon et al., 2014); and (4) PLS is suitable when using newly developed scales (i.e., social media capability) (Tiwana & Konsynski, 2010). We used the statistical software Advanced Analysis for Composites (ADANCO) 2.0.1 Professional (<http://www.composite-modeling.com/>) to estimate the measurement and structural model (Henseler & Dijkstra, 2015). We performed the bootstrapping algorithm with 5000 subsamples to obtain the level of significance of weights and loadings for each item and dimension, and to get the level of significance of the path coefficients.

4.5.1. Confirmatory composite analysis

All of the constructs of the research model were specified as composite-formative (in short, composite). Composite construct is one type of formative measurement (Henseler, 2017) in which: (1) indicators are the ingredients or components of the construct; (2) correlations among indicators are probable but not required; (3) there is no measurement error; and (4) dropping an indicator may change the composite meaning. We used the correlation weights (mode A) to estimate the research model. Correlation weights is a weighting scheme that provides more stable results in presence of negative or non-significant indicator weights. This weighting scheme should be used when every construct is composite, and when previously tried regression weights (mode B) with negative

or non-significant indicator weights (Benitez et al., 2017), as in the research model.

We checked the external validity of our composite constructs by performing a confirmatory composite analysis (Henseler et al., 2014). This analysis checks the adequacy of the composite model by comparing the empirical correlation matrix and the model-implied correlation matrix (Benitez et al., 2018a). The confirmatory composite analysis is able to detect model misspecification (e.g., wrong assignment of indicators to constructs, wrong number of constructs) and provides an overall exact model fit for the measure structure at first- and second-order level by calculating the standardized root mean squared residual (SRMR), unweighted least squares discrepancy (d_{ULS}), and geodesic discrepancy (d_{G}). The SRMR provides a proxy for the discrepancy between the empirical correlation matrix and the model implied correlation matrix. A model shows a good measurement fit when the SRMR is below the threshold of 0.080. d_{ULS} and d_{G} values provide exact measures of the overall fit of the saturated model. The lower the d_{ULS} and d_{G} values are, the better the fit between the research model and the data (Benitez et al., 2017). Discrepancy values below the 99%-quantile of the bootstrap discrepancies indicate acceptable fit between the research model and the data (Henseler et al., 2014; Benitez et al., 2017). Table 4.3 shows results of the confirmatory composite analysis, which with 1% of probability gives support to the structure of composites at first- and second-order levels.

Table 4.3. Results of the confirmatory composite analysis

Discrepancy	First-order constructs			Second-order constructs		
	Value	HI ₉₉	Conclusion	Value	HI ₉₉	Conclusion
SRMR	0.062	0.067	Supported	0.057	0.060	Supported
d _{ULS}	5.283	6.187	Supported	0.179	0.195	Supported
d _G	2.289	3.873	Supported	0.046	0.071	Supported

4.5.2. Measurement model evaluation

Every construct in our model, at first-order and second-order level, was specified as composite. For composite constructs we should evaluate content validity, multi-collinearity, weights, loadings, and level of significance (Cenfetelli & Bassellier, 2009; Benitez et al., 2017).

First, we evaluated whether the items and dimensions of each construct contain the full domain of the construct (i.e., content validity). Content validity was ensured when wherever possible, using previously validated scales (Pavlou & El Sawy, 2006; Benitez et al., 2018a). This study also develops new scales for social media capability, which was pretested with seven IT/business executives and with four Ph.D. students. As reported above, we also checked the measure validity by performing a confirmatory composite analysis. Overall, content validity for the constructs employed in the study seemed guaranteed.

Then, we evaluated multi-collinearity, weights, loadings, and their level of significance. To avoid multi-collinearity problems, the indicator and dimension variance inflation factors (VIFs)

should be below 10 (Tanriverdi & Uysal, 2015; Benitez et al., 2017). VIFs values ranged from 1.055 to 4.373 at first-order level, and range from 1.424 to 2.320 at second-order level. Composite indicator and dimension should be retained when its weight is significant. In case the weight is not significant, then the indicator or dimension is retained if its loading is significant (Petter et al., 2007; Cenfetelli & Bassellier, 2009). Every first-order and second-order weights were significant at $p < 0.001$ level, except for one indicator of social media mindful planning (weight significant at $p < 0.05$ level), and business flexibility dimension (weight significant at $p < 0.01$ level). Loadings were also significant at $p < 0.001$ level, except for the same indicator of social media mindful planning (loading significant at $p < 0.10$ level). Table 4.A1 (in the Appendix) provides more details on the measurement model evaluation.

4.5.3. Structural model evaluation

4.5.3.1. Test of endogeneity and overall fit of the estimated model

Endogeneity between two variables may be generated by the omission of variables on the research model and by the existence of feedback loops (Benitez et al., 2018a). Since it may be debatable whether greater degree of development of dynamic capabilities is positively related to social media capability, we performed a test of endogeneity on the relationship between social media capability and dynamic capabilities. Using the organization's experience using social media as an instrumental variable of social media capability,

a Hausman test³ reveals that the relationship between social media capability and dynamic capabilities appears unaffected by endogeneity ($\chi^2 = 0.093287$, d.f. = 1, $p = 0.760$). Similarly, because it may be discussed that organizations with better NPD performance may have and invest more resources in developing their dynamic capabilities, we additionally performed a test of endogeneity on the relationship between dynamic capabilities and NPD performance. Using social co-creation as an instrumental variable of dynamic capabilities, a Hausman test reveals that the relationship between dynamic capabilities and NPD performance appears unaffected by endogeneity ($\chi^2 = 0.074133$, d.f. = 1, $p = 0.785$)⁴. These analyses indicate that omitted variables and reverse causality are not a problem in the relationships of the research model (Benitez et al., 2018a).

Our next step was to check for the overall model fit for the structural model by examining the SRMR, d_{ULS} , and d_{G} (Henseler et al., 2014; Benitez et al., 2017). The SRMR value for the estimated model is 0.073, and d_{ULS} and d_{G} values are below to the 99%-quantile of the bootstrap discrepancies, thus our research model should not be rejected based on the alpha level of 0.01. This result means that with a probability of 1%, the research model should be accepted and considered as reasonable theory on social media and NPD (Henseler et al., 2016; Benitez et al., 2017). The research model

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- 3 The Hausman test is well-established test to check if two variables are affected by endogeneity. The Hausman test is a comparison between the estimates obtained from ordinary least squares versus two stages least squares (2SLS) if the model is identical. The 2SLS estimation requires at least one instrumental variable to be included on the exogenous variable of the model (social media capability in the research model).
- 4 This test was performed on the second equation of the mediation model that includes a link between social media capability and NPD performance. The test was repeated excluding the link between social media capability and NPD performance and showed identical results ($\chi^2 = 0.0000058$, d.f. = 1, $p = 0.998$).

thus shows a good structural model fit (Henseler & Dijkstra, 2015). Table 4.4 presents the results of the base model and the base model with the direct effects (i.e., the mediation model), and Figure 4.2 shows the results of the structural analysis. After all the analyses, we can proceed with the test of hypotheses of the research model.

