Defence iQ

GLOBAL ARMOURED VEHICLES MARKET REPORT 2016

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FOREWORD

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Within the past couple of years, as the Middle East and other regions become increasingly hostile with the threats of ISIL and other terrorist groups, the need for armoured vehicles is higher than ever before. Fortunately, defence budgets in many places throughout the world are increasing – giving way for growth in the market.

At Textron Systems Marine & Land Systems, we are continuously monitoring the market to meet armoured vehicle demand. We offer customers an extensive line-up of state-of-the-art armoured vehicles, known as the COMMANDO™ family of vehicles. More than 10,000 COMMANDO armoured vehicles are in the inventories of the United States and some 30 countries around the world.

With this experience, we believe we are prepared to face this upcoming year. Based on the market's current trends and the recent violence in the Ukraine, Iraq, Syria, and other regions of the world, we expect to see international demand and sales to foreign governments grow.

In these regions, to protect soldiers from improvised explosive device (IED) and other attacks, vehicles should include superior survivability and mobility. As a result, we expect to see wheeled armoured vehicles that demonstrate a balanced approach to survivability and mobility – as these vehicles tend to encompass the mission capabilities the military is looking for. However, with the additional need for vehicles to become increasingly lighter, and more flexible and agile, demand for light armoured vehicles will also increase.

To remain committed to the market and keep up with this potential increase in international demand, vehicle manufacturers should continuously look for ways to expand and advance in the market. With the increasing international demand, manufacturers should look to grow their global operations in emerging markets. By closely monitoring these new markets, identifying regional standards will become easier and ultimately allow for effective collaboration.

With these thoughts in mind, we are proud to lead you into this year's Global Armoured Vehicles Market Report. This report is intended as a freely available resource ahead of the world-renowned International Armoured Vehicles conference, now in its 16th year. The event is widely considered to be the leading conference and exhibition dedicated to land vehicles and force protection, underscored by its long pedigree and consistently highly-respected panel of keynote speakers.

We encourage you to join us at the International Armoured Vehicles conference in January to analyse the themes presented in this report alongside international militaries and representatives from the industry.

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EXECUTIVE SUMMARY

Confidence in the global armoured vehicle market is at a five-year high. Underpinned by steadily rising defence budgets, new contract opportunities and recent big ticket government investments, respondents to a survey for Defence IQ's 5th annual Global Armoured Vehicles Market Report revealed a generally positive outlook for the next decade. While confidence in the South American market wilted somewhat, the other burgeoning defence markets – the Middle East, Africa, and Asia-Pacific – offset this decline and was further consolidated by the muted yet robust response in Europe. It was the reinvigorated North American market though, which recovered from a miserable indictment in last year's report where insecurity tripled over a 12 month period, that ultimately fortified opinion with 43 percent indicating they were 'very confident' in the future of the global market.

The backdrop of the Ukraine crisis, the violent rise of ISIL in Iraq and Syria, continued tension in the Middle East dappled with flourishes of hot conflict in the region, and the increasingly bitter territorial clashes between China and her neighbours has put further pressure on governments to bolster military capabilities and armoured vehicle fleets. Active or planned armoured vehicle procurement programmes in almost every major and developing military force in the world are testament to that. All are explored in detail throughout this report.

India has long been the go-to market for armored vehicle manufacturers and component suppliers but having sustained a third year-on-year decline with just 40 percent of respondents identifying it as a priority target market is industry losing patience with a market blighted by bureaucracy and hurdles? In contrast, markets in the Middle East – in particular Saudi Arabia, Turkey and the UAE – are increasingly seen as attractive export opportunities. Australia and Mexico were also signaled by respondents to be compelling markets over the next ten years.

The threat from improvised explosive devices (IEDs) continues to be the most significant in a post-Afghanistan operating environment so investment and innovation in this area remains critical. As a result, Armoured Personnel Carriers (APCs) and Mine-Resistant Ambush-Protected (MRAP) vehicles will be in high demand despite a recent slump in orders for the latter as militaries seek increasingly lighter, more flexible and agile platforms. In parallel, it is apparent that demand for Light Armoured Vehicles (LAVs) will dwarf that for Main Battle Tanks (MBTs) in the future as the nature of warfare evolves and militaries encounter an ever more complex hybrid threat.

> "Getting a foothold in new and emerging markets and understanding regional standards was identified as the key challenge"

More armoured vehicle manufacturers and component suppliers are seeking to expand their global operations than ever but getting a foothold in new and emerging markets and understanding regional standards was identified as the key challenge for respondents. Invariably, help will come in the form of improved face-to-face engagement with regional military and industry leaders and collating intelligence on specific markets.

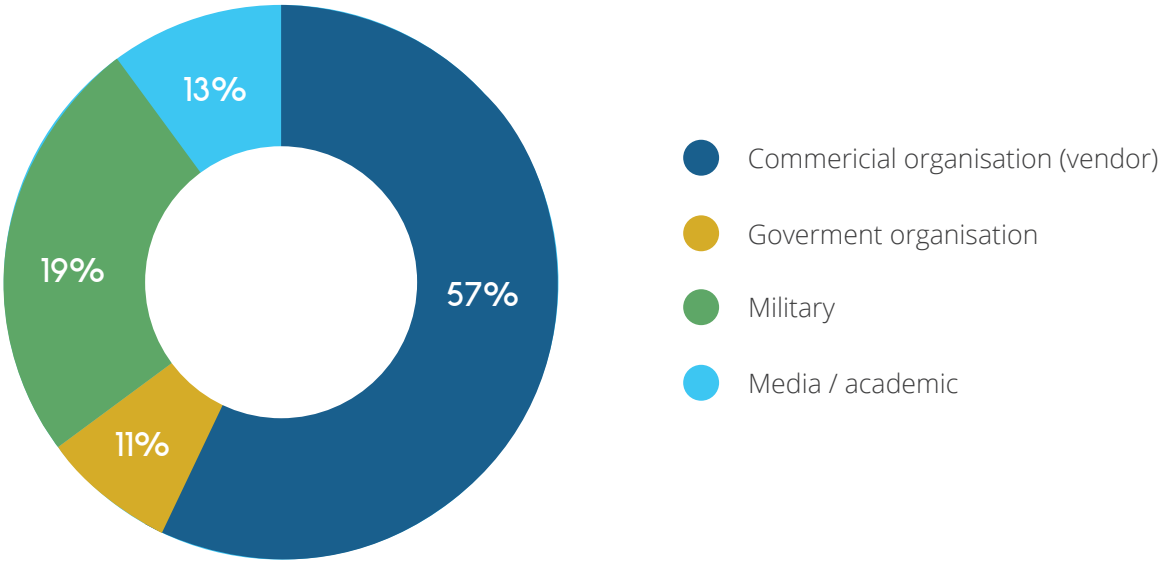
SURVEY ANALYSIS

This section of the report is based on an exclusive Defence IQ survey of senior executives and professionals within the armoured vehicle domain, which includes commercial and military (currently serving and retired) respondents. The analysis of the survey data has been supplemented with proprietary interviews and desktop research. Defence IQ's Global Armoured Vehicle Market Report is now in its fifth year, meaning the data in this report has been analysed within the context of recent developments and offers a reliable framework for the future trends of the armoured vehicle market.

Topics examined include; the key emerging regional markets, global procurement requirements, the primary challenges facing armoured vehicle manufacturers over the next decade, armoured vehicle design requirements, and the 'new normal' in the industry as the effects of the global financial crisis begin to wane and new opportunities emerge.

