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Global Defense Trends 2015-2025

Changing Dynamics and Shift in Global Spending Patterns Reshaping the Defense Industry

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The global defense industry is currently witnessing a period of dramatic change. Defense budgets of traditional market strongholds such as the US and Europe, are under immense pressure owing to the culmination of very expensive wars fought in Afghanistan and Iraq. This has in turn resulted in a deficit induced economic and political turmoil in these countries. Even though the global defense expenditure is expected to increase, albeit modestly, over the next 10 years, the North American and European share in it will reduce significantly, with countries in Asia and the MENA region poised to offer the maximum opportunities for arms procurements. Interestingly, this period also coincides with an aggressive reshuffling of the leadership of major defense companies. Linda Hudson, the CEO of the US arm of BAE systems recently stepped down and was replaced by Gerard J. DeMuro, while Airbus's North American unit, replaced Sean O'Keefe with Allan McArtor, Chairman of Airbus Americas. In order to combat the volatility of the current economic environment, companies are now inclined towards employing only those people at the helm who not only know how to make the product but also are able to relate with senior military and political leadership who play a major role in awarding military contracts.

After years of being reliant on the US and European suppliers, the developing world is now placing greater emphasis on developing their indigenous manufacturing capabilities. Asia has taken the lead in this with India's 'Make in India' campaign paving the way for industry growth through foreign collaborations. China has historically been the strongest domestic manufacturer of defense equipment outside of the US and Europe, but the lack of transparency in the country's defense industry, presents limited opportunities for global defense companies. South East Asia is also expected to emerge as the next hotbed for local manufacturing.

Declining defense budgets have exerted significant pressure on the industry which is expected to result in considerable portfolio rationalization and restructuring. Companies are now looking to spin off specialized businesses into separate entities and divest non-performing segments which are outside of the firm's core business. The next decade is expected to witness increased consolidation in the global defense industry.

Declining defense budgets are expected to result in portfolio rationalization and restructuring

Ballistic missile submarines are expected to exhibit the highest growth over the next decade, while multi-role aircraft will witness the highest cumulative expenditure. While, the US Navy's US$90 billion Ohio replacement program is the major submarine program driving spending in the segment, Asia- Pacific's cumulative spending of over US$151 billion over the next decade is expected to account for over 31% of the global multi-role aircraft market.

Environmental concerns, the need to reduce costs and lives and the rapid evolution of technology are factors driving growth of alternate forms of fuel being deployed in the battlefield. Solar tents, Navy bio-fuels, portable fuel cells and fuel cell tanks are some of the areas expected to witness significant

government and private sector spending over the next decade and more.

Finally, the last few years have witnessed a rather abrupt shift in research for military applications from the defense sector to commercial establishments and this is expected continue over the medium to long term.

Asia's emergence as the second largest market

The austere policies being adopted by the western countries have resulted in a profound shift in economic power. The maximum economic growth is now being witnessed not in the traditionally strong markets of North America and Europe but in the Asian, Middle Eastern and albeit to a lesser extent, North African countries. This power shift is now reshaping the global landscape of defense spending. The Asian market can be divided into two halves with the first comprising of the four powerhouses, China, Japan, India and South Korea which account for over 75% of the region's defense spending. With 2014 budgets of US$131.7 billion, US$47.3 billion, US$36.2 billion and US$33.2 billion respectively, the four countries are expected to earmark over US$1.6 trillion for defense related activities during the period 2015-2019, according to AgileIntel estimates.

The other half consists mostly of emerging South East Asian nations including Brunei, Indonesia, Malaysia, Philippines, Singapore, Thailand and Vietnam, all of which have collectively doubled their military spending over the last decade. In fact, as per AgileIntel estimates, these countries are expected to allocate in excess of US$212 billion during the period 2015-2019 for defense procurement, R&D and revenue expenditure. Indonesia will be fastest growing defense market in Asia till 2019, with a CAGR of 17.88%, followed by China-11.16%, India-9.83%, Pakistan-9.73% and Malaysia-6.1%.