4.5.3.2. *Test of hypotheses*

We examined path coefficients and their level of significance, R^2 , and effect size (f^2) values. We considered two models: (1) the base model; and (2) the mediation model where we also included the direct effect of social media capability on NPD performance. We found support for both hypotheses H1 and H2, indicating that social media capability enables the development of the organization's dynamic capabilities (H1) ($\beta = 0.393$, $p_{\text{one-tailed}} < 0.001$), which in turn improves NPD performance (H2) ($\beta = 0.406$, $p_{\text{one-tailed}} < 0.001$). Regarding the control variables, there were no significant effect on any of the control variables on NPD performance. R^2 values are 0.154 for dynamic capabilities and 0.270 for NPD performance. Adjusted R^2 values are 0.149 for dynamic capabilities and 0.234 for NPD performance. Pavlou and El Sawy have explained R^2 values of 0.450 for dynamic capabilities and 0.600 for NPD performance, but adjusted R^2 values were not reported. In our study we are using a different dynamic capabilities portfolio and we are considering a revolutionary dependent variable (i.e., social media capability). Considering the novelty of our first dependent variable (i.e., social media capability) and the difference in the dynamic capabilities portfolio, we can assume that our theory explains a good value

of dynamic capabilities and NPD performance. The effect size analysis shows the relative size of including each relationship to the model. f^2 values of the hypothesized relationships are 0.182 and 0.173 respectively to H1 and H2, indicating medium-large effect size (Henseler & Fassott, 2010; Benitez et al., 2017).

Table 4.4. Structural model evaluation

Beta coefficient	Base model		Mediation Model	
Social media capability → Dynamic capabilities (H1)	0.388*** (5.667) [0.261, 0.530]		0.393*** (5.696) [0.264, 0.532]	
Dynamic capabilities → NPD performance (H2)	0.387*** (5.964) [0.252, 0.503]		0.406*** (6.124) [0.269, 0.529]	
Social media capability → NPD performance			-0.068 (0.821) [-0.226, 0.090]	
Control variables				
Organization size → NPD performance (control variable)	0.034 (0.525) [-0.096, 0.161]		0.046 (0.673) [-0.089, 0.177]	
Industry → NPD performance (control variable)	0.281 (0.899) [-0.444, 0.433]		0.288 (0.908) [-0.448, 0.440]	
Organization age → NPD performance (control variable)	-0.009 (0.142) [-0.127, 0.114]		-0.010 (0.167) [-0.129, 0.113]	
IT investment → NPD performance (control variable)	-0.023 (0.233) [-0.223, 0.174]		-0.010 (0.104) [-0.206, 0.183]	
Innovation investment → NPD performance (control variable)	0.025 (0.252) [-0.161, 0.218]		0.027 (0.274) [-0.162, 0.221]	
	R ²	Adjusted R ²	R ²	Adjusted R ²
Dynamic capabilities	0.151	0.145	0.154	0.149
NPD performance	0.267	0.236	0.270	0.234
SRMR value	0.073		0.073	
SRMR HI99	0.073		0.074	

d_{ULS} value	1.021	1.000
d_{ULS} HI99	1.020	1.027
d_G value	0.210	0.208
d_G HI99	0.252	0.252
f^2		
Social media capability → Dynamic capabilities (H1)	0.177	0.182
Dynamic capabilities → NPD performance (H2)	0.170	0.173

Note: t-values in parentheses. Bootstrapping 97.5% confidence interval bias corrected in square bracket (based on $n = 5000$ subsamples). $^{\dagger}p < 0.10$, $^*p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$ [based on $t(4999)$, one-tailed test]. $t(0.05, 4999) = 1.645$; $t(0.01, 4999) = 2.327$; $t(0.001, 4999) = 3.092$

4.5.3.3. Halo effects analysis

NPD performance perception can be influenced by prior performance. We performed a halo effects analysis to check the potential influence of prior performance on current NPD performance (Santhanam & Hartono, 2003). By doing so we controlled the construct NPD performance with prior performance built as a composite of RSE for 2013, RSE for 2014, and RSE for 2015. Results are similar to the results of our baseline model. There are no halo effect concerns in our analysis.

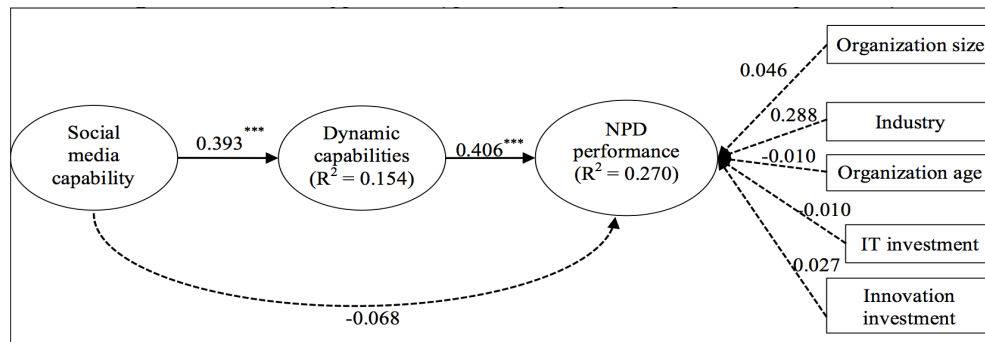
4.5.3.4. Mediation analysis

In order to analyze the mediator role of dynamic capabilities in the impact of social media capability on NPD performance, we evaluated the indirect effects involved in the research model. We added a link from social media capability to NPD performance

(in the model that we have called “the mediation model”). The indirect effect was significant ($\beta = 0.159$, $p_{\text{one-tailed}} < 0.001$), while the direct effect was not. These results indicate that dynamic capabilities indirect-only mediate the relationship between social media capability and NPD performance (Zhao et al., 2010). Table 4.5 provides details of the mediation analysis.

Figure 4.2. Results of the test of hypotheses

(† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$)



Note: Rectangular shapes refer to control variables

Table 4.5. Mediation analysis

	Direct effect	Indirect effect	Total effect
Social media capability → NPD performance	-0.068 (0.821) [-0.226, 0.090]	0.159*** (4.024) [0.091, 0.244]	0.092 (1.112) [-0.073, 0.256]

4.5.4. Common method variance

Although formative/composite measures are not compatible with common method variance (CMV) (Ronkko & Ylitalo, 2011), we have attempted to prevent CMV during the research design phase. Confidentiality and anonymity were guaranteed at the beginning of the survey. In addition, to reduce cause and effect, variables were not given in the hypothesized order, respondents couldn't go back to prior questions, and there were no tags to questions.

We also examined potential common method variance in three ways. First, the correlation matrix does not suggest high correlations between variables ($r > 0.90$) (Bagozzi et al., 1991; Pavlou & El Sawy, 2006). The highest correlation among principal construct is $r = 0.865$, though it pertains to the correlation between social media capability and one of its dimensions. Second, drawn from Kock and Lynn (2012), VIF values larger than 3.3 may alert about potential CMV. We tested a full collinearity test and concluded that the maximum VIF value in our model is 1.894 (Table 4.6). This result suggests that our model can be considered free of CMV (Kock & Lynn, 2012).