Figure 1. Analysis of respondents by type

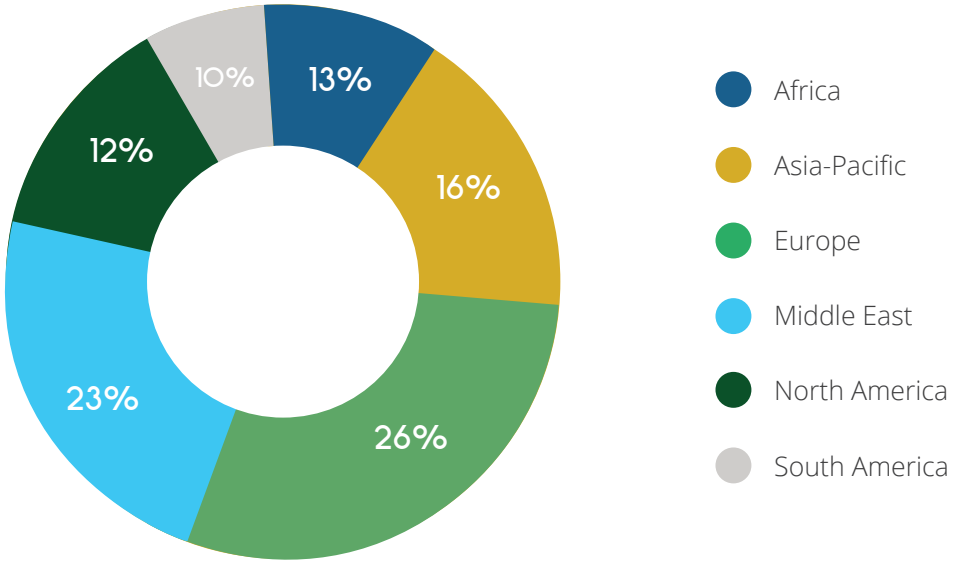
Please select which of the following categories best describes your current role with armoured vehicles.



The majority of survey respondents (57 percent) derived from the commercial sector, which is an increase of 3 percent on the number of respondents from industry in last year's Global Armoured Vehicle Market Report. Military respondents accounted for 19 percent of all respondents and 11 percent identified themselves as government employees or from related organisations. Individuals from defence academia and the media accounted for the remaining 13 percent of respondents.

Figure 2. Analysis of respondents by region

What is your primary region of interest with regards to armoured vehicles?



This report represents a more regionally diverse and delivers a more measured level of response than in previous surveys with participants from emerging and developing nations accounting for more of the total than ever before. Participation from Africa (13 percent), Asia-Pacific (16 percent), the Middle East (23 percent) and South America (10 percent) all increased year-on-year. Conversely, Europe and North America saw a dramatic decrease in proportional response, accounting for 26 percent and 12 percent respectively, down 14 percent in total. This is a direct correlation with the declining fortunes of the traditional markets in the West and the rising demand from markets in India, Brazil, Turkey, the UAE, Saudi Arabia, and Australia for example.

However, while this data can go some way to indicating which regions are seeing an increasing interest in the armoured vehicle market, Figure 2 is more a reflection of the make-up of Defence IQ's membership base than any particular insight into wider armoured vehicle trends – please consult the data in Figure 4 for target markets and regional growth potential. The graph above is only designed to give the reader an understanding of which geographies the data is collected from and should be considered within this regional context. A number of graphs and figures in this report have been broken down into their regional responses but the majority are taken as a 'global' response.

Figure 3. Analysis of armoured vehicle market confidence by region

How confident are you in the future of the armoured vehicle market in your region over the next 10 years?

GLOBAL

Very confident	43%
Quite confident	**45%**
Not confident	9%
Unsure/no opinion	3%

AFRICA

Very confident	**68%**
Quite confident	26%
Not confident	0%
Unsure/no opinion	4%

ASIA-PACIFIC

Very confident	**52%**
Quite confident	39%
Not confident	8%
Unsure/no opinion	0%

EUROPE

Very confident	31%
Quite confident	**61%**
Not confident	8%
Unsure/no opinion	0%

MIDDLE-EAST

Very confident	41%
Quite confident	**50%**
Not confident	2%
Unsure/no opinion	7%

NORTH AMERICA

Very confident	**47%**
Quite confident	29%
Not confident	4%
Unsure/no opinion	0%

LATIN AMERICA

Very confident	21%
Quite confident	**43%**
Not confident	21%
Unsure/no opinion	14%

Confidence in the global armoured vehicle market is at a five-year high with 43 percent of respondents stating a firm assurance in order books over the next decade. That's a 10 percent bump from last year where just a third of participants identified being 'very confident' in the future of the market.

Consistent with the 2015 report, this year North America is again the dominant market influencing global opinion. However, this time the outlook is far more positive. Last year, confidence in the North American market tanked as half of respondents claimed to have no faith in the sector, which was triple the 18 percent stating the same just 12 months earlier. Following a number of high profile government contracts and investments – not least the $30bn Joint Light Tactical (JLTV) programme, which was awarded to Oshkosh Corp. in August – confidence in the world's largest armoured vehicle market has been somewhat restored with 47 percent now declaring a high level of confidence, up from just 11 percent last year.

This has had a knock-on effect with other markets and notably increased the favourable global outlook.

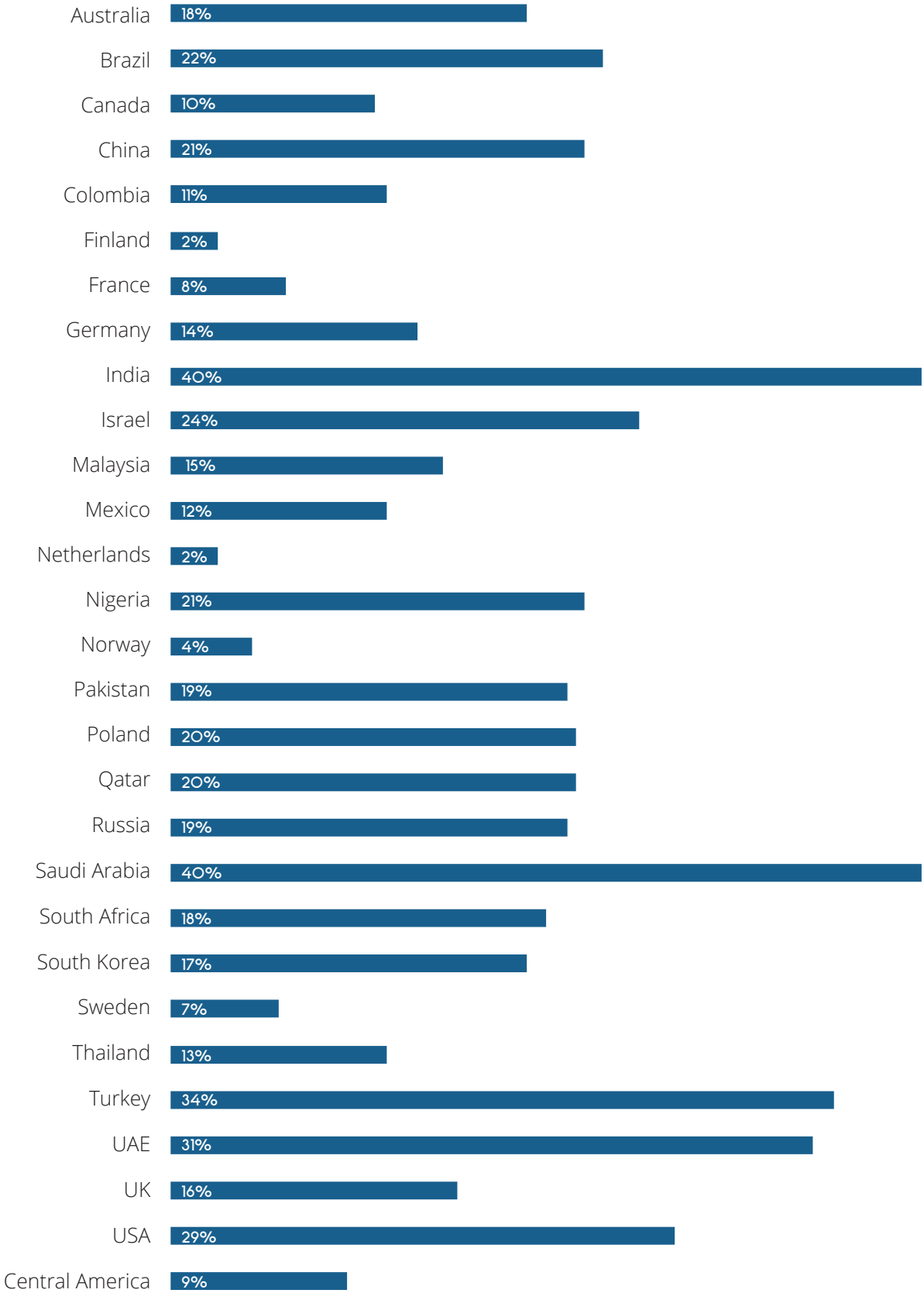
Confidence levels in Africa (68 percent), Asia-Pacific (52 percent), and the Middle East (41 percent) all increased, with only Europe and South America reporting slight slips.