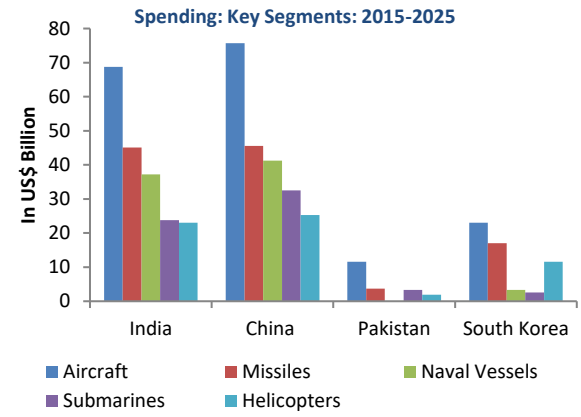
Many factors are responsible for this robust growth. Among the most important is the underlying economic strength of many countries in the region, which has aided their weapons modernization plans. Secondly, various ongoing conflicts such as the ones between India-Pakistan and India-China have mandated the robust procurement of advanced weaponry by the three largest spenders in order to develop their defense capabilities in relation to each other.

Moreover the volatile situation between China and various South East Asian nations, has created an environment perfect for large scale

Even though India, China, Japan and South Korea are the defense powerhouses in Asia, opportunities in smaller South East Asian countries has gotten suppliers excited

military acquisitions, even in the smaller countries in the region. Countries such as Indonesia, Thailand and Malaysia are no longer content with relying on US and European suppliers and are therefore taking measures to boost indigenous manufacturing, as a long term economic and security goal. Thirdly, the urgent need to replace ageing defense equipment with new and technologically advanced weaponry is driving procurement among the smaller countries in the region. The chart below shows the procurement pattern of four of the largest

importers of arms in Asia (figures till 2025 have been estimated).



Indigenization of defense manufacturing

The last few years have witnessed a robust shift towards the indigenization of defense manufacturing in the Asian and Latin American countries. The increasing reliance on the US and European suppliers and the resulting monopolization of market, has driven emerging nations to make their own equipment. India is expected to exhibit the strongest growth trajectory in terms of domestic manufacturing over the next decade.

The 'Make in India' campaign started by the new BJP government has resulted in a major impetus for companies like Mahindra Defense Systems, Tata Advanced Systems, Tata Motor Defense Systems, Reliance Industries, Punj Loyd and more recently ADAG, to make a foray into the arms business or enhance their existing offerings. In fact the Tata Group expects revenue of over US$400 million in 2015, from its defense and aerospace business. Even though this is expected to result in a marginal decline in imports, foreign OEMs can still bank on the Indian market for strong opportunities for various types of military hardware, owing to the sheer scale of the country's military requirements. As per a recent AgileIntel report, the Indian defense imports witnessed a CAGR of over 29% over the period 2009-2013 and robust growth is estimated over the next five years as well.

China has always been the front runner in the indigenous development of arms, owing primarily to an arms embargo by the US, a trend expected to continue in the future as well. However, the most interesting development is the emergence of South East Asian nations such as Indonesia, Thailand and Malaysia, who are looking to decrease their reliance on US and European suppliers, by focusing on manufacturing defense equipment locally, a move that is already generating export opportunities.

The Latin American defense manufacturing market is dominated by Brazil, which accounts for almost half of the region's defense expenditure. The Brazilian Association of Defense and Security Equipment, which includes about 170 companies, is poised to spend upwards of US$120 billion over the long term to fulfill domestic requirements and boost annual exports. Argentina and Chile have also announced plans to revive their local defense manufacturing capabilities, albeit at a much smaller level.

Asia to witness the highest growth trajectory in indigenous defense manufacturing

What is interesting to note is that a majority of the big ticket indigenous programs are not being undertaken solely by the home country but as a joint venture with big foreign companies, as a way of acquiring the necessary technology transfer. Even though the US and European companies were wary of sharing advance technologies in the past, the drop in domestic demand has left them with no alternative but to partner with the countries in the east.

The role of FDI in building a domestic industry especially in a developing country, cannot be overemphasized. A good example is the 26% cap in the Indian market which resulted in defense FDI inflows of only US$5 million during the period 2003-2013, as compared to the over US$280 billion for all sectors in the country, owing to the 100% allowance for sectors such as IT and automobiles. According to AgileIntel, India needs to allow at least 74% FDI in the sector if it is to witness large scale technology transfers and take maximum advantage of the 'Make in India' provision.