Table 4.6. Full collinearity VIFs

VIF values							
Social media capability	Dynamic capabilities	NPD performance	Organization size	Industry	Organization age	IT investment	Innovation investment
1.318	1.519	1.359	1.123	1.220	1.014	1.894	1.857

Third, we examined CMV by correlating our survey measure of NPD performance with a secondary measure of NPD performance. We followed Joshi et al.'s (2010) procedure to measure NPD performance as commercialized innovation. Joshi et al. considered commercialized innovation as bringing new ideas to the market through new product or service introductions. We draw from Joshi et al. and made a content analysis of news about new product and service introductions for the organizations of the sample in the period 2016-2017. First, we searched news in Spanish journals in the period 2016-2017 making use of "Mynews" database. "Mynews" is a private database created by My News, a Spanish company dedicated to tracking information from more than 700 national and international journals. To filter the news we searched by the name of the company and the keywords of: introduce, unveil, and launch. Then, we carefully read the news and coded the news that clearly show new product and service introductions by the organization. We measure commercialized innovation as the natural logarithm of the aggregated number of new products and services introduced in the period 2016-2017. We correlated NPD performance measured with survey data, and commercialized innovation measured with secondary data, and the correlation was 0.179^{**} , which gives additional credibility to our NPD performance perceptual measure.

4.6. Discussion and implications

4.6.1. Summary of key findings

Organizational survival depends on the organization's ability to continually innovate, being NPD one of the critical pathways organizations have to innovate and compete. As enterprise and external social media have emerged as a new and idiosyncratic type of IT that organizations can use to interact and co-create knowledge with employees and customers, this study examines the role of social media capability in NPD performance. This study introduces, and conceptualizes social media capability as the organization's ability in leveraging internal and/or external social media platforms to execute business activities, and measure it as a component of three key ingredients/dimensions: social media mindful planning, social media management, and social media exploitation. We find that social media capability improves NPD performance by helping organizations to develop a portfolio of dynamic capabilities composed by market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility.

We find a positive relationship between social media capability and dynamic capabilities (H1). Proficiency in designing the social media strategy, managing social media content, and exploiting social media data enables dynamic capabilities development. Ability in using social media allows: (1) rapidly connection and interaction with customers, which facilitates a

better understanding of the market (i.e., market orientation); (2) faster flow of information and exchange of information among employees, which enables synchronization of tasks (i.e., coordination capability); (3) opinions and new knowledge with employees and customers, which facilitates learning of new things (i.e., absorptive capacity); (4) the relational phenomena, which facilitates knowledge integration (i.e., collective mind); (5) and timelier real-time information, which helps in the operational, structural, and strategic transformation of the organization (i.e., business flexibility).

We also find a positive relationship between dynamic capabilities and NPD performance (H2). The organization's ability to manage and integrate knowledge through dynamic capabilities improves NPD performance as follows: (1) market understanding helps to fit customer's expectations with suitable products; (2) synchronization of tasks helps to save time in the NPD process; (3) knowledge acquisition, assimilation, transformation, and exploitation help to convert employee and customer knowledge in specific new product; (4) collective knowledge reduces communication errors, ensuring timely product launch; and (5) faster operational, structural, and strategy transformation help to timely bring products to the market. In summary, leveraging enterprise and external social media (i.e., social media capability) indirectly influences NPD performance by developing dynamic capabilities. Social media capability enables the organization to co-create knowledge with employees and customers to develop dynamic capabilities. Dynamic capabilities transform

this knowledge into actual product innovation to improve NPD performance.

4.6.2. Contributions to IS research

Empirical research examining the economic consequences of social media is scarce. One stream of research on social media and innovation has largely been limited to conceptual or case studies (Jarvenpaa & Tuunainen, 2013; Leonardi, 2014). Pavlou and El Sawy (2006) empirically explained the effect of IT leveraging competence on NPD performance through the mediating role of dynamic capabilities. We based on this study and extend its work by empirically examining the effect of social media capability (an IT capability) on NPD performance taking into account the mediating effects of a set of dynamic capabilities (i.e., market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility). This study contributes to the IS literature in two ways. First, this paper theoretically and empirically contextualizes the social media capability construct as a new IT capability. We rely on prior theoretical and case studies from social media and IS literature, and draw from Culnan et al. (2010) to build the novel concept of social media capability as a composite of three dimensions: social media mindful planning, social media management, and social media exploitation. We theorize social media capability as the firm's proficiency in leveraging internal and/or external social media platforms to execute business activities.

Second, this study makes a contribution by showing the effect of social media on business value. Social media is becoming relevant in the entire organization (i.e., beyond marketing purposes), and we contribute to the literature by explaining the economic consequences of leveraging social media. We rely on the IT-enabled organizational capabilities perspective to empirically demonstrate the joint effect of social media capability and dynamic capabilities on NPD performance. We contribute to the social media business literature by explaining how to leverage social media to enhance NPD performance by operationalizing a set of dynamic capabilities. In sum, this study theoretically and empirically conceptualizes the social media capability construct, and contributes to the IT business value literature by demonstrating the indirect effect of social media capability on NPD performance.

4.6.3. Limitations and future research lines

As business value of IT research has been traditionally focused in U.S. and U.K. organizations (Benitez et al., 2018a), and because Spain is a critical market of the European Union with a high volume of social media initiatives and NPD projects, this research was contextualized in large organizations in Spain. In this sense, the results should be generalized to large organizations in Spain. Future research should explore whether the support to our theory keeps in other markets of the European Union or Asia and whether this theory is supported in small firms. Additionally, future IS research would like to explore what kind of social media

platforms (i.e., internal or external) or social media features are more influential in NPD performance.

4.6.4. Implications for managers

Some useful lessons for managers are derived from this study. First, findings suggest that managers should go beyond the marketing effect of social media, and focus on developing a social media capability. Social media enable information and new knowledge creation; hence, being critical for internal firms' processes like innovation. Second, a social media capability should be developed (simply launching social media platforms is not enough). In addition, social media capability existence does not guarantee NPD success. Our study demonstrates that a proposed set of dynamic capabilities (market orientation, coordination capability, absorptive capacity, collective mind, and business flexibility) is needed to manage and integrate information and knowledge obtained by social media. Managers should then pay attention on how to leverage social media to properly manage internal capabilities of the firm. In this sense, managers should carefully design and plan the social media strategy, properly manage content created on the social media platform, and exploit social media data to achieve firm's goals.

4.7. Conclusion

In conclusion, this research conceptualizes social media capability as the firm's proficiency in leveraging internal and external social media to support NPD activities, and it examines its role in NPD performance. Using a fine-grained survey and secondary dataset from a sample of 151 large organizations in Spain, this study presents two mechanisms and pathways through which social media capability affects NPD performance: (1) social media enables the knowledge co-creation with employees and customers to develop dynamic capabilities; and (2) social media-enabled dynamic capabilities provides the knowledge-to-innovation transformation to improve NPD performance, and creates business value from technology.