Steadily increasing budgets, new contract opportunities, and the threat of conflict outbreaks as political alliances continue to unravel in Eastern Europe, the Middle East, North Africa and in the Asia-Pacific region have all bolstered demand for armoured vehicles over the last 12 months.

One of the clearest signs of self-assurance is being decisive; sitting on the fence rarely inspires confidence. The number of respondents stating they were 'unsure' about the market outlook declined from 8 percent in the 2015 report to just 3 percent in 2016. After the economic crash in 2008 the defence sector was hit particularly hard as governments sought to balance the books and axe anything not an immediate priority from their budgets. While confidence in the market is yet to return to those levels of buoyancy, data from this survey indicates the recovery is now well established and industry is beginning to heavily invest in future capabilities and infrastructure.

Figure 4. Overview of key armoured vehicle growth markets

Which countries present the greatest potential for growth and will be targeted as a priority over the next 10 years?



For the first time in this Armoured Vehicle Market Report series, India is not the top target market for armoured vehicle manufacturers and the supply chain to win business and chase growth. In every one of the last four reports New Delhi has been the outright leader but in 2016 it must share that accolade with Saudi Arabia. This year, 40 percent of respondents identified both countries as the joint top target for growth and opportunity in the future. Despite India resigning its sole lead at the top of the regional growth table, interest in the market in fact increased 1 percent year-on year. By comparison, the appeal of the Saudi market jumped 5 percent.

The potential for foreign and local businesses in India are vast yet the sluggish nature of the market is resulting in fatigue and consumer apathy as long-term contracts drag on and red tape continues to hamper progress. While India finally gave the green light for its indigenous Future Infantry Combat Vehicle (FICV) programme this year, which is the largest land system programme India has ever undertaken, it is obvious that industry remains unconvinced about the real world opportunities available to them in the region.

Despite Europeans demonstrating increasing confidence in their home market the global outlook for the region is still lacklustre. Poland is the leading European target with 20 percent of respondents indicating its potential for growth and investment over the next decade. It is evident that emerging markets remain the key targets for respondents despite traditional markets in Europe returning to pre-recession levels. Indeed, three of the top four target markets (Saudi Arabia, Turkey, and UAE) are based in the Middle East, which is fast becoming a dominant player in the armoured vehicle arena.

Perhaps boosted by circumstance and timing, last year Israel was identified by 30 percent of respondents as a priority market, which was more than a two fold increase from 2014. This year interest has slipped back to 24 percent, which is a reflection of the relatively more stable outlook in the region compared with this time last year when there was significant conflict in Gaza. Those events clearly influenced and inflated the survey results but this year it appears to have returned to more normal levels.

Interest in the Australian armoured vehicle market saw a notable shift with a 5 percent year-on-year increase marking it out as a sector on the up. With 18 percent of respondents identifying it as a target market, Australia is a higher priority for the global armoured vehicle community than at any time over the last five years. Recent progress with its Land 121 and Land 400 modernisation programmes has inevitably bolstered its appeal to manufacturers.

However, the country witnessing the largest year-on-year increase is Mexico. Those targeting it as a priority market rose 7 percent from just 5 percent in 2015 to 12 percent in 2016. The country has money to invest – and not to mention a pressing need to spend it – and is increasingly viewed as a market for growth across many defence sub-sectors. Keep an eye on it.

Turkey continues to increase its market share year-on-year, up from 25 percent in 2014 to 30 percent in 2015 and now 34 percent in 2016. The Turkish defence industry is emerging as a major hub for military equipment and support; the data indicates the next decade will be a period of high growth for the country positioning itself to become a key global exporter of armoured vehicles over the next decade. Its indigenous industry is also continuing to gain significant traction and is looking at significant export deals in the Middle East and Asia over the coming years.

In accordance with the data in Figure 3, the US increased its share year-on-year where 29 percent of respondents identified it as a key market, up from 26 percent last year. Despite being highly competitive and constrained by budget and contractual hurdles in recent years, the US is still seen as the fifth most appealing regional market and a target for growth for many companies in the industry.

Figure 5. Analysis of key armoured vehicle attributes over the next decade

Please rate how critical you view the following attributes in terms of key armoured vehicle requirements over the next 10 years.

	Unimportant	Somewhat important	Very important	Critical
Ballistic protection	1%	8%	**46%**	45%
Blast protection / counter-IED	1%	12%	31%	**55%**
Environmental control systems	9%	**46%**	39%	6%
Interoperable communications	1%	18%	**51%**	30%
Load carrying capacity	2%	36%	**52%**	10%
Mission range	2%	27%	**57%**	14%
Modular / interchangeable mission role (adaptability)	4%	27%	**52%**	17%
Power/weight ratio	6%	15%	**61%**	18%
Reducing repair/maintenance costs	4%	24%	**47%**	24%
Speed/ maneuverability	3%	21%	**58%**	18%
Easily transportable	4%	29%	**54%**	13%
Reduced unit cost out of factory	7%	**40%**	37%	17%
Reliability	0%	12%	**45%**	43%

Protection is always identified as the key attribute for armoured vehicles and this year is no different. IED and blast protection was said to be 'critical' by 55 percent of respondents, the highest of all other attributes. The next most critical was ballistic protection with 45 percent. Although IED and blast protection saw a 3 percent year-on-year decline there is no doubt it is an indispensable feature for modern medium and heavy armoured vehicles. Protection has again trumped speed (18 percent) and unit cost (17 percent) in the great survivability vs mobility vs cost debate. In fact the latter two witnessed a year-on-year decline, which were 28 percent and 23 percent respectively in 2015.

Reliability was also identified as a significant feature with 43 percent stating it is critical while 45 percent said it was very important. In efforts to reduce through-life costs, government requirements for reliability represent a step-change in what has previously been expected, meaning vehicle integrators are working hard to meet the new demands.

Load carrying capacity and environmental control systems are frequently portrayed as the least important attributes but surprisingly 'reduced unit cost' has split these two this year. With 7 percent insisting that cost was 'unimportant', is this a reflection of wider confidence in the armoured vehicle market and government investment in it? Given future complex operating environments and the ever-increasing need to heighten the protection of troops, are requirements slowly beginning to overtake strict cost structures?

Figure 6. Overview of key threats to armoured vehicle survivability

Thinking specifically about the requirements in your region of interest, which threats should armoured vehicles seek to protect against most when considering the present and future threat landscape?

GLOBAL

CBRN (Chemical Biological Radiological Nuclear)	29%
Small arms ballistic attack (up to and including 7.62mm)	63%
HMG ballistic attack (above 7.62mm)	68%
Blast / IEDs	**78%**
Directed energy systems attack	20%
RPG	65%
Unfamiliar and difficult terrain / climate	40%

AFRICA

CBRN (Chemical Biological Radiological Nuclear)	16%
Small arms ballistic attack (up to and including 7.62mm)	79%
HMG ballistic attack (above 7.62mm)	**95%**
Blast / IEDs	93%
Directed energy systems attack	11%
RPG	88%
Unfamiliar and difficult terrain / climate	47%

ASIA-PACIFIC

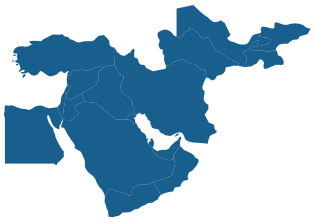
CBRN (Chemical Biological Radiological Nuclear)	39%
Small arms ballistic attack (up to and including 7.62mm)	56%
HMG ballistic attack (above 7.62mm)	52%
Blast / IEDs	**65%**
Directed energy systems attack	13%
RPG	48%
Unfamiliar and difficult terrain / climate	35%

EUROPE

CBRN (Chemical Biological Radiological Nuclear)	34%
Small arms ballistic attack (up to and including 7.62mm)	58%
HMG ballistic attack (above 7.62mm)	75%
Blast / IEDs	**77%**
Directed energy systems attack	51%
RPG	72%
Unfamiliar and difficult terrain / climate	32%