Reverse transfer of military research to commercial firms

Historically, the defense industry has been a major technology exporter to the commercial sector and has given the people revolutionary capabilities such as the Global Positioning System (GPS) and the Internet, which have permeated into their everyday lives. However, the last few years have witnessed a rather abrupt shift in research for military applications from the defense sector to commercial establishments. Declining budgets in the post-war era, an economic meltdown in traditional market strongholds such as the US and Europe and the sheer pace of technological change, have all contributed to reshaping the dynamics of the defense industry.

The US has been the pioneer of most of the technological breakthroughs in the past.

Use of commercial research in military applications, a growing trend

However, the budgets for R&D have been declining steadily since 2009 and this trend is expected to continue over the short to medium term, owing primarily to the various sequestration measures now in place. This reversal of technology adoption has resulted in the US government now becoming a regular importer of various technologies developed in the commercial sector such as IT, 3-D printing and synthetic biology. According to Bill Lynn, CEO of Finmeccanica North America and a former deputy defense secretary under Robert Gates and Leon Panetta, even though the primary motive of defense companies is to 'develop things internally and then put them out commercially', the majority of cases will mandate the pulling of commercial technologies for use in military applications. In fact, 'the commercial content in defense acquisitions has risen from about 10 percent to about 30 percent, according to Lynn.

What is evident from this is that the defense industry is simply moving too slowly to remain abreast of the fast changing landscape in the technology and security environment. The tunnel vision of most of the defense firms bought on by falling contracts, is reshaping the focus of their strategies merely towards keeping stock prices high through share repurchases and

higher dividends, thus taking away from the allocation of higher investment in technology evolution. The future is also expected to witness increased acquisitions of defense companies by those in the commercial domain. Examples of recent such buys include Google's acquisition of Boston Dynamics, an engineering and robotics company which created BigDog, a robot that helps soldiers in combat and Harris Corp's takeover of Exelis in a US$4.75 billion deal.

Therefore, even though commercial companies with large cash piles who are not hamstrung by budget cuts, may not need defense contracts to ensure growth, defense authorities all across the world would do well to establish robust relationship with such companies in order to ensure that their respective armed forces are equipped with the latest technologies.

Increased consolidation for sector restructuring

The defense industry has proven to be highly lucrative for investors in the form of soaring share prices and profits and much of this can be attributed to cost cutting measures, share repurchases and the tapping of emerging markets in the light of declining budgets in the west. However, industry experts have started to question the viability of such an approach to sustain long term profits and this is where the industry is now seen to be on the verge of a structural readjustment.

A phase of consolidation involving smaller firms is already being witnessed and it is only a matter of time before it penetrates into Tier 1 companies as well. Among the major drivers of these M&A deals is the desire of companies to exit businesses that have directly borne the brunt of falling defense spending, with military vehicles being one of them. Further, firms are now more inclined towards creating specialised business portfolios, with a view on clearing the path for subsequent acquisitions. For example, Exelis, which was formed as a spinoff from ITT in 2011, spun off its military and government services business focused on facilities management, logistics and network communications in 2013. The new company then focused on delivering surveillance and intelligence solutions and projected higher revenues for 2014.

Interestingly, industry consolidation is not only promoted by companies but also by the governments, who have in the past, had to bear with monopolistic markets. In fact the recent merger between radio-makers Harris Corp. and Exelis, is expected to create a strong competitor to Raytheon, Northrop Grumman and Lockheed Martin, thus paving the way for reduced prices in the future. The following trends are expected to shape the industry's consolidation over the next few years:

Fragmented MRO sector: The global defense MRO industry is fragmented with many small companies claiming to define their own niche. This area is ripe for consolidation as it would enable competitors to enhance their capabilities to service all types of defense equipment and thereby increase revenue streams, expand to other geographies and importantly reduce costs.

