



Political and social trends in the future of global security. A meta-study on official perspectives in Europe and North America

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Abstract

The present paper provides a meta-study of security and defence foresight documents by the Atlantic Alliance, European Union and various official bodies linked to the Defence Ministries of Canada, France, Germany, Italy, Spain, the United Kingdom and United States. It focuses on the political and social trends impacting on defence and military issues. In global terms, the following can be discerned: rivalry among major powers, with armed conflict between some not ruled out entirely; armed non-state actors strengthened by new technologies; global competition for natural resources; extensive demographic imbalances and migration flows; global risks associated with fragile states. In terms of European internal policy, the following trends are identified: population ageing and the challenges associated with immigrant integration; empowerment of interest-based and identity networks. The paper begins by familiarising readers with the characteristics of foresight documents and the methodologies used in their preparation.

Keywords Strategic studies · Security · Defence · Military · Global risks

Introduction

The perception exists that we are living through times of confusion and rapid change. Indeed, the Arab uprisings of 2011, the territorial gains of the Islamic Caliphate in Syria and Iraq in 2014, Brexit and Donald Trump's victory in the United States presidential elections in 2016 are all developments with immense significance that could scarcely have been anticipated at the turn of the decade [1, 2].

Faced with such phenomena, strategic analysis and foresight studies help systematise information, stimulate open-mindedness and generate knowledge geared to decision-making in public affairs [3–5]. During the last decade, the Atlantic Alliance, European Union and a variety of bodies affiliated to the Defence ministries of the main countries in North America and Europe in terms of gross defence spending (Canada, France, Germany, Italy, Spain, the United Kingdom and United

States) have compiled foresight studies to identify and analyse the major political and social trends that will affect global security during the period 2030–2045. The present paper aims to offer an overview of the results of the aforementioned works, providing insight into the major trends which, according to these official documents, will shape global relations, politics and society during the second third of the twenty-first century.

Criteria for the choice of foresight studies and methodologies used

Dozens of foresight research projects –private and public, national and international– address in some way or other the drivers associated with the major political and social trends that will impact on the future of global security.

In order to narrow the scope of the present work, it was decided to focus on foresight documents of a public nature drawn up between 2007 and 2017 by official defence and security bodies within the so-called Euro-Atlantic Area (North America and Western Europe). This delimitation allows us to gain a perspective –in many respects common within said area– concerning the trends that will determine the future of global security. Most of the documents refer to

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security – often global security– despite being produced by bodies linked to Defence ministries. However, this is consistent with the current broader concept of security, which extends beyond the purely military aspects –traditionally associated with defence– to embrace other dimensions such as political, societal, economic and environmental security.

The list of documents is as follows:

- Canada: The Future Security Environment 2008–2030 [6]; The Future Security Environment 2013–2040 [7].
- European Union: Global Trends to 2030, Can the EU meet the challenges ahead? [8].
- France: Strategic Horizons 2040 [9]. Capstone Concept on the Employment of Armed Force [10, 11].
- Germany: White Paper 2016 on German Security Policy and the Future of the Bundeswehr [12].
- Italy: The World in 2030. Regional Trends [13]; White Paper on International Security and Defence [14]; Capstone Concept CC – 001 Military Implications of the Future Operational Environment [15].
- North Atlantic Treaty Organization: NATO Multiple Futures Project Navigating towards 2030 Final Report [16]; Strategic Foresight Analysis 2013 Report [17]; Strategic Foresight Analysis 2015 Report [18]; Framework for Future Alliance Operations [19].
- Spain: La Fuerza Conjunta ante los retos del futuro. Preparándonos para las operaciones hasta el 2030 [Future Challenges Faced by the Joint Force. Preparing operations towards 2030] [20].
- United Kingdom: Global Strategic Trends - Out to 2045 [21]; Future Operating Environment 2035 [22].
- United States of America: Global Trends 2030, Alternative Worlds [23]; Global Trends, Paradox of Progress [24]; Joint Operating Environment 2035 [25]; Quadrennial Defense Review 2014 [26]

The majority of the documents include an explanation of the methodology adopted. Broadly speaking, this can be summarised as follows:

- A steering group, attached to the centre or programme responsible for producing the document, coordinates the process and drafts the final report.
- The group commences its work with a review of similar documents drawn up by allied countries and other foresight reports on similar topics (for example, by the various United Nations and World Bank agencies, etc.). It also carries out a study of the present-day strategic environment and of the main trends according to official sources, academic publications and international think tanks.
- Following the above review and document screening, the group begins its analysis with a preliminary proposal of variables –which can be considered independent

variables with respect to the dependent variable ‘future scenario’– that will shape the future. There appears to be no common terminology in the literature we have examined. Some reports refer to the variables as *drivers* [16]. Others call them *trends*. Some even distinguish between *themes* and *trends*, the former being groupings of the latter [17]. A number of trends are firm and known, and their evolution is considered largely predictable. These are denoted *megatrends* by the US National Intelligence Council (NIC) and *projections* by European Strategy and Policy Analysis System (ESPAS) [8, 23]. Then there are drivers whose evolution is difficult to determine. These are called *game changers* by the NIC, *uncertainties* by ESPAS, and *step changes* by France’s Delegation for Strategic Affairs (DAS) (although in this last case, midway between uncertainties and *wild cards*) [8, 9, 23].