MIDDLE EAST

CBRN (Chemical Biological Radiological Nuclear)	34%
Small arms ballistic attack (up to and including 7.62mm)	50%
HMG ballistic attack (above 7.62mm)	51%
Blast / IEDs	**78%**
Directed energy systems attack	2%
RPG	3%
Unfamiliar and difficult terrain / climate	38%



NORTH AMERICA

CBRN (Chemical Biological Radiological Nuclear)	24%
Small arms ballistic attack (up to and including 7.62mm)	65%
HMG ballistic attack (above 7.62mm)	53%
Blast / IEDs	**64%**
Directed energy systems attack	11%
RPG	54%
Unfamiliar and difficult terrain / climate	35%

LATIN AMERICA

CBRN (Chemical Biological Radiological Nuclear)	7%
Small arms ballistic attack (up to and including 7.62mm)	64%
HMG ballistic attack (above 7.62mm)	56%
Blast / IEDs	**65%**
Directed energy systems attack	6%
RPG	50%
Unfamiliar and difficult terrain / climate	49%

Supporting the data in Figure 5, blast and IEDs are seen as the most significant threat to armoured vehicles over the next decade. Globally, 78 percent of respondents believe the IED to be the key threat, followed by heavy machine gun ballistic attack (68 percent) and RPGs (65 percent), although the order of these flipped when compared to last year's survey, indicating that HMG threat has become marginally more potent over the last 12 months.

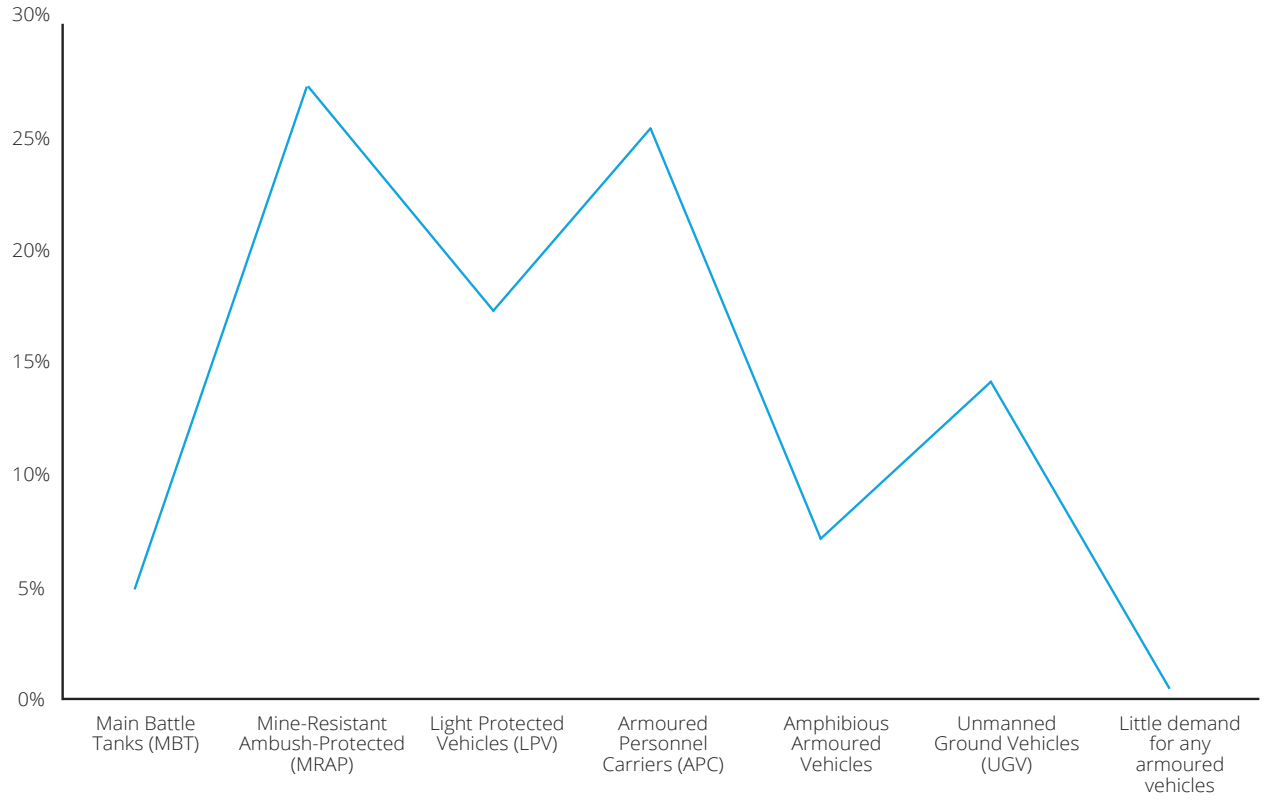
Regionally, the IED is still the biggest threat in the Middle East (78 percent), Asia-Pacific (65 percent), Europe (77 percent), North America (64 percent) and South America (65 percent). Indeed it is seen as the priority armoured vehicle requirement in every region other than Africa, where heavy machine gun attack is valued as the most important attribute with 95 percent of respondents indicating this.

The continued year-on-year rise in the threat posed from Chemical Biological Radiological Nuclear (CBRN) attack was put on pause this year, remaining steady at 29 percent. The threat from CBRN attacks should remain at the forefront of industry's thinking in this field; although counter-insurgency has been the principal form of conflict recently, it would be reckless to take the CBRN threat lightly. Increasingly, that appears to not be the case.

The juxtaposition between the perceived threat from directed energy weapons (DEW) in Europe and the Middle East is stark, and fascinating. The majority (51 percent) of Europeans believe DEW present a real threat that future armoured vehicles should seek to protect against, just 2 percent indicated the same from the Middle East. It highlights the vast regional differences in priorities, technological development and capabilities and should act a reminder that there is no one-size-fits-all approach to building armoured vehicles; cultural, environmental, and political norms change markedly from region to region.

Figure 7. Analysis of global demand for armoured vehicle type through 2026

Which type of armoured vehicles are likely to be in the highest demand globally over the next ten years?



The Armoured Personnel Carrier (APC) has reclaimed its position as the vehicle likely to be in highest demand over the next decade after the MRAP briefly overtook it last year. The APC was identified as the vehicle likely to be in highest demand globally over the next ten years with 27 percent of respondents indicating it as a key choice. The MRAP followed close behind on 25 percent, which is 2 percent down from 2015 and 10 percent down from 2014.

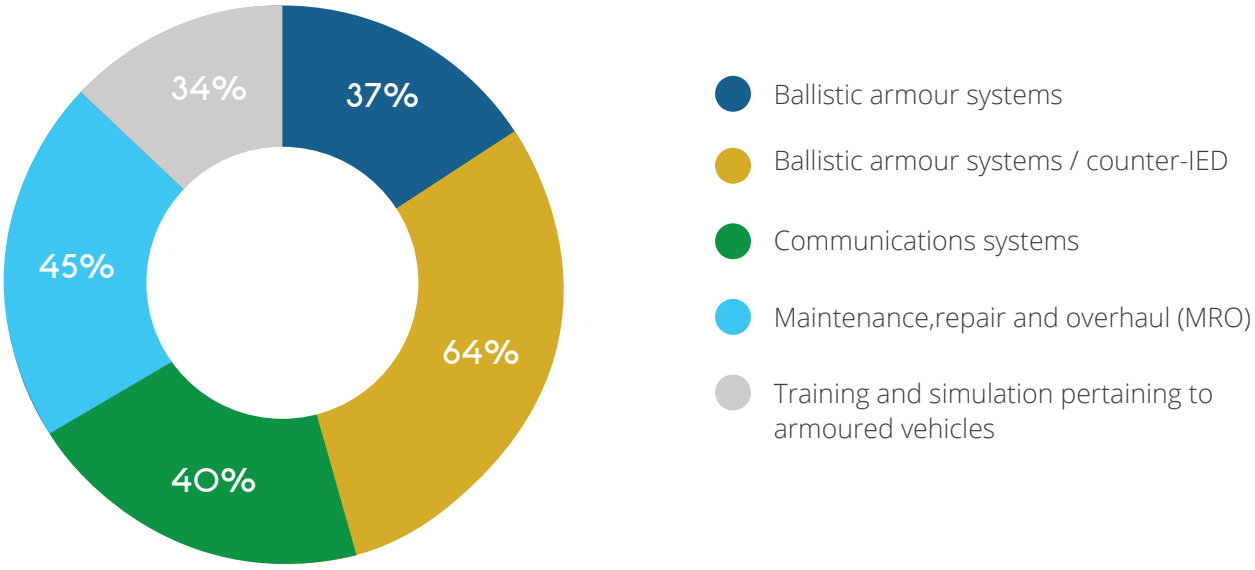
Demand for the Main Battle Tank (MBT) declined again this year after a spike in interest 12 months ago. Just 5 percent identified it as a vehicle likely to be in high demand this year compared with 8 percent in 2015. While a number of countries are developing new and modernising old MBTs – with Turkey, South Korea and Thailand all requiring a heavy armoured platform in the future – lighter, more agile and flexible vehicles are the preferred choice for the complex operating environments of the future. However, according to recent figures around 6,000 MBTs are forecast to be produced globally over the next 10 years for a total cost of about $26bn, so there is still a robust market for the vehicle.