APPENDIX CHAPTER 4

Table 4.A1. Measurement model evaluation

Construct/indicator: Except where otherwise indicated below, the possible range for measures was from 1 to 5 (1: Strongly disagree, 5: Strongly agree)	Mean	S.D.	VIF	Weight	Loading
Social media capability (second-order construct)					
Social media mindful planning (composite mode A)	3.841	1.345	2.187	0.376 ^{***}	0.866 ^{***}
We carefully select the social media platform(s) to adopt and how they should be used in the firm	4.407	0.991	1.905	0.275 ^{***}	0.812 ^{***}
We obtain senior management sponsorship to design our social media strategy	4.013	1.164	1.773	0.313 ^{***}	0.804 ^{***}
We train employees for managing risks related to social media activities before rolling out any new social media platform	3.701	1.202	1.446	0.330 ^{***}	0.759 ^{***}
My firm uses internal social media tools (i.e., enterprise social media)	3.053	1.607	1.055	0.108 [*]	0.159 [†]
My firm uses external social media tools (e.g., Facebook, Twitter, YouTube, LinkedIn)	4.033	1.297	1.573	0.336 ^{***}	0.768 ^{***}
Social media management (composite mode A)					
We provide relevant, timely, and accurate content in our social media	4.094	1.147	1.742	0.245 ^{***}	0.781 ^{***}
We award contributions from our community members	2.743	1.629	1.399	0.155 ^{***}	0.639 ^{***}
We have norms and policies on the social media usage	3.302	1.483	2.590	0.252 ^{***}	0.857 ^{***}
We assign responsibilities to employees / departments for managing social media	3.564	1.453	4.266	0.260 ^{***}	0.913 ^{***}
We achieve senior management sponsorship to execute the firm's social media strategy	3.628	1.269	3.473	0.286 ^{***}	0.897 ^{***}
Social media exploitation (composite mode A)					
We leverage social media as a source of big data from employees, customers, and suppliers	2.981	1.257	1.424	0.417 ^{***}	0.804 ^{***}
	2.486	1.270	1.943	0.102 ^{***}	0.649 ^{***}

Construct/indicator: Except where otherwise indicated below, the possible range for measures was from 1 to 5 (1: Strongly disagree, 5: Strongly agree)	Mean	S.D.	VIF	Weight	Loading
Social media tools support daily decision-making	2.700	1.320	2.995	0.151 ^{***}	0.820 ^{***}
We exploit social media data into many functional areas	2.689	1.223	2.937	0.140 ^{***}	0.822 ^{***}
We use social media to get new ideas and share knowledge	3.215	1.276	2.383	0.189 ^{***}	0.809 ^{***}
We use insights from social media data to improve our business strategy design and execution	3.169	1.209	3.446	0.169 ^{***}	0.873 ^{***}
We are effective in using social media to innovate	3.201	1.145	4.373	0.168 ^{***}	0.860 ^{***}
We are effective in using social media to improve operations	3.068	1.188	3.659	0.139 ^{***}	0.828 ^{***}
We constantly consider better ways to exploit social media data	3.315	1.180	3.792	0.163 ^{***}	0.825 ^{***}
Dynamic capabilities (second-order construct)					
Market orientation (composite mode A)	4.032	0.824	1.504	0.257 ^{***}	0.728 ^{***}
We frequently scan the environment to identify new business opportunities	4.048	0.822	2.107	0.345 ^{***}	0.867 ^{***}
We are quick to discuss changes in our customer product preferences	4.020	0.834	1.897	0.335 ^{***}	0.839 ^{***}
We spend considerable time reading trade/business publications and magazines	4.027	0.816	1.789	0.295 ^{***}	0.808 ^{***}
We are quick to respond to significant changes in our competitors' pricing structures	4.035	0.831	1.710	0.236 ^{***}	0.771 ^{***}
Coordination capability (composite mode A)					
We ensure that our work tasks (activities, designs, reports) fit together very well	4.000	0.717	2.510	0.289 ^{***}	0.872 ^{***}
We ensure that the output of our work is synchronized with the work of others	3.966	0.713	2.192	0.274 ^{***}	0.838 ^{***}
We ensure an appropriate allocation of resources (e.g., information, time, reports) within our group	3.960	0.667	2.654	0.306 ^{***}	0.884 ^{***}

Construct/indicator: Except where otherwise indicated below, the possible range for measures was from 1 to 5 (1: Strongly disagree, 5: Strongly agree)	Mean	S.D.	VIF	Weight	Loading
We ensure that there is compatibility between group members expertise and work processes	4.080	0.700	2.348	0.289 ^{***}	0.856 ^{***}
Absorptive capacity (composite mode A)	3.875	0.882	1.619	0.461 ^{***}	0.859 ^{***}
We are effective in developing new knowledge or insights that have the potential to influence new product development	3.799	1.121	1.365	0.105 ^{***}	0.531 ^{***}
We are able to identify and acquire internal (i.e., within the firm) and external (e.g., market) knowledge	4.020	0.955	1.723	0.148 ^{***}	0.685 ^{***}
We are successful in learning new things	4.167	0.862	1.747	0.145 ^{***}	0.717 ^{***}
We have adequate routines to analyze the information and knowledge obtained	3.797	0.873	3.106	0.157 ^{***}	0.757 ^{***}
We have adequate routines to assimilate new information and knowledge	3.777	0.823	3.152	0.167 ^{***}	0.784 ^{***}
We are effective in transforming existing information into new knowledge	3.762	0.789	4.020	0.168 ^{***}	0.821 ^{***}
We can successfully integrate the new information and knowledge acquired with our existing knowledge	3.755	0.824	4.202	0.180 ^{***}	0.837 ^{***}
We can successfully exploit the new integrated information and knowledge into concrete applications	3.788	0.821	1.684	0.147 ^{***}	0.666 ^{***}
We are effective in applying knowledge into new products	4.007	0.735	1.659	0.156 ^{***}	0.649 ^{***}
Collective mind (composite mode A)	3.850	0.811	2.320	0.216 ^{***}	0.792 ^{***}
We collectively manage our tasks to address occasional demands	3.905	0.788	1.773	0.281 ^{***}	0.800 ^{***}
We make our individual contributions available to the group	3.862	0.805	2.634	0.301 ^{***}	0.883 ^{***}
We have a global understanding of each other's tasks and responsibilities	3.748	0.905	2.404	0.290 ^{***}	0.860 ^{***}
We carefully inter-relate our procedures to each other to meet changing conditions	3.884	0.736	1.982	0.309 ^{***}	0.842 ^{***}

Construct/indicator: Except where otherwise indicated below, the possible range for measures was from 1 to 5 (1: Strongly disagree, 5: Strongly agree)	Mean	S.D.	VIF	Weight	Loading
Business flexibility (composite mode A)	3.744	0.951	1.483	0.156**	0.650***
We change the factors of production and operational processes to sense and seize business opportunities	3.894	0.741	1.345	0.213***	0.619***
Our firm uses temporary personnel to perform/ execute business activities	3.364	1.298	1.569	0.121**	0.552***
Our firm uses crash teams (teams that are developed quickly to solve an unexpected problem)	3.800	0.955	2.044	0.180**	0.751***
Our firm has an empowerment (more decision making authority for employees) culture	3.683	0.887	1.711	0.235**	0.750***
Our firm uses cross-functional teams	3.920	0.815	1.715	0.168**	0.701***
Our firm can increase with ease the variety of products for delivery	3.769	0.973	1.861	0.115***	0.663***
Our firm quickly changes current strategies with low costs	3.704	0.873	2.090	0.167***	0.716***
Our firm creates new product market combinations	3.811	0.880	2.213	0.217***	0.810***
NPD performance: Rate the extent to which the product has achieved the following outcomes during the first 24 months of its life in the market: (composite mode A)	4.103	0.672			
It was clearly superior to competitors in meeting customer's needs	4.068	0.688	1.329	0.256***	0.633***
Sales relative to objectives	4.150	0.643	2.673	0.244**	0.869***
Market share relative to objectives	4.081	0.708	2.460	0.211***	0.823***
Profit margin relative to objectives	4.121	0.694	4.104	0.251***	0.902***
Return on assets relative to objectives	4.098	0.633	3.497	0.261***	0.864***