- A number of the reports outline scenarios based on the trends identified [16, 20, 23, 24]. Normally these scenarios are few in number (three or four) and are not mutually exclusive. It is assumed that a combination of some or more may occur, with varying degrees of intensity in different regions of the world. The scenarios are not intended to cover all configurations of the future. The possible combinations of the different drivers –not to mention the impact of potential black swans– would trigger an unmanageable number of scenarios, the degree of likelihood of which would be determined by subjective evaluations. The aim of the suggested scenarios is to put forward possible alternative visions of the future, challenge accepted assumptions, and foster open reflection on coming challenges and opportunities [24].
- External advice is sought throughout the process, usually in the form of monographic studies by academics or consultants who address in greater depth some of the key variables identified in the previous step. Seminars with international experts from various sectors (academic, think-tanks, public administration, military, defence corporations, NGOs, multinationals, etc.) are often organised to present and discuss interim results, with creativity encouraged through structured analysis techniques such as brainstorming, cross impact, future wheel, Delphi method, simulation games, etc.). In some cases (NATO or NIC projects, for example), various rounds of seminars are organised as the project advances. Lastly, some programmes (UK Defence Ministry) submit the final draft for final review by national and international academic and military experts and think-tanks. Broadly speaking, the aim is to ensure transparency of process, openness to exchange, and a collaborative work ethos.
- The work is updated periodically following the publication of the final report: every five years in the case of the NIC’s *Global Trends* or UK Defence Ministry’s *Global Strategic Trends*. Every two years in the case of NATO’s

Strategic Foresight Analysis. The review by the steering group, often involving repetition of the steps described above, leads to a new final report. This iterative process is in keeping with foresight methodology and consistent with the cyclical nature of the defence planning to which the projects are linked.

As can be seen, these processes entail high costs –by academic standards– and require a high degree of access and participation by defence administrations. By way of example, the NATO Multiple Futures Project organised 21 workshops involving over 500 experts from 45 countries [16]. For its part, the process leading to the NIC's *Global Trends, Paradox of Progress* included travel to 36 countries and meetings with 2500 people, among them academics from different fields, intellectuals, members of religious organisations, business and industry representatives, diplomats, development experts, civil society representatives, etc. [24]. It would be hard to find projects on similar themes and of the same magnitude in the academic field of Social Sciences. Nonetheless, as already noted, the world of academia does have a say in the drafting of most of the documents and the final product –the public report– is an invitation to further reflection on the contents, including by university researchers.

We will now turn to review the aforementioned works, focusing our attention on the major social and political trends that will affect and condition the design of Defence policy in the countries studied. In terms of length, the documents reviewed ranged between 70 pages (shortest) and somewhere above 200 (longest). Clearly, a categorical separation of the political and social trends from those of a different nature (economic, environment, technology...) is not possible. However, for reasons of space this paper will only refer to the latter insofar as they significantly affect the political and social trends.

Changes in the world system

A first aspect to consider are the drivers associated with the configuration of the world system during the period 2030–2045, the rise and decline of major powers, the tendency towards conflict or cooperation in their relations, the risks derived from fragile states, and the growing importance of non-state actors. Three broad sets of drivers of change can be identified from the contents of the reports. All three appear in the majority of the documents, although with nuances and uncertainties that will be discussed below.

Changes associated with multipolarity, integration and cooperation/conflict dynamics

All the documents predict a greater distribution of relative power among the major powers and, although acknowledging

the importance of international organisations and non-state actors, they assume that states will continue to be the main actors in the system [7].

Transformations with far-reaching consequences for international relations occur periodically –in the case of the twentieth century, in steps of one or two decades [8]. The changes triggered by the 2001 terrorist attacks on Washington and New York and the Arab uprisings of 2011 are prime examples. However, in terms of the distribution of relative power, the most important change occurred between 1989 and the early 1990s when the bipolar world system was replaced by an asymmetric multipolar system, with one sole superpower capable of acting and exerting significant influence at global level.

If the trend towards a greater distribution of power continues, the United States will be one of the main players in the international system under the new model, although its supremacy will be increasingly eroded by the rise of other major powers, especially China [12, 19]. China is expected to become the world's leading economy around 2030, when the country's leadership would be in a position to turn economic might into solid military power [8]. The UK Ministry of Defence document estimates that China could match US military spending by 2045, with the two countries accounting together for 45% of the world's defence budget [21]. Canada's more conservative document predicts that, in military and economic terms, the United States will still be the most powerful actor in the world system in 2040 [7]. The same opinion is held by France's DAS, although it considers likely that China will take over the United States' policing role in Asia Pacific [9]. For its part, the ESPAS report considers that China could overtake the United States in defence spending before the end of the 2020s, although this would not translate to a genuine military advantage from 2030 onwards [8]. According to the United Kingdom, the United States will continue to be the world's leading military power in 2035, although facing increasing competition from China, as noted above [22].