And yet this is dwarfed by demand for light armoured vehicles. Around 11,000 light tracked vehicles are forecast to be produced over the next decade, valued at over $30bn while almost 27,000 light wheeled vehicles valued at over $12bn are also forecast to be produced.

The Unmanned Ground Vehicle (UGV) also saw a year-on-year rise in demand with 14 percent identifying it as a platform of choice in the future compared with 11 percent last year. A number of countries are investing in the technology including the Russian Ministry of Industry and Trade (Minpromrtorg), which has announced a tender opportunity to create a roadmap for the development of robotic systems and unmanned ground vehicles (UGVs) valued at around $0.5m.

Figure 8. Analysis of technology investment over the next decade

Thinking about how governments will apportion budgets over the next 10 years, which areas of armoured vehicles will see the greatest investment globally?



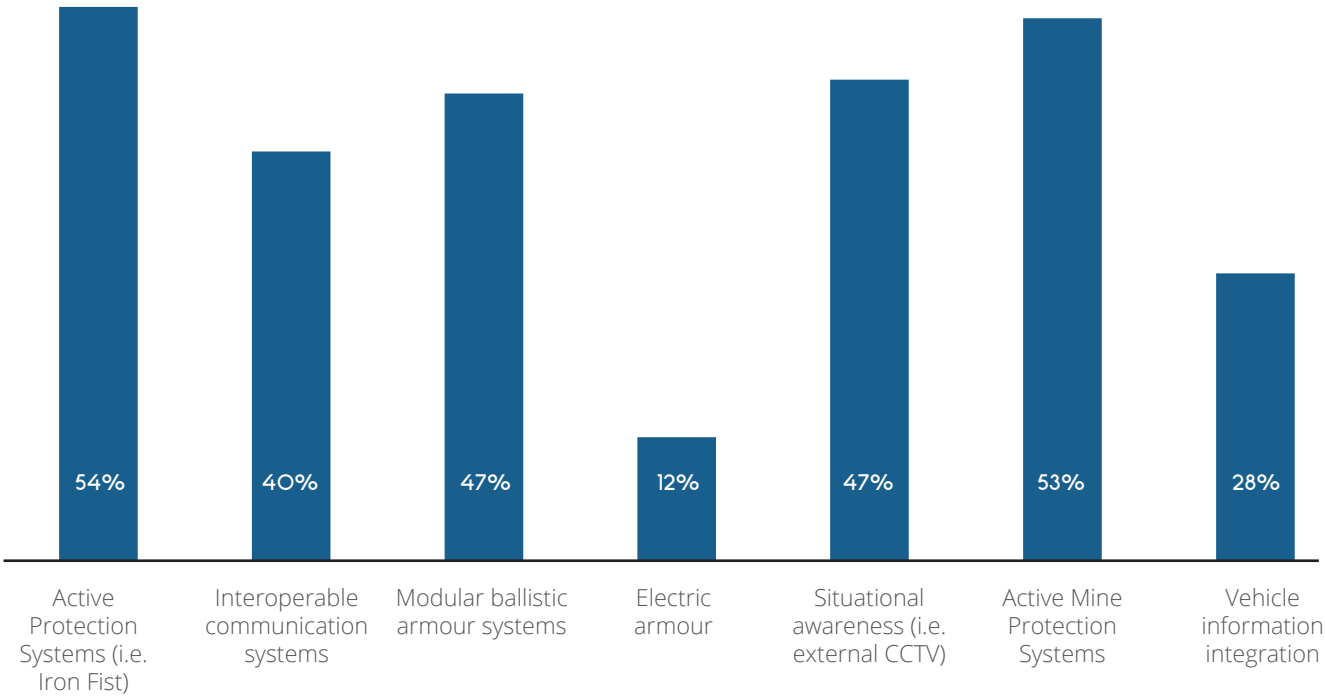
Consistent with the analysis of the data in Figures 5 and 6, the technologies that respondents believe will be granted the most significant levels of investment are counter-IED measures and blast protection systems. Almost two thirds (64 percent) said that these systems will be favoured when defence ministries look to apportion budgets over the next few years. This represents is a 3 percent year-on-year increase, further underlying the significance of the IED and blast threat and need for future investment.

Last year calls for investment in maintenance, repair and overhaul (MRO) surged with 47 percent of respondents identifying it as a key investment, which was an increase of 15 percent from 2014. This year it has declined marginally back to 45 percent but it is still the second highest rated priority behind C-IED measures. It's a sign of the times that the through-life cost of an armoured vehicle is now viewed on a par with the factory cost of the vehicle. It underscores that governments are getting – or at least trying to get – smarter at procuring military equipment and investing more resources into ensuring that the kit they buy is not only relevant and cost effective now, but 30 years from now too.

The increased demand for training and simulation investment is also notable. This year 34 percent identified it as a key investment priority, up 6 percent from last year. As platforms become more expensive and the cost of running live training missions continues to stretch budgets as armed forces seek to 'do more with less', the demand for advanced training and simulation technologies is likely to endure.

Figure 9. Analysis of technology investment over the next decade

In terms of improving performance and survivability, which technology do you think will have the greatest impact on the armoured vehicle market over the next decade?