Table 4.A2. Correlation matrix

	1	1.1	1.2	1.3	2	2.1	2.2	2.3	2.4	2.5	3	4	5	6	7	8
1.Social media capability	1															
1.1.Social media mindful planning	0.822***	1														
1.2.Social media management	0.832***	0.720***	1													
1.3.Social media exploitation	0.865***	0.503***	0.509***	1												
2.Dynamic capabilities	0.389***	0.270***	0.272***	0.397***	1											
2.1.Market orientation	0.272***	0.205***	0.199***	0.262***	0.739***	1										
2.2.Coordination capability	0.198**	0.177*	0.147*	0.175*	0.780***	0.499***	1									
2.3.Absorptive capacity	0.492***	0.355***	0.348***	0.493***	0.814***	0.461***	0.493***	1								
2.4.Collective mind	0.236*	0.148*	0.147*	0.262***	0.829***	0.485***	0.688***	0.520***	1							
2.5.Business flexibility	0.179*	0.044	0.125†	0.229**	0.658***	0.376***	0.376***	0.466***	0.513***	1						
3.NPD performance	0.143*	0.010	0.067	0.217**	0.431***	0.401***	0.234**	0.379***	0.299***	0.317***	1					
4.Organization size	0.230*	0.159*	0.176*	0.225**	0.118*	0.092	0.031	0.190*	0.069	-0.006	0.030	1				
5.Industry	0.127*	0.059	0.111*	0.134*	0.167*	0.186**	0.110*	0.120*	0.098	0.139*	0.340***	-0.175*	1			
6.Organization age	-0.030	-0.004	-0.023	-0.039	0.010	0.038	-0.026	0.063	-0.060	-0.005	-0.003	-0.014	0.006	1		
7.IT investment	0.342***	0.328***	0.195**	0.325***	0.333***	0.189**	0.268***	0.319***	0.341***	0.084	0.125*	0.182*	0.003	-0.039	1	
8.Innovation Investment	0.274***	0.266***	0.166*	0.251***	0.326***	0.238**	0.218**	0.302***	0.324***	0.098	0.120*	0.140*	-0.064	-0.101	0.659***	1

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CONCLUSIONES E IMPLICACIONES

5

5. CONCLUSIONES E IMPLICACIONES

Introducción

Teniendo en cuenta el objetivo general del estudio, en el presente capítulo se pretende dar respuesta a las preguntas de investigación planteadas:

- ¿Cómo aprenden las empresas a desarrollar una capacidad de medios sociales? ¿Cuáles son los antecedentes de la capacidad de medios sociales?
- ¿Influye la capacidad de medios sociales en el desempeño innovador? ¿De qué forma?
- ¿Influye la capacidad de medios sociales en el desempeño de servicio al cliente? ¿De qué forma?
- ¿Existe complementariedad entre los medios sociales y los recursos digitales tradicionales para mejorar el desempeño empresarial?

- ¿De qué forma se gestiona la información obtenida a través de los medios sociales para conseguir un desempeño innovador?

En la resolución de dichas cuestiones se aborda la discusión de resultados, las contribuciones académicas, las implicaciones directivas, así como las limitaciones y sugerencias para futuras investigaciones. El capítulo finaliza con un resumen de las consideraciones finales de esta investigación.

5.1. Conclusiones

La presente investigación doctoral explica en primer lugar cómo y por qué las pequeñas empresas aprenden a desarrollar una capacidad de medios sociales. El análisis empírico demuestra que la presión social competitiva, la capacidad de infraestructura tecnológica, dos capacidades organizativas (gestión de marketing y gestión de la innovación), y el tamaño empresarial son mecanismos clave a través de los cuales las empresas aprenden a desarrollar una capacidad de medios sociales. En primer lugar, las empresas empiezan a desarrollar una capacidad de medios sociales cuando perciben que sus competidores adoptan medios sociales y obtienen beneficios de ello. En segundo lugar, la infraestructura tecnológica de la empresa (ej. ordenadores, bases de datos) sirve de base para la adopción y desarrollo de la capacidad de medios sociales. En tercer lugar, aquellas empresas más orientadas al mercado suelen complementar actividades de marketing tradicionales con actividades sociales de marketing (usando medios sociales),

lo cual ayuda a desarrollar una capacidad de medios sociales de forma temprana. De forma similar, las empresas más innovadoras suelen ser pioneras en el uso de nuevas tecnologías, por lo que desarrollan mejor y más rápido una capacidad de medios sociales. Por último, el tamaño empresarial está relacionado de forma negativa con el desarrollo de la capacidad de medios sociales. Además, el análisis empírico demuestra que este argumento es especialmente válido en empresas de fabricación.

En segundo lugar, se pone de manifiesto la complementariedad de la capacidad de medios sociales con la capacidad de recursos digitales tradicionales (comercio electrónico) para obtener un desempeño innovador y de servicio al cliente. La interacción entre ambas plataformas (medios sociales y comercio electrónico) es a lo que la literatura de Sistemas de Información llama *social commerce* (comercio social). El desarrollo de estas capacidades de comercio social (capacidad de medios sociales y capacidad de comercio electrónico) y la interacción entre ambas permite una mayor participación de los usuarios (clientes) de forma que se consigue mejorar el desempeño organizativo. Las empresas que desarrollan una capacidad de medios sociales y de comercio electrónico de forma conjunta crean un sentido de identidad con la marca, compromiso y lealtad, motivando al cliente a participar, dar opiniones, e intercambiar ideas a través de diversas plataformas (Chen y Shen, 2015). Esta conexión e interacción con/entre los clientes permite a las empresas innovar en producto/servicio y mejorar su servicio al cliente.

Por último, esta investigación doctoral demuestra que la capacidad de medios sociales mejora el desempeño innovador mediante el desarrollo de un conjunto de capacidades organizativas: orientación al mercado, coordinación, capacidad de absorción, mente colectiva, y flexibilidad de negocio. La capacidad de diseñar una estrategia de medios sociales, y de gestionar y explotar su contenido permite en un primer momento desarrollar una serie de capacidades organizativas para posteriormente mejorar el desempeño innovador. En primer lugar la capacidad de medios sociales permite: (1) una rápida conexión e interacción con los clientes, lo que facilita un mejor entendimiento de las necesidades del mercado (orientación al mercado); (2) un rápido intercambio de información entre empleados, lo que facilita la sincronización de tareas (coordinación); (3) intercambio de opiniones y nuevo conocimiento entre empleados y clientes, lo que mejora el aprendizaje (capacidad de absorción); (4) mejora relacional e integración de la comunicación (mente colectiva); (5) información en tiempo real, lo que ayuda en la transformación operativa, estructural y estratégica de la organización (flexibilidad de negocio). En segundo lugar, las capacidades organizativas integran y transforman la información de los medios sociales en innovación mejorando así el desempeño innovador. La orientación al mercado ayuda a las empresas a ajustar sus productos a las expectativas de los clientes. La sincronización de tareas (coordinación) ahorra tiempo en el proceso de desarrollo de nuevos productos. La adquisición, asimilación, transformación y explotación de conocimiento (capacidad de absorción) convierten la información dada por empleados y clientes en

productos específicos. El conocimiento colectivo reduce errores de comunicación, asegurando el oportuno lanzamiento del producto. La flexibilidad de la empresa asegura el lanzamiento del nuevo producto al mercado en tiempo. Por tanto, la habilidad de las empresas para usar y explotar los medios sociales para ejecutar actividades de negocio influye de forma indirecta en el desempeño innovador a través del desarrollo de una serie de capacidades organizativas.