India is set to be another major actor. The UK foresight programme estimates that India's Defence spending could surpass that of the whole of Europe in 2045 [21]. Russia is also expected to continue to play a leading role on the international stage, albeit a long way behind the main powers due to the uncertainties surrounding its economic power and to its negative demographic growth [9]. Regarding military spending, ESPAS considers that Russia's defence budget could exceed the combined budget of France, Germany and the United Kingdom in 2035 [8]. In other words, and as John Mearsheimer notes, Russia would be more effective than Western European countries in converting its potential power into military power [27: 55–82]. However, the basis for the ESPAS forecast is open to question. The demographic and economic issues that threaten Russia's present and future would, in all likelihood, pose a serious obstacle to sustained and heavy Defence investment by the country.

Even though a war between the big powers would inflict massive damage on the parties and is therefore highly unlikely, it is a fact of history that great systemic transitions of power have been accompanied by armed conflicts on a similar scale [7, 9, 25]. Economic interdependence curbs aggressive behaviour by major powers but is not an absolute guarantee that direct armed conflict between them will be avoided [28, 29]. An increased share of relative power tends to fuel confidence and ambition, redefining new interests and goals [25]. Increased geopolitical competition can trigger crises, misjudgements and military escalations when power is exercised in locations where respective areas of influence overlap (Arctic, Eastern Europe, Asia Pacific, etc.). Similarly, increased rivalry among major powers will make recourse to the use of veto in the UN Security Council more frequent, thus hampering the functioning of the security system [24].

The growing distribution of power will entail a return to pre-World War II historic normality to a multipolar world. More significantly, however, it will mark the end of western hegemony, which has been a permanent feature of the last two centuries. This will come about as a result of the declining relative power of the United States and, above all, Europe's loss of importance [9, 14]. The reports analysed coincide to a large degree in signalling a shift in the world's centre from the Euro-Atlantic area to Asia Pacific, although ESPAS notes that this will depend on the continuation of the current economic and social order and on emerging countries achieving sustained growth [9]. In a similar vein, the French DAS and one Italian report warn that a slowing or even downturn in China's economic growth, coupled with serious social inequalities, could lead to major social and political instability in the Asian powerhouse [9, 13].

In essence, three main trends are causing a decline in Europe's relative share of power:

- The endemic problem of the lack of a common foreign policy, which may become further exacerbated by the serious challenges –already evident today– to internal cohesion, which may jeopardise the continuity of the EU project in the medium term [8, 9, 12]. Similarly, the lack of a common defence policy to end the paradox of ineffective military spending, namely, excessive amounts spent on personnel compared to the United States and the redundancy of certain resources, leading critical capabilities to remain unaddressed [8]. The European Union will only be viewed and treated as a major power if its members act in close concertation. Even the United Kingdom – in the process of exiting the Union– accepts that it will suffer a significant loss of influence and that it will have more peers to contend with from 2035 onwards [22].
- Europe's loss of economic competitiveness in the global market due to structural problems in its economy, a R & D model incapable of transforming knowledge into viable

technological innovation, and an acutely ageing population that will place its welfare system in jeopardy [8, 13].

- Strategic withdrawal, due to the cumulative disappointment of numerous military and civilian stabilisation interventions in fragile or failed states, and more limited availability of resources for such missions [9, 19]. Most of the documents analysed agree that the structural problems of Europe's economies, combined with an ageing population and the resulting pressure on the welfare system, will impact negatively on defence budgets, limiting the European Union's capacity as a global actor [7, 20]. This loss of capacity and international influence would also affect the United States negatively as Europe's contribution to NATO, still important even if not comparable to that of the United States, would fall. This would increase the room for manoeuvre of potential rivals of both Europe and the United States [25].

A weakening of the transatlantic link could further aggravate the moderate eclipse of Europe on the world stage. The United States is moving towards self-sufficiency in energy, while Europe is surrounded by an arc of crisis (Eastern Europe, Central Asia, Middle East and North Africa) from which the Americans could disengage to some extent, opting for a secondary role and leaving primary responsibility to Europeans [8].