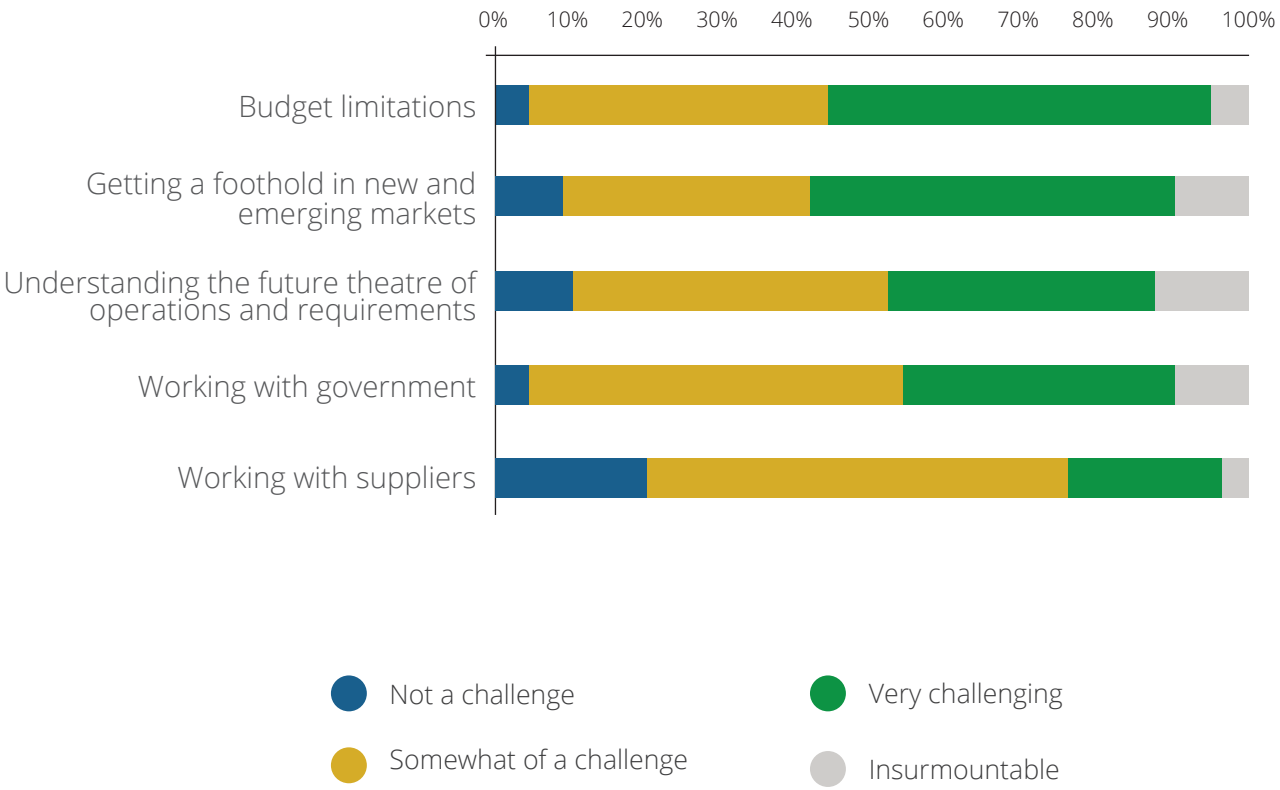
Active Protection Systems (APS) were identified as the key trend to impact future armoured vehicle design. APS such as Rafael's Trophy, which is designed to identify and intercept incoming projectiles, are seen to be critical AFV technologies according to 54 percent of respondents. That represents a 6 percent year-on-year increase, highlighting the rapidly changing operating environments and reinforcing the number one priority: Keep the troops safe inside. Used in combination with traditional armour, active protection systems can offer much needed supplementary support and will continue to see significant investment from research houses and specialist manufacturers. While APS are unlikely to replace physical armour systems in the short-term, the advancement of the technology does not appear to be in doubt and is likely to become a major component of an armoured vehicle's protection system in the future.

In line with likely investment priorities, one of the key technologies to improve the performance and survivability of armoured vehicles was identified as active mine protection systems and other similar innovations to mitigate the effects of blast (53 percent). Any military strategist will tell you that the IED threat is not going away. Now is the time to reflect on lessons learnt from Iraq and Afghanistan and develop more sophisticated systems for future armoured vehicles and the hybrid threats in complex operating environments. The development of active mine protection systems is central to the work in this field.

Electric armour has been a burgeoning technology for a number of years but it still hasn't emerged as a reliable market solution for the mass market. Just 12 percent of respondents believe it will have an impact on the armoured vehicle market over the next ten years. It's likely that when electric armour been through a robust development and testing programme it will be an effective protection solution – whether that happens within the next decade is unknown.

Figure 10. Analysis of armoured vehicle challenges through 2026

To what extent do armoured vehicle manufacturers in your region of interest find the following a challenge?

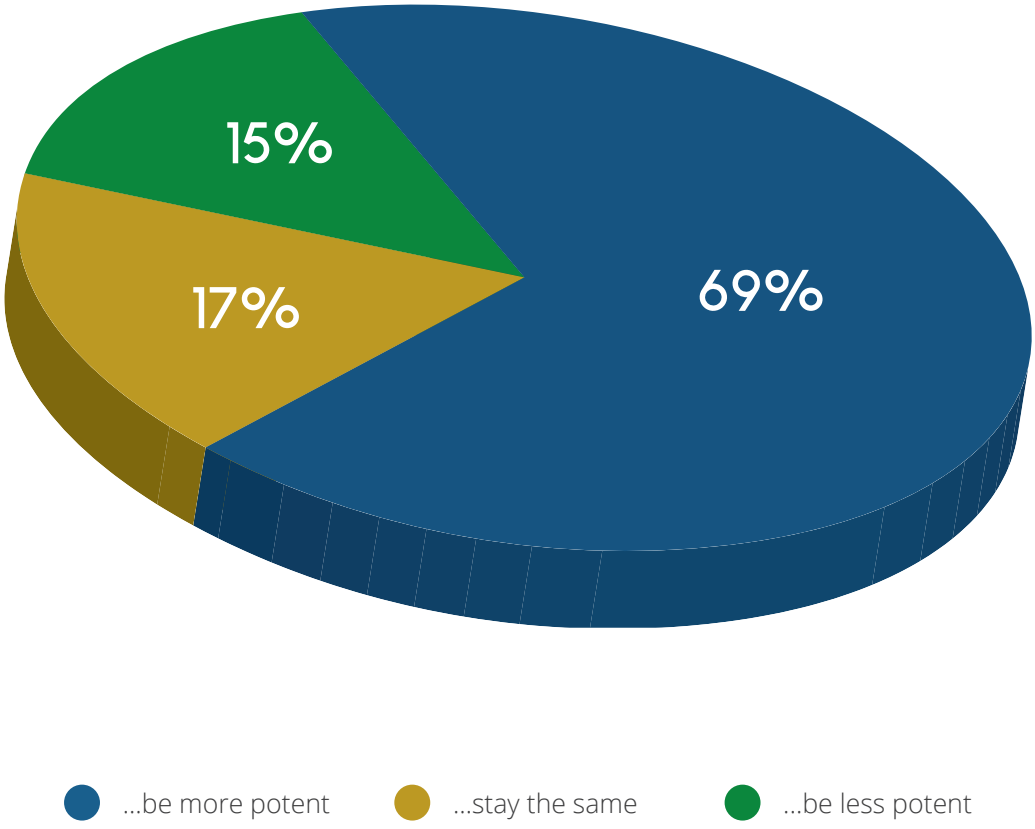


More respondents thought the challenge of getting a foothold in new and emerging markets was the most insurmountable hurdle (10 percent), followed by understanding the future threats and requirements (8 percent) and budget limitations (7 percent). The task of reaching new markets leaped from being the fourth most significant challenge for survey participants last year to the first in 2016. It's an extraordinary result and demonstrates that regional armoured vehicle manufacturers and component suppliers are seeking to expand their global operations. But they need help, which invariably will come from more engagement with regional military and industry leaders and gathering intelligence on specific markets.

As indicated in Figure 8, budget limitations remain an important challenge for industry and government, despite the demand in the market steadily rising year-on-year. However, the challenge this presents appears to be waning. Just 56 percent of respondents thought budget limitations were either very challenging or an insurmountable burden in 2016, which represents a 15 percent decline year-on-year. While still one of the key challenges for industry and governments, the improved economic environment has had a soothing effect on market confidence and requirements are beginning to become a more important consideration than cost alone.

Figure 11. Overview of global military perception of armoured vehicle fleet potency

In ten years time do you foresee your armoured vehicle fleet to...



After consist declines in how confident military respondents were in the future of their armoured vehicle fleets, this year, in line with the wider findings of this report, confidence appears to be returning with 69 percent indicating that future armoured vehicle fleets will be more potent within the next decade. That's up from 56 percent last year and indicative of the new vehicle procurement and modernisation programmes that have been authorised over the last 12 months.

Those expecting their fleets to stay the same decreased from 38 percent in 2015 to just 17 percent this year.

Figure 12. Analysis of global military perception of key armoured vehicle requirements

Please rate how critical you view the following attributes in terms of key armoured vehicle requirements over the next 10 years.

	Inadequate	Good enough	Very good	Exceptional
Lethality	17%	39%	**43%**	0%
Survivability	**44%**	26%	26%	4%
Mobility	17%	**39%**	30%	13%
Scope for modernisation	38%	**43%**	19%	0%
Communications	18%	**50%**	27%	5%
Flexibility (for foreign conflict and homeland security operations)	30%	**43%**	13%	14%
Speed	18%	**59%**	18%	5%
Value for money	29%	**52%**	19%	0%

Figure 12 gives an overview of current levels of satisfaction within the military community regarding their armoured vehicle fleets. Few identified any attribute as being 'exceptional', with the majority conceding that they were either 'good enough' or, in a number of cases, 'inadequate'.