5.2. Implicaciones del trabajo de investigación para el ámbito académico

La presente investigación doctoral queda contextualizada en el campo de Sistemas de Información y concretamente encuadrada dentro de la línea de valor de negocio de tecnologías de la información (TI). Los estudios más destacados en este campo defienden una relación positiva e indirecta entre los recursos de TI y el desempeño organizativo (Pavlou y El Sawy, 2006; Devaraj et al., 2007), así como la complementariedad entre recursos de TI y de negocio (Ennen y Richter, 2010). Esta investigación doctoral es consistente con la perspectiva de las capacidades organizativas facilitadas por la TI (Benitez y Walczuch, 2012) y con la teoría de la complementariedad de recursos y capacidades (Ennen y Richter, 2010). Las capacidades de TI no consiguen directamente un desempeño organizativo superior, sino que necesitan de la ayuda de otras capacidades/procesos organizativos intermedios o complementarios (Benitez et al., 2018a).

Esta investigación contribuye a la literatura de Sistemas de Información analizando el valor de negocio de medios sociales, es decir, el impacto de la capacidad de medios sociales en el desempeño organizativo (Dong y Wu, 2015). De esta forma, se hace uso de la literatura previa de Sistemas de Información para contextualizar la generación de valor de las empresas facilitada por la capacidad de medios sociales.

En esta investigación doctoral se explica teóricamente y se demuestra empíricamente cómo las empresas desarrollan una capacidad de medios sociales y si dicha capacidad puede ayudarles a generar valor. En los siguientes apartados se concreta de forma más específica las contribuciones teóricas y empíricas de la presente investigación.

5.2.1. Contribución teórica

Varias son las contribuciones teóricas que se ponen de manifiesto a lo largo de los capítulos de esta investigación doctoral. En primer lugar, se concreta de forma teórica el concepto de capacidad de medios sociales como una nueva capacidad de TI. Se conceptualiza el término capacidad de medios sociales como la habilidad para usar y explotar los medios sociales para ejecutar actividades de negocio. Se diferencia entre medios sociales externos (plataformas públicas como Facebook, Twitter, o blogs para intercambiar información con usuarios externos) y medios sociales internos (plataformas sociales creadas por las empresas y restringidas al uso de empleados). El constructo capacidad de medios sociales

queda compuesto por tres dimensiones básicas: *social media mindful planning* (planificación consciente de medios sociales), *social media management* (gestión de medios sociales), y *social media exploitation* (explotación de medios sociales). La planificación consciente de medios sociales se refiere a la habilidad de diseñar la estrategia de medios sociales (selección de la plataforma social a adoptar y objetivos empresariales de dicha plataforma). La gestión de medios sociales se refiere a la habilidad de gestionar el contenido creado y aportado en las plataformas sociales (información relevante, en tiempo y contenido). La explotación de medios sociales se refiere a la habilidad de explotar los datos obtenidos en las plataformas sociales para alcanzar los objetivos empresariales (ej., toma de decisiones). Por tanto, la primera de las contribuciones se centra en delimitar de forma teórica el concepto y dimensiones de la capacidad de medios sociales.

En segundo lugar, la literatura sobre antecedentes del uso de medios sociales en las empresas es muy limitada. En esta investigación se argumenta de forma teórica la importancia de un conjunto de mecanismos internos y externos a través de los que las empresas aprenden a desarrollar una capacidad de medios sociales. Se amplía y desarrolla la teoría institucional en el campo de Sistemas de Información, considerando la presión social competitiva como una forma de persuadir a las empresas a adoptar y desarrollar una capacidad de medios sociales. Se vincula el marco del aprendizaje organizativo al campo de Sistemas de Información, explorando cómo las empresas aprenden a desarrollar una capacidad de medios sociales a través de la capacidad de

infraestructura tecnológica y dos capacidades organizativas (gestión de marketing, y gestión de la innovación). Finalmente, la literatura previa en Sistemas de Información ha considerado la relación negativa entre el tamaño empresarial y el desarrollo de capacidades tecnológicas como el comercio electrónico (Zhu et al., 2006). Esta investigación apoya este argumento considerando que el tamaño empresarial está relacionado de forma negativa con la capacidad de medios sociales. En resumen, la segunda contribución teórica consiste en desarrollar los factores que actúan de antecedente al desarrollo de la capacidad de medios sociales.

En tercer lugar, se amplía la perspectiva de complementariedad de recursos y capacidades en el campo de Sistemas de Información, considerando la complementariedad existente entre la capacidad de medios sociales y la capacidad de recursos digitales tradicionales (comercio electrónico) para obtener un desempeño innovador y de servicio al cliente. La interacción entre medios sociales y comercio electrónico es a lo que la literatura de Sistemas de Información llama *social commerce* (comercio social). Basándose en la literatura de comercio social, esta investigación considera la capacidad de medios sociales y la capacidad de comercio electrónico como dos capacidades tecnológicas de comercio social ya que los medios sociales y el comercio electrónico son los dos pilares fundamentales de las iniciativas de comercio social. De esta forma, se estudia el efecto de la interacción entre la habilidad en el uso de los medios sociales y el comercio electrónico (capacidad de medios sociales y capacidad de comercio electrónico) en el desempeño organizativo.

La literatura de comercio social desde la perspectiva empresarial ha sido poco explorada, centrándose fundamentalmente en explicar cómo el comercio social mejora las ventas. En esta investigación doctoral se profundiza en las capacidades de comercio social, considerando que éstas pueden ayudar a las empresa a mejorar su desarrollo innovador y de servicio al cliente. Las empresas que desarrollan una capacidad de medios sociales y de comercio electrónico de forma conjunta crean un sentido de identidad con la marca, compromiso y lealtad, motivando al cliente a participar, dar opiniones, e intercambiar ideas (Chen y Shen, 2015). Esta conexión e interacción con/entre los clientes permite a las empresas innovar en producto/servicio y mejorar su servicio al cliente. En resumen, la complementariedad existente entre la capacidad de medios sociales y la capacidad de comercio electrónico ayuda a mejorar el desempeño organizativo (Ennen y Richter, 2010). La tercera contribución al campo de Sistemas de Información consiste en el desarrollo de la perspectiva de complementariedad de capacidades de TI (capacidad de medios sociales y de comercio electrónico) para la mejora del desempeño organizativo.

En cuarto lugar, basado en la perspectiva de las capacidades organizativas facilitadas por la TI (Benitez y Walczuch, 2012), Pavlou y El Sawy (2006) estudian el efecto de la TI en el desempeño innovador a través del efecto mediador de una serie de capacidades organizativas. Esta investigación doctoral amplía el estudio de Pavlou y El Sawy y analiza el efecto de los medios sociales en el desempeño innovador a través de una serie de capacidades

organizativas (orientación al mercado, coordinación, capacidad de absorción, mente colectiva, y flexibilidad de negocio). La capacidad de medios sociales ayuda a desarrollar otras capacidades organizativas más complejas que se asocian de forma positiva y directa con el desempeño organizativo. En este sentido, basado en la perspectiva de las capacidades organizativas facilitadas por la TI, esta investigación explica el efecto indirecto de la capacidad de medios sociales en el desempeño innovador mediante el papel mediador de un conjunto de capacidades. Se amplía de este modo la literatura de valor de negocio de TI mediante el desarrollo de valor de negocio de medios sociales explicando cómo gestionar la información proporcionada en los medios sociales para generar valor. Por tanto, la última contribución teórica a la literatura de Sistemas de Información amplía la perspectiva de las capacidades organizativas facilitadas por la TI y el valor de negocio de TI, focalizándose en el campo de valor de negocio de medios sociales.