Moreover, the multipolar world of 2030–2045 will not necessarily comprise regional blocs speaking with a single voice. Along with the distribution of relative power, another crucial variable in terms of the future will be the level of political and economic 'integration' among states. As a driver of change, this may acquire values ranging from maximum to minimum depending on the region but also at global level. To the above one needs to be added a third variable at global systemic level, called 'friction' in NATO's Multiple Futures Project, with values ranging from cooperation to confrontation [16]. The lack of integration and logic of conflict would give rise to a volatile world –or regions – which would translate to, for example:

- Powers with aspirations of regional hegemony [25]. Such a situation is likely to prompt other powers to act as regional counterweights and would lead to conflict dynamics, as demonstrated by the history and the realist theory of International Relations [30: 102–128]. Should the nuclear factor enter the scenario as a source of power –as has occurred recently with North Korea and, prior to the signing of the agreement, with Iran–, the military nuclearisation of an emerging regional power would foster proliferation in neighbouring states [24, 25].
- Proxy wars as part of the aforementioned battle for regional hegemony. Similar to those taking place today in the Middle East, in scenarios such as Syria and Yemen. Participants in such wars would include not just powers in the region but offshore balancers also [25].

- At the same time, direct or proxy armed conflicts will continue to see the use of hybrid strategies combining the fighting methods of conventional armies and those of insurgents (guerrilla warfare, terrorist attacks). These strategies may be accompanied by strategic communication actions designed to delegitimise and destabilise opponents (cyber attacks). This has been a constant feature throughout history, with the specificities afforded by the technological and social context of each period [15]. The new aspect today, and in the coming decades, is the role played by technologies in enhancing military capabilities and multiplying the transnational impact of the tactics used [26]. Also, the use of non-state actors as proxies to inflict severe damage but ensure deniability [18]. For example, recourse to hackers for sophisticated cyber attacks or to networks of investigative journalists, who are fed self-serving information from one's own intelligence services. Hostile actions in the so-called gray zone (the no-man's land between peace and war) hamper international crisis management given that they undermine the effectiveness of traditional tools such as diplomacy and deterrence [9, 24, 25, 31].
- Remote military interventions in the form of cyber attack by untraceable perpetrators or long-range armed air and naval unmanned systems [21, 24]. The series of attacks on Al Qaeda in Pakistan's tribal regions –carried out entirely with armed drones– are a taste of things to come and are politically attractive due to their low profile and zero own casualties [32]. For their part, the proliferation of cyber weapons and long-range conventional attack systems could prove destabilising in crisis situations, due to the fears of a preventive attack that would give the party striking first an overwhelming advantage [24, 33].
- Power games in which powers seek to lead coalitions consisting of other states, non-state actors and even decentralised identity networks in order to increase their external influence [24]. Network leadership is also useful for implementing hybrid strategies in armed conflicts and for operating in the gray zone [31].

Among the many issues on the international agenda, there are two of particular importance that will affect, on the one hand, interactions in this future multipolar world and, on the other, integration/division and cooperation/conflict drivers:

- The growing demand for resources, beginning with energy. It is estimated that energy demand will grow by 50% in 2040 compared to today's levels, with 80% continuing to be supplied by hydrocarbons [7, 9]. Other studies predict that demand in 2045 will be double that of the present day [22]. Moreover, it is anticipated that the energy demand from China, India and South-East Asia will account for 65% of the world total in 2035 [8]. However, this scenario

could be turned on its head by a technology breakthrough such as the International Fusion Project, which aims to produce unlimited energy safely and cheaply [8, 22]. If that were to occur, it would be a black swan with positive consequences –although less so for countries whose economies depend chiefly on hydrocarbons.

In addition, problems of access to water and food resources will arise. Half of the world's population will suffer restrictions on drinking water consumption in 2035. Over 30 countries, 15 of them in the Middle East, will suffer serious water shortages and this could trigger regional tensions and conflicts [9, 17, 18, 20, 22, 24]. The demand for raw materials, including so-called rare minerals, which are vital for the production of many day-to-day technologies (from computers to fluorescent tubes and cell phones) and military technologies (for example, satellite communications and guided weapons), will grow also. China currently possesses more than 85% of such minerals and therefore enjoys a near-monopoly position [7, 9, 22].

- Access to and transit through the global commons. The Antarctic and, in particular, international waters and air space, straits, outer space (satellites) and cyberspace [7, 9, 22, 23, 26]. The global commons are vital to the functioning of globalised economies [34]. The Arctic is expected to become the centre of attention due to its underground resources (which would not be global commons but claimed by neighbouring states) and the sea routes which are opening up due melting ice and which will make Asia more reachable from North America and Europe [8, 22]. Geopolitical competition and, in a worst-case scenario, open armed conflict between major powers would endanger the availability of these global commons. In the case of outer space, conflict involving anti-satellite weapons would generate more space debris and the associated risks. For its part, transit through maritime routes crucial to world trade could be subject to blackmail by warring parties, with serious consequences for economies, particularly in Europe, which will still be importing 65–70% of its energy needs in 2030 [8, 25].

These two issues –demand for resources and global commons– will be a source of both problems and opportunities for integration and cooperation at global and regional level.