The steep year-on-year decline in satisfaction with the survivability of current armoured vehicles is blunt. Almost half (44 percent) of military respondents indicted that ballistic and blast protection was currently inadequate, up from 23 percent last year. Perhaps influenced by events and incidents on operations over the last 12 months, there has been a remarkable decline in confidence in how well protected some vehicles are. This further underlines the findings in this report that investment in a new generation of armour technologies is vital and must be considered a priority for governments and industry in the future.

REGIONAL MARKET ANALYSIS

EUROPE

The security situation in Europe has changed dramatically since the Russian annexation of Crimea and the emergence of the jihadists flying the ISIL banner. Both eastern and southern NATO flanks are facing immediate threats, with increased Russian presence in the Arctic region arguably presenting an emerging risk on the northern front. Meanwhile, humanitarian operations, primarily in the Middle East and Africa, remain a factor drawing on European resources.

While many European land forces deployed on the Afghanistan and Iraq campaigns, the new environment presents greater risk, both in the form of a more sophisticated opposition (more lethal IEDs, advanced weaponry, comparable armoured fleets) and the fact that forces need to be stretched to cover multiple points of potential incursion. Adding to the complexity, fiscal limitations over recent years have thinned the number (and arguably, the capability) of total European forces. However, in response to the new situation, many nations have this year turned the tide on the austerity trend and increased their defence budgets. Large-scale armoured vehicle programmes, from brand new platforms to MRO efforts, have emerged continent-wide as part of the race to modernise and maximise active fleets. Overall, there is a slight increase in confidence in the European armoured vehicles market compared to the previous three years. SIPRI has noted a $2bn growth from 2013-2014 for the region, with most of the surge arising in Eastern and Central Europe. Those figures are expected to grow again in the year ahead.

The **United Kingdom** has been returning to a contingency posture since ending its operations in Afghanistan in 2014, but concerns over Russian aggression and fresh militant activity in the Middle East has kept the MoD on its toes. The British Army is still undertaking its 'Army 2020' internal restructuring, aimed at saving £5.3bn ($8.9bn). The main changes have been underway over the past 12 months at Divisional, Brigade and Unit level, including implementation of a mid-life upgrade to 643 Warrior infantry fighting vehicles in a project known as the Warrior Capability Sustainment Programme (WCSP). Like several of the other 'elite' NATO nations, the country has pledged to up its defence spending to 2 percent of GDP, as required under Alliance guidelines.

The nation also continues to advance its future rapid effects system (FRES) programme. This year, it pledged a £390m ($608m) support contract in July for the General Dynamics Ajax (formerly 'Scout') Specialist Vehicles (SV) fleet, following a £3.5bn ($5.46bn) deal announced ahead of the 2014 NATO Summit in Wales to buy 589 of the vehicles. The contract will run until 2024. In undertaking the work, GD decided to move a portion of the assembly work from Spain to the UK. Thales secured the contract to supply sighting systems and ancillary equipment for the SV production phase – consisting of a primary sight, local situational awareness (LSA) camera system and smoke dispenser – while Rheinmetall Defence received the contract to manufacture its turret structures, Curtiss-Wright is adding its turret drive servo system (TDSS), and CTA International 40 mm Case Telescoped Armament System (CTAS) cannons will provide advanced firepower and an airburst ammunition capability.

The UK has purchased 589 Ajax (Scout SV) vehicles. Source: General Dynamics

Further to this, the Royal Marines may be in line for a new fleet of 233 amphibious all-terrain support vehicles if the MoD proceeds with its replacement programme of the BV206 fleet. The Future ATV (F/ATV) is estimated at a cost of £230m ($360.3m). An 8x8 vehicle competition for the Army is also set to begin, according to a September announcement made by the Chief of the General Staff, presumably to replace a failed 2008 contract between the MoD and General Dynamics.

After a particularly trying time under the economic downturn, **Spain** has finally reignited its search for a new 8x8 armoured IFV, which had been considered a top priority until events in 2012 resulted in delay. The 2015 RfI came six years after the original, when the intention was to produce at least 400 vehicles at an estimated €1.5bn ($1.67bn). A $99m R&D contract to develop a prototype has been awarded to GDELS - Santa Bárbara Sistemas. In 2014, Spain allocated $127m for the 2014-2020 period to acquire new, tri-service, medium to heavy combat support and logistics trucks. In addition to these latest developments, Spanish forces are currently providing support to Iraqi forces with the provision of training, logistics and equipment.

Portugal approved its 12-year military programming law in early 2015 with the Ministry of National Defence expected to spend €960m ($1.084bn) in armament programmes up to 2018. Of these, the priority army programmes over the next four years include the procurement of 4x4 light armoured vehicles for the army's Rapid Reaction Brigade (BrigRR). Having received 166 Pandur II 8x8 armoured vehicles, the army's Intervention Brigade (BrigInt) will receive 22 more vehicles as part of a deal agreed in October 2014 between Portugal and General Dynamics European Land Systems (GDELS). Portugal has allocated $2.45bn (around 1.1 percent of the country's GDP) to defence in 2015.

Italy's defence budget continues to decline, listing a total spending by the Ministry of Defence of €13.19bn ($14.7bn) in the latest release. This includes procurement spending of €2.64bn, albeit with €2.8bn invested by the Ministry of Industry, allowing a total procurement spend of €4.87bn ($5.4bn). The recent efforts to purchase 381 Freccia 8x8 multirole armoured vehicles from the Iveco-Oto Melara (Finmeccanica) consortium are understood to have cost around $2.9bn, with acquisitions spread over the coming years until 2024. These new vehicles will equip a brigade and form part of the Italian Army's shift to greater mobility and digitisation. It follows a procurement programme - primarily funded by the Ministry of Industry – covering 249 Freccia vehicles. The new Freccias are planned in combat, anti-tank, mortar, command post and exploration version. The chairman of Iveco Defense Vehicles stated that the second batch of Freccias could be equipped with more powerful engines thanks to parallel development work being undertaken on the new version of the Centauro wheeled tank, also being produced by the same consortium. Centauro 2 is fitted with a 120mm smoothbore main gun and will offer enhanced protection and digitised C2. The first working version was observed by the Defence Chief of Staff in mid-2015 as it began extensive user trials.

Medium vehicles have been considered the 'key element' in terms of providing the flexibility and digitisation required of the modern Italian fleet. Previously announced armoured vehicle priorities include the completion of upgrades to the Ariete MBTs and the Dardo IFVs to urgently upgrade IED protection. UGVs are also being closely considered for future Italian procurement as the technology matures and new innovations enter the market. On the export side, the Italian government recently donated 54 military trucks to the Somali National Army (SNA) as part of assistance in rebuilding the army of the war-ravaged nation.

Survivability of the 4x4 Bushmaster has been put to the test this year. Source: Dutch MoD

At the end of June 2015, the Royal **Netherlands** Army completed delivery of the (NL AMB) Ambulance Boxer – produced by ARTEC industrial group – alongside all Driver Training versions. These comprise part of the 472-strong fleet of Boxer vehicles entering service for the Netherlands and Germany. The first of 60 Command Post versions was delivered in July while the remaining GNGP (Engineering Vehicle) and Cargo variants are expected to be delivered from the beginning of 2016 onwards.

Driven by the tragic downing of Flight MH17 over East Ukraine, the Netherlands decided to increase defence spending by $129m (€100m) per year from 2015 (which

in the first instance represents a growth to $8.88bn for the present fiscal year up from $8.44bn). According to Dutch Ministry of Defence figures, defence now accounts for 1.15 percent of GDP. This figure was at 2.4 percent prior to the fall of the Iron Curtain in 1989. The chief of the Dutch armed forces has stated that a strengthening of all military services will enable the Netherlands to continue to contribute to conflicts on the edge of Europe, including Mali and Syria. In related developments, it was reported in May 2015 that a Dutch 4x4 Bushmaster mine resistant, ambush protected (MRAP) vehicle hit a roadside bomb in Mali, damaging the vehicle but causing no injuries to those inside.

Across the border, the Armed Forces of **Belgium** have phased out tracked vehicles to go completely wheeled, with an inventory that includes Piranha 8x8s. The country was on heightened alert to extremism in 2015 following the arrest of a number of suspected radical terrorists, the result of which saw the government briefly commit up to 300 troops to guard duty to reinforce the police, including Light Multirole Vehicles.