5.2.2. Contribución empírica

A pesar de la elevada popularidad de los medios sociales en las empresas, los estudios empíricos explicando los beneficios empresariales de los medios sociales son escasos (Lam et al., 2016). La mayoría de la investigación hasta el momento se ha centrado en explorar los efectos de la generación de contenido a través de los medios sociales externos (Facebook, Twitter) en la calidad percibida, reputación de marca, satisfacción del cliente, o la intención de compra (Goh et al., 2013; Hildebrand et al., 2013; Li et al., 2013; Rishika et al., 2013). Algunos estudios exploran el valor

de negocio de medios sociales centrándose fundamentalmente en el desempeño financiero. Sin embargo, a pesar del potencial de los medios sociales para actividades de negocio (Leonardi, 2014), los trabajos empíricos sobre el valor de negocio de medios sociales son muy limitados.

La presente investigación doctoral trata de dar respuesta a esta escasez de trabajos empíricos, para lo cual se desarrolla empíricamente la variable capacidad de medios sociales. Para ello se realiza una primera aproximación a la medida en base a los indicadores propuestos por el trabajo descriptivo de Culnan et al. (2010). En este sentido, se mide el constructo con datos secundarios directamente recogidos de las plataformas de Facebook, Twitter y blogs. En una segunda fase de perfeccionamiento de la medida se desarrolla una escala de encuesta basada en estudios previos (Culnan et al., 2010; Kane et al., 2014a, 2014b). De esta forma, el constructo capacidad de medios sociales queda compuesto por tres dimensiones: *social media mindful planning* (planificación consciente de medios sociales), *social media management* (gestión de medios sociales), y *social media exploitation* (explotación de medios sociales). Este conjunto de medidas secundarias y de encuesta pueden servir de gran utilidad para futuras investigaciones. La validez de la escala de medida se confirma empíricamente, conformando la primera contribución empírica de esta investigación.

El conocimiento empírico sobre el impacto de los medios sociales en el desempeño organizativo ha sido tímidamente explotado. Esta investigación doctoral contribuye a la literatura de Sistemas de Información, concretamente a la línea de valor de

negocio de medios sociales demostrando empíricamente cómo las empresas obtienen beneficio de su capacidad de medios sociales a través del papel complementario o mediador de otras capacidades/procesos organizativos.

De un lado, se aportan evidencias empíricas sobre cómo la capacidad de medios sociales y su interacción con la capacidad de comercio electrónico influye en el desempeño organizativo a través de la participación y compromiso de los clientes. El análisis empírico sugiere que las capacidades tecnológicas de comercio social (capacidad de medios sociales y de comercio electrónico) influyen de forma individual y conjunta en el desempeño innovador y de servicio al cliente mediante la participación del cliente. Por tanto, esta investigación doctoral demuestra empíricamente la complementariedad existente entre la capacidad de medios sociales y de comercio electrónico. De otro lado, se demuestra empíricamente el efecto indirecto de la capacidad de medios sociales en el desempeño organizativo a través de una serie de capacidades organizativas. El análisis empírico indica que la capacidad de medios sociales influye de forma positiva en un conjunto de capacidades organizativas que a su vez influyen de forma positiva en el desempeño innovador de la empresa. Esta investigación doctoral contribuye a la literatura de valor de negocio de TI demostrando empíricamente el efecto positivo indirecto entre la capacidad de medios sociales y el desempeño organizativo.

5.3. Implicaciones para la práctica empresarial

Los resultados de la presente investigación doctoral tienen importantes implicaciones prácticas y son especialmente relevantes para los responsables de Sistemas de Información y de Desarrollo de Nuevos Productos. Las empresas invierten gran cantidad de capital en TI, sin que ello signifique obtener un beneficio inmediato (Benitez y Walczuch, 2012). La literatura previa sugiere que la generación de valor a partir de las TI recae en el uso eficiente de los recursos de TI y su desarrollo conjunto con otras capacidades organizativas.

Los medios sociales son recursos tecnológicos que están alcanzando un gran interés por las empresas ya que modifican la forma en que éstas intercambian información interna y externamente (Aral et al., 2013). Dada la importancia actual que dan las empresas a los medios sociales surge la necesidad de conocer la mejor forma de gestionar estos recursos tecnológicos, creando por tanto una capacidad de medios sociales que ayude a las empresas a mejorar su ventaja competitiva. Esta investigación muestra la importancia de gestionar de forma adecuada los medios sociales y la información que de ellos se deriva, creando una serie de capacidades organizativas que ayuden a los medios sociales a generar valor.

De la presente investigación doctoral se destacan tres grandes implicaciones directivas. En primer lugar, se indican los factores internos (infraestructura tecnológica, gestión de marketing, gestión de la innovación y tamaño empresarial) y externos

(presión social competitiva) que pueden ayudar a las empresas a desarrollar una capacidad de medios sociales. En este sentido, centrándonos en aquello que de la empresa depende, es aconsejable tener previamente desarrollada una base tecnológica que permita integrar la información obtenida de los medios sociales en las bases de datos de la compañía. Igualmente importante es desarrollar previamente experiencia y manejo en la gestión de marketing y gestión de la innovación para sacar el máximo rendimiento a la información obtenida en los medios sociales. En resumen, disponer de una buena infraestructura tecnológica, y capacidad en la gestión de marketing y de la innovación, especialmente en las pequeñas empresas, podría ayudar a desarrollar mejor una capacidad de medios sociales.

En segundo lugar, se muestra la oportuna complementariedad entre medios sociales y comercio electrónico para conseguir una mayor participación de los clientes. La participación de los clientes procura a la empresa información sobre las necesidades y expectativas del cliente sobre el producto/servicio. Por ejemplo, SAP utiliza medios sociales como Facebook, Twitter, Youtube o LinkedIn para comunicarse directamente con los clientes y recibir *feedback* sobre sus nuevos productos (Kiron, 2012). Esta investigación doctoral pone de manifiesto que el desarrollo conjunto de la capacidad de medios sociales y comercio electrónico consigue una mayor participación del cliente, fundamental para mejorar el desempeño innovador y de servicio al cliente. Además, puede ser de interés estratégico para las empresas conocer la complementariedad entre recursos tecnológicos, especialmente

cuando existen limitaciones presupuestarias. Este estudio destaca la importancia de desarrollar de forma conjunta la capacidad de medios sociales y de comercio electrónico para mejorar el desempeño organizativo. En concreto, facilitar el acceso del cliente desde la web corporativa a los medios sociales y a la inversa puede resultar trascendental para mejorar la implicación del cliente. Además, parece oportuno mencionar la posibilidad de conectar ambas plataformas de modo que resulte operativo gestionar internamente la información obtenida.