Changes associated with fragile or failed states

All the documents consulted assume that weak states incapable of controlling or governing part or all of their territory will continue to exist during the period 2030–2045. However, four drivers may aggravate further their already precarious political and social situation:

- Demographic imbalances. It is estimated that the world's population will exceed 8 billion in 2030, reach 8.5 billion in 2035, near 9 billion in 2040, and peak at 10.5 billion in 2045 [6–8, 17, 22]. Other projections put the figure at between 7.3 billion and 8.8 billion in 2035 [24, 25]. There is, however, agreement that this growth will be very uneven geographically, with the bulk affecting Africa, followed by certain Central Asian and Middle Eastern countries [24]. It is forecasted that the population of working age in Sub-Saharan Africa will exceed that of China in 2030 and India in 2035. By way of contrast, Western Europe and Russia have been suffering birth rates below the replacement rate for many years [22].

Accordingly, the majority of the planet's young population will be located –as at present– in developing countries, while advanced economies will experience ageing processes and a net population loss which will become very acute as the 2030s and 2040s draw nearer. Depending on the evolution of other factors, this circumstance represents an opportunity and a threat for less advanced countries. It could stimulate economic growth, if accompanied by improvements to education and the economic model that allow this sizeable human capital to join the labour market. However, it could also become a factor of instability if the national economy is incapable of accommodating young people and if such precariousness is combined with high levels of corruption and a weak political system and institutions [22]. Thus, the existence of a large segment of young people in the population offers an opportunity for economic growth but at the same time is a factor of risk and instability [7, 13]. This is particularly true of fragile or partially failed states.

On the other hand, world population growth will slow as of the 2040s and is expected to become negative due to the gradual spread of economic development and of cultural models that lower birth rates [9].

- Another global trend requiring consideration is population migration to cities, which will trigger a substantial increase in the number of mega-cities (more than 10 million people). There were 19 such cities in 2007 and this figure is expected to grow to 27 by 2025. An estimated 65% of the world's population will live in urban areas in 2040–2045, with 95% of the growth occurring in developing countries, which will be home to the majority of mega-cities [7, 9, 22, 25]. In such cases, the lack of infrastructures will continue to generate problems of insalubrity, inequality and social conflict [20, 22]. A considerable portion of the increase in the urban population will centre on coastal parts vulnerable to rising ocean levels and to catastrophes associated with the sea [22]. It is estimated that the coastal population will have risen by 50% in 2035 compared to the 2000 figure. The increase in Asia will be more than 150 million, 60 million in Africa [24].

- More pronounced effects of climate change. Although there is no consensus as to the pace of global warming, desertification –with the resulting loss of cropland and shortage of human drinking water– will coincide geographically with many less economically developed countries [9, 26]. During the coming decades, 135 million people may suffer enforced displacement due to the phenomenon, which could affect internal political stability, relations between states in the area, and migratory flows (both south-north and, in particular, south-south) [22]. At the same time, technological advances in the fields of energy-saving and renewable energies during the period 2030–2040 are expected to be insufficient to curb the increase in CO₂ emissions [8].
- Continued corruption, weak institutions and democratic deficit in many underdeveloped countries will undermine their competitiveness in a global economy and spawn grievances and internal instability [13, 26].

In addition to these four drivers, it is possible that some of the aforementioned fragile or failed states could become the scenario for a proxy war between regional or extra-regional powers, should regional integration fail and confrontation prevail over cooperation.

Meanwhile, fragile states could generate three sources of risk for the rest of the regional and global system:

- Armed terrorist groups and organised crime groups whose activities extend to other regions, including the Euro-Atlantic area [9, 10, 26]. Also, groups dedicated to piracy, placing shipping routes in danger. Such threats are already materialising at present and could be heightened further by advances in technology and the intensification of globalisation. Many terrorist and insurgent groups currently utilise dual-use technologies (drones, encrypted communication, night vision devices, GPS, etc.) which increase their paramilitary capabilities significantly and which, barely two decades ago, were to be found in the arsenals of only the most advanced countries [26, 35].

This trend will become more pronounced in years to come, with the added problem that innovative combinations of more than one of the above technologies will result in even greater capabilities [21, 22, 25]. Imagine, for example, self-driving cars packed with explosives and guided not just by GPS but by a swarm of drones in an urban combat scenario. Although the best-equipped armies will still enjoy a technological advantage, this will tend to diminish in relative terms if they do not adapt to the flexibility and the strategic and tactical innovation of their non-state opponents. This is especially true in complex, interconnected and highly saturated environments such as urban ones [7, 15, 22]. The growing urbanisation of the world population, referred to above, is a factor that will intersect frequently

with the growing power of armed non-state actors. The wars in Syria (Aleppo) and against Daesh in Iraq (Mosul) are recent examples of this firm trend of the future [36].

- Global pandemics. Like the flu epidemic of 1918 that killed at least twenty million people or, less lethally, the alarm triggered by SARS in 2003 and the Ebola outbreak in West Africa in 2014. A virulent disease arising in or reaching one or more weak states would have much greater impact due to their precarious national resources, thus increasing the risk of contagion within and beyond the region [9, 25]. In terms of defence planning, such a risk would require capabilities to be developed for the deployment of medical and humanitarian aid missions in the countries concerned, as well as support for domestic civil and health protection systems if the contagion were to reach our own countries. [7]
- Major population movements affecting the stability and internal cohesion of other countries, while also endangering the lives of those taking part directly in such migratory flows [9, 20, 21, 23, 24]. These movements also afford a massive opportunity for illicit business by transnational crime groups, an aspect that will be discussed further below in the section dealing with major social and political transformations.