Persistent budget cuts amidst lack of clarity: Even though the grim defense spending scenario over the last few years has resulted in spin offs and small ticket mergers, the industry still hasn't witnessed robust activity with big companies so far. This could however change if budgets continue to get downsized, especially in the West, with the Orbital Sciences and

Alliant Techsystems merger being a good indication of future trends. Further, the uncertainty surrounding the strategic direction of defense procurement and R&D in the US, has also created an atmosphere ripe for consolidation in the medium to long term.

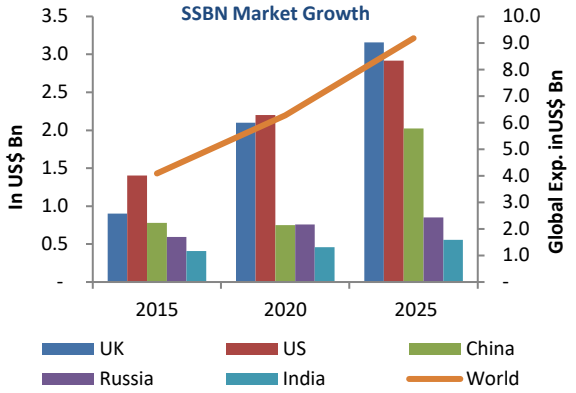
Industry dynamics in the unmanned systems sector: As per AgileIntel estimates, the global UAV market is expected to increase from US$7.6 billion in 2015 to US$13.3 billion in 2025, at a CAGR of 5.7%; cumulative expenditure is estimated at US$115.7 billion. Such robust growth is bound to present large opportunities and is thus expected to result in smaller manufacturers being acquired by major companies of the US, Europe and Israel.

Ballistic Missile Submarines market to show robust growth

As per AgileIntel estimates, the market for

Ballistic missile submarines to exhibit the fastest growth till 2025; multi-role aircraft to be the largest cumulative market

Ballistic Missile Submarines (SSBNs) will grow at a CAGR of 8.4%, from US$4.1 billion to US$9.2 billion over the period 2015-2025. SSBNs are operated by six countries around the world: France, China, Russia, India, the US, and the UK. The US Navy's Ohio replacement program is the major program under this category, involving an investment of US$90 billion to procure 12 SSBN (X)s during 2019–2033.



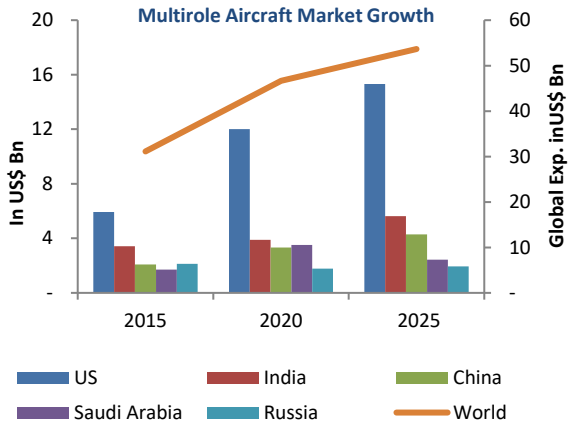
Another major program is the acquisition of four Successor class submarines by the UK during 2013–2028, at a cost of US$30 billion. The US and the UK's new class of SSBNs are expected to be in the R&D phase until 2016. India is expected to commission its first Arihant-class SSBN next year, with an additional three expected to be procured by 2025. China, which will continue the procurement of Jin-class SSBNs until 2019, has already commissioned two submarines. Russia commissioned the first Borey-class SSBN in 2013, with another nine submarines expected to be commissioned by 2025.

Since SSBNs are the most expensive type of submarines and take about 8-10 years to build, the recent initiation of programs byis expected to keep related spending robust during the period 2015-2025, cumulatively totaling US$72.8 billion.

Multi-role aircraft to witness the highest cumulative spending till 2025

AgileIntel estimates that the multi-role aircraft segment is expected to account for the largest share of expenditure across all global defense platforms during the period 2015-2025. The market will increase from an estimated US$31.1 billion in 2015 to US$53.7 billion in 2025, at a healthy CAGR of 5.6% with cumulative

expenditure totaling US$489.9 billion. Asia-Pacific is expected to be the highest spender on this segment occupying 31% of the multi-role aircraft market share. This is mainly due to various indigenous programs that have been initiated to develop next generation aircraft with a view of developing alternatives to the more expensive western multi-role aircraft. Examples include the South Korean Fighter Experimental (KFX) program, Japan's ATD-X Shinshin fifth generation fighter, China and Pakistan's JF-17 thunder jet and India's Tejas light combat aircraft.