Por último, se destaca la necesidad de usar los medios sociales más allá de para simples temas comerciales o de marketing (ej., ventas, reconocimiento de la marca) (Kiron et al., 2013; Kane et al., 2014a). A través de los medios sociales las empresas pueden obtener información relevante para mejorar sus procesos de innovación. No obstante, los directivos deben tener presente que el desempeño innovador no se consigue simplemente teniendo plataformas de medios sociales. El desarrollo de una capacidad de medios sociales y un conjunto de capacidades organizativas son necesarias para gestionar e integrar la información obtenida en los medios sociales. Para conseguir el máximo rendimiento de los medios sociales como herramienta de innovación se aconseja: (1) tener predisposición a cumplir las expectativas del cliente, de modo que exista motivación por usar de forma eficiente los medios sociales para resolver sus inquietudes; (2) flexibilizar la estructura de la compañía, empoderando al empleado para facilitar la creatividad y el desarrollo oportuno de nuevas ideas; (3) gestionar la nueva entrada de información, asimilando su

contenido, y transfiriéndolo a los miembros de la organización de forma oportuna; (4) disponer de mecanismos que faciliten la comunicación interna entre empleados, para poder coordinar las tareas de acuerdo a la nueva información disponible. En resumen, los directivos deben prestar especial atención a la forma en que se diseña la estrategia de medios sociales, se gestiona y explota su contenido, así como la necesidad de desarrollar una serie de capacidades organizativas para gestionar de forma adecuada la información.

5.4. Limitaciones y futuras líneas de investigación

Los resultados de esta investigación doctoral deben ser interpretados teniendo en cuenta sus limitaciones. En primer lugar, aunque el análisis empírico explica una varianza significativa del constructo capacidad de medios sociales (54,1%), se debe tener presente que pueden existir otro tipo de factores internos y externos, distintos de los planteados en esta investigación, que podrían afectar también a la forma en que las empresa desarrollan una capacidad de medios sociales. De este modo, futuras investigaciones podrían completar los antecedentes propuestos explorando otro tipo de factores clave en el desarrollo de esta capacidad.

En segundo lugar, para la muestra se han considerado empresas líderes en España y Estados Unidos. De un lado, se han usado datos secundarios de 100 pequeñas empresas norteamericanas para explorar los antecedentes de la capacidad

de medios sociales, y el efecto complementario de esta capacidad con la capacidad de comercio electrónico. De otro lado, se han usado datos de encuesta de 151 grandes empresas españolas para explorar el efecto indirecto de la capacidad de medios sociales en el desempeño innovador a través de un conjunto de capacidades organizativas. En la interpretación de resultados se debe tener presente que los criterios de tamaño son dispares entre países. Por tanto, los resultados de la investigación pueden ser generalizados y entendidos únicamente en el contexto de pequeñas empresas norteamericanas y grandes empresas españolas. Teniendo en cuenta que pueden existir diferencias organizacionales (ej. cultura organizacional) según el contexto geográfico y tamaño empresarial, futuras investigaciones podrían explorar si los resultados de este estudio son consistentes en otros contextos geográficos (ej. Asia, Latinoamérica), y en otro tipo de empresas (ej., microempresas). También podría ser interesante comparar si las pequeñas empresas aprovechan más o menos los beneficios de los medios sociales en comparación con las grandes empresas.

En tercer lugar, en una primera aproximación a la medida del constructo capacidad de medios sociales, se mide el constructo con datos secundarios directamente recogidos de las plataformas de Facebook, Twitter y blogs, lo cual es consistente con la literatura previa (Culnan et al., 2010). No obstante, centrarse únicamente en estas tres plataformas puede suponer una limitación. En un intento de recoger una mayor amplitud del concepto, en una segunda fase se desarrolla una escala de encuesta basada en estudios previos (Culnan et al., 2010; Kane et al., 2014a, 2014b). El constructo capacidad de medios sociales queda compuesto

por tres dimensiones que contemplan tanto plataformas sociales externas como internas: *social media mindful planning* (planificación consciente de medios sociales), *social media management* (gestión de medios sociales), y *social media exploitation* (explotación de medios sociales). Pese a esta mayor aproximación al constructo, estudios futuros podrían desarrollar aún más la medida del constructo centrándose en otros medios sociales externos (ej. WeChat, LinkedIn, Instagram). Igualmente, podría resultar interesante explorar qué tipo de plataformas (externas o internas), o funcionalidades de medios sociales contribuyen más y mejor al desarrollo del desempeño organizativo.

En cuarto lugar, esta investigación doctoral está muy centrada en la participación del empleado y el cliente a través de los medios sociales, y cómo esto ayuda a las empresas a mejorar su desempeño organizativo. Futuras investigaciones podrían examinar el efecto de la capacidad de medios sociales desde el punto de vista de otros grupos de interés (ej. proveedores), así como también hacer uso del conjunto de medidas de datos secundarios validadas en la presente investigación para evaluar otras cuestiones relacionadas.

Por último, en lo que respecta a la metodología de investigación, la muestra de datos de encuesta considera un informante clave por organización. Si bien el uso de varios informantes clave hubiera proporcionado una base más sólida para afianzar las relaciones estructurales del modelo, ello supone una elevada cantidad de recursos. La no existencia de *common method variance* se demuestra entre otras técnicas, correlacionando la variable dependiente con

una medida de datos secundarios, no obstante, investigaciones futuras podrían contrastar esta investigación utilizando varios informantes clave por organización.

5.5. Consideraciones finales

La literatura de valor de negocio de TI, bajo la perspectiva de las capacidades organizativas facilitadas por la TI (Benitez y Walczuch, 2012), y la perspectiva de complementariedad entre recursos de TI y negocio (Ennen y Richter, 2010), parece demostrar que el uso eficiente de los recursos de TI influye de forma positiva e indirecta en el desempeño organizativo a través de otras variables organizativas que median y moderan el proceso.

Esta investigación doctoral se basa en la perspectiva de las capacidades organizativas facilitadas por la TI y la teoría de la complementariedad de recursos y capacidades para explorar las consecuencias económicas del uso de los medios sociales. De esta forma, en primer lugar se conceptualiza el término capacidad de medios sociales y en segundo lugar se demuestra empíricamente el efecto de esta capacidad en el desempeño innovador y de servicio al cliente. La capacidad de medios sociales se define como la habilidad de usar y explotar los medios sociales para ejecutar actividades de negocio. Haciendo uso de datos secundarios de 100 pequeñas empresas norteamericanas y datos de encuesta de 151 grandes empresas españolas, esta investigación define el impacto de la capacidad de medios sociales en el desempeño organizativo mediante una serie de variables mediadoras y moderadoras.

Uno de los principales resultados de la investigación es que la interacción entre la capacidad de medios sociales y la capacidad de comercio electrónico mejora el intercambio de información y una conexión más profunda con los clientes, quienes proporcionan a la empresa información sobre nuevos productos/servicios. Otro de los resultados fundamentales de esta investigación es la relación indirecta existente entre la capacidad de medios sociales y el desempeño innovador. Se demuestra que son necesarias una serie de variables organizativas para gestionar e integrar la información para mejorar el desempeño innovador.

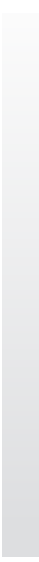
Pese a las limitaciones detectadas en la presente investigación, se trata de un estudio novedoso y de interés para las empresas, dada la gran importancia de los medios sociales en las organizaciones.

5.6. Referencias

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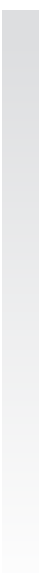


Seguí siendo un/a soñador/a, pero más realista que nunca antes, supe que era mi momento de volar. Sobre el horizonte vi el futuro brillante como nunca antes. La diferencia ahora era que sentía el viento en mi espalda. Estaba listo/a.

- Chris Gardner (Will Smith) en "The Pursuit of Happyness" (2006)

Still a dreamer, yet more of a realist than ever before, I knew this was my time to sail. On the horizon I saw the shining future, as before. The difference now was that I felt the wind at my back. I was ready.

- Chris Gardner (Will Smith) en "The Pursuit of Happyness" (2006)





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