Intensification of globalisation and interdependence

This is the third group of drivers that will affect the configuration of the world system. Like population ageing, the intensity of the globalisation process in the coming decades will be unprecedented and it is therefore extremely difficult to anticipate all the consequences and ramifications. Globalisation and interdependence are a source of both risk and opportunity. Since the documents analysed here focus on security and defence, they tend to place special emphasis on the potential problems, in particular the following:

- The danger of region-to-region contagion of economic crises due to being part of an electronically connected and highly reactive financial system [9]. Equally, criminal or terrorist attacks on these networks would seriously damage investor confidence and should not be ruled out [17].
- Non-regulated displacements of the population due to armed domestic conflicts and demographic imbalances. France's DAS estimates that in 2050 there will be 450 million transcontinental migrants –compared to 250 million today– owing to political, economic or environmental reasons [9]. Moreover, according to the same body, as of 2040 there will be 220 million regional and transcontinental refugees as a result of climate change [9].

- Porous borders due to advances in technology. Cyberspace transcends national boundaries and economies and societies that rely on it to the greatest degree are more vulnerable. Moreover, in addition to channelling economic activity and social relations, the Internet will increasingly connect households and domestic appliances (Internet of things). The omnipresence of web-connected devices will create new vulnerabilities and require political responses to guarantee control and security [7, 9, 22, 23, 25, 26].
- Serious difficulties in terms of guaranteeing technology self-sufficiency in defence. The growing globalisation of supply chains has serious implications for the defence industry. Even in countries like the United States, where the sector is bigger, it is already impractical to manufacture all components nationally, which raises the prospect of potential interruptions of supply or the security of components being entrusted to manufacturers who are also geopolitical rivals [7]. Meanwhile, various documents draw attention to the gradual loss of competitive advantage by western countries when it comes to recruiting and training future generations of specialists in big data analysis, cloud computing, nanotechnology and other advances that will influence the economic development, military capabilities and relative power of their respective states [7, 23]. This could also affect the competitiveness – and long-term economic viability– of certain sectors of the European defence industry, which may be unable to cope with the offer from emerging countries [9, 17]. Political and legal acceptance of certain technological advances such as lethal autonomous systems weapons will also play a part. Some societies may be more reticent than others to allow the development, acquisition and use of aerial, land or sea platforms that use force according to predetermined parameters but with tactical autonomy [18]. This could give an advantage to governments and societies that have the required infrastructure and are more permissive on this issue.

Social and political transformations

In addition to the groups of drivers associated with the configuration of the world system, there are other inter-related issues that will impact on defence policy design and development in the countries studied, largely by conditioning domestic policy. They can be grouped into three blocks of drivers.

Demographic transformations

Reference has already been made to these in the previous section. With good cause, all the documents reviewed

coincide in underlining their importance. In the case of the Euro-Atlantic area, there are two aspects to consider:

- The ageing of the population in the majority of economically advanced countries due to low birth rates and increased life expectancy. This phenomenon is unprecedented and will have far-reaching social consequences [9]. In many cases, the impact will be aggravated, particularly at individual level, by the combination with other trends such as family break-ups and the rise in the number of people living alone [17]. Advances in biotechnology that improve the quality of life of the elderly may produce palliative effects to some degree, as will technological progress in the home which will reduce the level of dependency of the aged [8, 21, 24].

Population ageing will subject the welfare system to considerable stress, particularly in countries with high levels of social benefits [8, 13, 20]. If we factor in also a decline in productivity due to the smaller portion of working age population, the outcome may be not just an unsustainable system but the loss of economic competitiveness and, paradoxically – despite the lower numbers of young people in the population –, job destruction [24]. In such circumstances, increased welfare spending may be to the detriment of Defence spending, hindering the maintenance of advanced and increasingly costly military capabilities [9]. At the same time, population decline will pose a challenge for the recruitment and selection of human resources for the armed forces. [7]

- The continuation and intensification of migratory flows. These will be triggered in part by the changes in the world system noted above (climate change, armed conflict, lack of security in megacities) and fostered by the interconnection arising from advances in technology, by diasporas and migratory networks already in place in destination countries, and by the smaller proportion of working age population in advanced countries due to population ageing [21, 23, 24]. The phenomenon will spark political tensions, which are already evident today but will tend to become more pronounced as the immigrant population increases in Europe and the United States. The tensions will arise due to the rejection of foreigners by certain sectors that view them as a threat to security, identity and economic wellbeing. Another source will be the specific demands and demands for greater political representation which will be made by the immigrant population in due course [25].