Interestingly, in spite of the US's defense budget sequestration and major cuts in Europe, the demand for multi-purpose aircraft is expected to be robust throughout the forecast period. The F-35 Joint Strike Fighter is one of the most important programs in this category, with the US and nine other participating nations expected to cumulatively spend over US$200 billion on the procurement of the aircraft throughout the period 2015-2025. Other major aircraft procurements include Lockheed Martin's F-16, Eurofighter's Typhoon, Sukhoi's SU-30 and its variants, Saab's JAS 39 Gripen, and Dassault's Rafale.

'Greening' of the US defense market

As per a statement released by Dennis McGinn, Assistant Secretary of the US Navy for energy, installations and the environment - "We don't want to find ourselves with our backs against the wall in some future crisis where the availability and price of petroleum-based fuels limits all our options and makes them unattractive." One of the major trends currently being witnessed in the North American defense industry is the shift towards a low carbon economy. The primary reasons for this are: the need to protect the environment, the need to reduce reliance on conventional fuel owing to its limitedness, the need to cut down on casualties arising as a result of protecting fuel convoys and most importantly reduce costs in the long term. According to a study conducted by the Congressional Research Service, the US DoD incurred US$3 billion in unplanned expenses during 2011-2012, due to volatile fluctuations in fuel prices.

The US Army launched a US$4 billion green campaign in 2009, with the promise to spend billions of dollars over the next 30 years as well. The government is currently offering massive benefits to companies involved in the R&D of alternative fuels, with the move expected to result in robust opportunities in the short to medium term. A 4.5 MW solar farm at White Sands Missile Range in New Mexico is now responsible for 10 percent of the site's power, while Fort Bliss in Texas also has a 1.4 MW solar plant.

According to industry estimates, renewable energy sources are expected to account for a quarter of the US Army's energy requirements by 2025; up from the current 5.5%. The private sector is expected to reap rich dividends in the form of grants in the initial R&D phase and

contracts thereafter. Two companies based out of Northern California and Illinois recently received US$70 million grants to turn garbage into liquid fuel and Emerald Biofuels. What is interesting to note is that since the US is seeking to increase its renewable energy production capacity, it is willing to pay a premium for the increased security that comes with generating its own electricity and transport fuel, quite unlike when it's done purely for commercial reasons. Below are some of the green initiatives currently being undertaken by the US military, which are expected to witness significant government funding:

Need to maintain a low carbon footprint, save lives and reduce costs, expected to drive spending on the development of alternative energy

Solar tents: Use flexible photovoltaic panels to charge up any of the many batteries they carry while on duty. According to a study solar tents have saved the Kansas National Guard over US$230,000 in fuel costs.

Navy biofuels: In 2010, the US Navy successfully flew an F/A-18 Super Hornet fighter jet using a biofuel blend made of equal amounts of conventional jet fuel and a biofuel made from the camelina plant. The government now wants to develop a certification system for a wide variety of sources.

Portable fuel cells: Allows soldiers to plug all their gadgets in one place while cutting the overall weight by as much as 80%.

Fuel cell tanks: The army is currently exploring the use of fuel cell technology that would eliminate the need for gas while producing a silent tank. General Motors and the US Army Tank Automotive Research, Development & Engineering Center are currently expanding their collaboration in the development of hydrogen fuel cell technology.

Methodology

AgileIntel has a database of forecasted defense spending across 70 countries worldwide. The country's defense budget is first analyzed in isolation with information being sourced from budget documents provided by the various MoDs. AgileIntel then factors in other variables such as the economic and political environment and internal and external threats, before making its budget forecasts. AgileIntel then correlates this data at the program level by capturing programs of record and stated modernization plans. Each program or weapon acquisition is then dissected even further to establish data at a more granular level. The capture of current and planned programs in this manner allows for an estimation of the weapons market by identifying gaps in capability and comparing them with a country's modernization plans.