Unequal distribution of wealth

This is another high-impact driver, which is already evident today and will become more acute in the coming decades due

to the convergence of two further factors: the intensification of economic globalisation and its neoliberal tenets, and advances in technology (artificial intelligence, autonomous systems, additive manufacturing, etc.) that destroy significant numbers of jobs [8, 24]. If trends continue as at present, the processing capacity of computers will match that of the human brain in 2023 and will be 100,000 times higher in 2045. The increase will be even greater if quantum computers come about [21].

Both forces could result in a widening of the rift between ‘winners’ and ‘losers’, both in the world economic system and in national economies. This group of drivers will manifest itself differently depending on the region.

- In the United States and particularly in Europe, the erosion and deterioration of the middle class will likely continue due to the potential loss of productivity and global competitiveness [24]. Combined with disaffection for political institutions and elites, and the rise in immigrant population in some countries, this will produce fertile terrain for the discourse of populist parties and extreme left and right parties [8, 24]. In turn, the rise in anti-establishment political proposals will endanger the EU’s political union, including its common defence dimension [8]. Nonetheless, some advances in technology that may initially destroy jobs could end up bolstering productivity, generating new areas of activity and economic growth. Much will depend on the technical nature of the advances and on the creativity of individuals in seeking to harness machine-human cooperation to the full [24].
- In developing countries, poverty will continue to fall and the middle class will grow, even if it will still be precarious by western standards and will be more vulnerable to economic turbulence. The rise of this middle class will also affect migratory flows [8]. It will lead to more people with aspirations, resources and key knowledge for emigration. At the same time, a larger middle class will give rise to new demands for political reform, setting in motion dynamics of democratisation or instability depending on the case. Most at risk will be countries where the larger middle class coexists with masses of unemployed young people and weak and corrupt political institutions. Approximately 10% of the world population will continue to live in extreme poverty. Most of these people –nearly 40% at present– will be located in Sub-Saharan Africa [8, 24].

Increased political relevance of interest-based and identity networks

Although not the only factor, technology will continue to increase the interaction of millions of people across the planet. Various broad notions exist as regards advances to come in technology but it is difficult to know when and how these will

arrive exactly or what their social impact will be once they encounter the creativity of users [9]. The firm trends outlined in the works reviewed include virtual reality and augmented reality, in turn combined with significant improvements to holograms [17]. It is striking to note, however, that the documents in question make little mention of advances in artificial simultaneous translation – written and oral – which could make reliable and immediate communication possible. Overcoming language barriers will be a watershed in global interconnection processes, with massive repercussions.

The increased political role of identity and interest-based networks – facilitated by the aforementioned advances in technology – will have multiple implications from the defence and security perspective. Three in particular deserve mention:

- Changes in the relationship between individual and state. In the United States and particularly in Europe, falling employment, population ageing and the erosion of the middle class will require a new social contract. Where the state is capable of generating sufficient resources, said pact could lead to a reshaping of the welfare system through measures such as a living wage, which would reduce the complicated bureaucracy needed to administer current support mechanisms and offer individuals a minimum safety net to face a professional future ridden with uncertainty. Moreover, advances in technology, particularly in biotechnology (genome editing, human perfecting, cloning, 3D bio printing, etc.), will trigger new, costly and ethically challenging social demands. These issues will become part of the public agenda and the subject of debate conducted via online political participation [9, 21, 24].

The networks intervening in this new social contract will not consist solely of individuals empowered by social technologies. Much more open and multilateral configurations will be adopted, as occurs for example in the World Economic Forum (also known as Davos and which brings together business leaders, politicians, journalists, intellectuals, NGOs and other civil society representatives). These new networks will articulate new social demands, define problems and propose solutions outside the scope of states, even if according to the latter ultimate responsibility.

In turn, states are likely to devolve powers increasingly to lower levels of government (big cities, for instance) and to the private sector. The multiplicity of actors and complexity of problems will render governance more difficult [14, 17, 24, 25]. In Western countries, these domestic challenges will occupy a substantial portion of governments' political 'bandwidth', reducing their capacity – and appetite – for military interventions abroad that do not enjoy majority support among the public. At the same time, immediacy – including 24/7 news cycles –, coupled with short-term approaches dictated by

election calendars are an invitation to neglect planning and long-term commitments [8].

A further dimension where changes in the relation between individual and state are anticipated concerns the view of the latter as the ultimate provider of security. The increasing dependence of the economy and daily life on technology (Internet of Things, autonomous transport systems, advances in communications, as noted above) will heighten the demand for private sector cyber security services. The foresight studies analysed underline the importance of the cyber defence and cyber security of the state's strategic resources (armed forces, public administration, critical infrastructures) and of collaboration with the relevant companies for the protection of strategic private interests (financial sector, energy and other facilities) [21]. However, it is assumed that, on a smaller scale, vital cyber security needs will be a service provided by the market.

- Identity networks stimulated by an interconnected world and constructed in support of or in opposition to globalisation. The networks posing greatest implications for security will be those driven by extremist ideologies of assorted inspirations: nationalist, pro-independence, xenophobic and anti-immigration, far left, far right, radical Islamists etc. [22]. Even if they do not cross the violence threshold, the activism and the social polarisation generated could seriously condition states' domestic and foreign policy [25]. Some of these networks will capitalise on currents of opinion – more or less widespread depending on the country – of suspicion and hostility towards elites, political institutions and the effects of economic globalisation. Positive opinions of democracy are on the decline among the new generations of Europeans and Americans and may decline further in the coming decades, particularly if the youngest segments of the population continue to be worst hit by unemployment and the precarisation of the middle classes [8, 9, 21, 24].

The aforementioned networks may also be taken advantage of by a foreign power seeking to delegitimise geopolitical rivals. Strategic communication will be used increasingly to influence world public opinion and the populations of competitor nations. It is a further tool that can be deployed to increase the share of relative power in the international system [19, 24]. An abundance of information not accompanied by the required skills to turn it into knowledge (perhaps due to failings in the education system) increases the risk of trivialising important debates and is fertile ground for propaganda [9]. The danger of 'post truth', already present today, will tend to become more serious in the coming decades. The implications for decision-making are serious given that manipulation can easily give rise to blocking and vilifying coalitions instead of constructive alliances to address common challenges and put in place policies in line with reality [11, 21, 24, 25].

Technologies associated with virtual sociability will continue to facilitate the organisation and spread of social protests that transcend borders and trigger other protests with ever-greater speed [22]. They will also enable governments and non-state actors to gauge social discontent within their own countries and in competitor states and defuse or exploit this for their own ends [7]. For example, nationalism could be used to consolidate an autocratic government, support revisionist foreign policies or seek foreign scapegoats to alleviate domestic pressure, shifting responsibility for problems to immigrants, international organisations or a geopolitical rival [24].

Furthermore, major transformations driven by demographic changes and the unequal distribution of wealth will generate crucial political and social debates. Social media can thus acquire a political importance similar to that of classical intermediaries such as parties and trade unions, forcing them to adapt more or less successfully, as is already occurring today. These dynamics will lead to positive effects, such as a greater demand for transparency on the part of the authorities or greater opportunities to ensure representation and to place issues on the public agenda [18].

- Lastly, advances in technology will increase the capacities and impact of terrorist and criminal activities, as described above in the section on the world system. The emergence of new and violent ideologies, for example opposed to technological progress that endangers employment, cannot be ruled out. An increasingly interconnected world will trigger an increase –rather than a reduction– in the differences and conflicts over values and identities [24].

Conclusion

The meta-study offered in this paper highlights the growing complexity of political and social relations in the twenty-first century. It would be an error to view the future based exclusively on current trends. The value of the works referred to here lies in the fact that they set out alternative directions the future may take.

Accordingly, the techniques for scenario building and analysis draw a distinction between basic trends and key uncertainties. The former include demographic imbalances, migratory flows, the political and economic rise of Asia Pacific, inequalities in the distribution of wealth, and the increased interconnection of the world due to advances in information technologies. The key uncertainties referred to in the pages above include the speed and extent of the impact of climate change, the degree of cooperation or rivalry between the major powers, technological advances in artificial intelligence, the repetition of new economic crises which could spread easily in an interdependent world, and the type of harm caused by a new regional or even global terrorist organisation (a reborn Al

Qaeda, for instance). All these factors could materialise to different degrees and would affect other variables, triggering various effects, which would not all be easy to predict.

An important finding of this meta-study is the high degree of coincidence in the various documents as regards the main basic trends and the substantial consensus in the identification of the key uncertainties. It is possible that the literature review carried out for the initial phase of the studies works –as noted above in the section on the process followed in their preparation– unintentionally conditioned the identification of the basic trends and key uncertainties. Thus, while recognising the indispensable nature of such a review, it is important to bear in mind the risk involved, in order not to curtail possible visions during this initial stage of foresight analysis.

Together with basic trends and key uncertainties, most of the foresight studies analysed include a list of highly improbable and high-impact events, which have also been referred to here (wild cards and black swans). Examples of past black swans include the attacks on Washington and New York in 2001 or the Arab uprisings of 2011 [37]. According to the literature consulted, future events might include open armed conflict between China and the United States in Asia Pacific, one in which other countries in the region might be drawn. Such a conflict would seriously destabilise the global economy and global security. A regional conflict –for example, between India and Pakistan with dozens of atmospheric nuclear detonations and the resulting serious consequences for the global climate and environment– would also have a highly negative impact. Positive developments may include the discovery of an inexhaustible and inexpensive source of energy that would drastically reduce the current dependence on hydrocarbons. It is of interest to contemplate these potential black swans although not for their predictive value, since it is highly unlikely that any will materialise or they will do so very differently to the manner suggested. Their value lies in the fact that they force us to observe trends, uncertainties and the resulting scenarios with a much more open mind and with greater sensitivity both to changes in the values of the variables identified and to the outcomes of the interactions between said variables.

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