Reports suggest the Belgian Defence Ministry wants to triple the budget of the Belgian Land Component by 2030 – or 1.6 percent of GDP – but current plans are to continue with cuts, as announced towards the end of 2014. The 2015 budget circles the €2.45bn ($2.72bn) mark and should decline to €2.1bn ($2.33bn) by 2019 if current proposals take effect.

Concept image of France's upcoming VBMR 6x6 'Griffon'. Source: French MoD

In December 2014, **France** signed a €752m ($929m) contract for a new generation of wheeled combat vehicles as part of its landmark SCORPION army modernisation programme. The deal will see development and acquisition, maintenance and training equipment provided for the 6x6 Véhicule Blindé MultiRole (VBMR, or 'Griffon') and 6x6 Engin Blindé de Reconnaissance et de Combat (EBRC, or 'Jaguar'). Griffon will replace the 4x4 VAB light armoured transport vehicle, while Jaguar will replace a range of other wheeled combat vehicles in service, such as the ERC90 Sagaie and the AMX 10RC. The vehicles are being developed by an all-French consortium comprised of Nexter Systems, Renault Trucks Défense (RTD) and Thales Communication and Security.

SCORPION – estimated to cost €5bn ($5.56bn) over the next 10 years – includes the complete renewal of the country's medium-weight armoured combat vehicle fleet, along with aspects of life extensions for existing systems and the development of a standardised digital network. A 10-ton 4x4 Griffon Light armed with a remote weapon station (RWS) is also in the pipeline, as is a retrofit of the Leclerc main battle tank (MBT) to see up to 200 remain in service until 2040. Under current plans, France will produce 1,722 VBMRs, 358 VBMR Lights, and 248 EBRCs, with the first vehicles entering production in 2018.

Last year, **Germany**'s weapon exports hit a ten-year high, with the Ministry of Economic Affairs and Energy approving Rheinmetall's transfer of production equipment to Algeria to enable local construction of Fuchs armoured vehicles. 980 Fuchs 2 vehicles are to be built as part of the €2.7bn ($3bn) deal.

As far as its own vehicle fleet stands, reform has been taking place. After a long period of tentative negotiations, the government has now committed to boost defence spending, fulfilling its NATO commitment to 2 percent of GDP. The Federal Cabinet has approved the 2016 budget and financial planning cycle until 2019, which will should see an increase of 4.2 percent over 2015 levels. A further €8bn ($8.9bn) is expected to be spent on defence over the four year period.

Aside to this growth, the nation has been predicted by some analysts to remain the biggest Western European spender by value on armoured vehicles over the next decade. Key to this is the development of the Puma infantry fighting vehicle being undertaken by Rheinmetall and Krauss-Maffei Wegmann (KMW) venture Projekt System Management (PSM) and which begun delivery in June 2015.

This €4.3bn ($4.79bn) contract – dating back to 2004 – will see the adoption of 350 vehicles equipped with MK30-2 / ABM 30mm automatic cannon and programmable ammunition to allow for effective engagement of an array of targets, even when behind cover. The fleet is set to replace the current Rheinmetall Landsysteme Marder 1 IFV, which has been in service since 1971. The original order for 405 vehicles was lowered to 350, including eight driver training vehicles. Full delivery is expected to be completed by 2020 and operational training has begun at the training centre in Munster.

The same companies are also delivering the Boxer multi-role armoured vehicles between the Netherlands and Germany, of which the first step will see the German Army acquire 190 of the 700 required units. However, the force also has to use alternative systems (armoured transport vehicle FUCHS 1A8) and/or interim systems (FUCHS 1A4), the latter of which are considered only appropriate for training purposes.

Worth noting is that French and German armoured vehicle makers Nexter and KMW have finally sealed a long-planned merger in July combining the Leclerc and Leopard tank brands in what could be provide the foundation for further European defence consolidation.

Meanwhile, **Poland**'s defence industry group Polska Grupa Zbrojeniowa (PGZ) and German Rheinmetall MAN Military Vehicles (RMMV) are jointly developing an all-new amphibious wheeled armoured personnel carrier (APC) with serial production to begin by 2019. Poland will be the sole manufacturer of the vehicle and its future derivatives, while both partners will eventually offer the vehicle to international customers.

Having witnessed the conflict in Ukraine, Poland declared its intentions last year to increase defence spending by 2016 back to the 2 percent threshold, generating an increase of 0.5 percent. It is conducting an armed forces modernisation programme to the tune of $41bn by 2022. In part, this involves the replacement of its ageing fleet of Honker, Honker 2000, Skorpion-3 vehicles and UAZ469 jeeps with 882 4x4 light multipurpose vehicles (841 soft skin; 41 armoured), under which a tender was launched in July 2015. Poland Defence Holdings also continues with its new AFV concept. The PL-01 from Obrum and BAE is focused on a stealth capability and may fulfil Poland's plan for a Universal Modular Tracked Platform, offering a three-person crew, auto-loading 120 mm main gun,

The Rosomak 8x8 will be an even more familiar sight in Eastern Europe. Source: Polish MoD

unmanned turret and a proven chassis based on the CV90 in order to meet the intended timeframe for delivery. At present, full scale production is scheduled to begin in 2018, to be ready for export in 2022.

In May 2014, the country began to take delivery of the first of 105 Leopard 2A5 tanks and 14 2A4 variants from the German Army. It has also ordered 307 additional Rosomak 8x8 multipurpose armoured vehicles – a licensed variant of Finnish Patria's Armoured Modular Vehicle under license by Wojskowe Zakłady Mechaniczne (WZM) – due for delivery by 2019. In July 2015, the government signed an intention letter with **Slovakia** over a sale of 31 Rosomaks, comprised of the Polish-built vehicle body and a Slovakian gun turret. The variant is to be named 'Scipio' and will be built at the plant in Siemianowice Slaskie. Slovakia expects to purchase up to 66. Other foreign customers are being targeted.

Slovakia is also pooling resources with the **Czech Republic** in order to achieve joint modernisation aims and bolster manufacturing industries across both countries. GDELS signed a partnership with Czech firm Excalibur Army in January 2015 to market the Steyr Pandur II armoured vehicle in Eastern Europe and Asia. In the preceding months, the Czech MoD confirmed the Army will be procuring 20 Pandur IIs to compliment the existing 107-strong fleet of Pandur 8x8s. In addition, a $8.7m tender was issued in October 2014 for five armoured repair and recovery vehicles (ARRV) to support the fleet. The Czech Army is also seeking up to 62 MRAP vehicles.

It was reported in mid-2013 that the Czech Republic had inked a $50m deal with Libya to sell 350 BRDM amphibious armoured vehicles, but this contract may be jeopardised by the instigation of fresh conflict in the Middle East. While this contract is said to favour the General Dynamics European Land Systems - Steyr Pandur II 8x8, other options are believed to include the Tatra T-810 6x6 medium truck platform and the Vega 4x4 armoured vehicle made by indigenous vehicle producer SVOS Prelouc.

The Pandur II has been seeing strong business. Source: Czech MoD

Further to the increased activity in this region, the Czech Republic Army completed its purchase of 58 surplus T-72s from **Hungary** last year. Hungary's 2016 budget bill allocates defence spending of €960m ($1.65bn) a 22 percent increase on 2015. Aside to concerns on the eastern border, Hungary is making preparations for its military involvement in the international fight against Islamic State in Kurdistan, with ongoing consultations concerning the transfer of Hungarian soldiers to the site. Included in the new equipment strategy is allocation to undertake defence collaboration programmes with other nations. At time of writing, US tanks and vehicles – including Strykers and Bradleys – are expected to be relocated to the Hungarian military base at Várpalota for use in rapid response training exercises.

Austria has been modernising the army's Pandur wheeled armoured transport vehicles ahead of its 2015 peacekeeping mission in Kosovo. Two vehicles per month were upgraded until August in the $25.43m programme, specifically to help enhance crew protection with mine-, IED- and ballistic protection and to integrate a 360° electrically-powered remotely-operated weapon station. All variants of the fleet have been upgraded by RUAG Defence in a joint procurement contract Belgium.

Authorities have found critical use in armoured vehicles on Austrian soil in the past year, deploying them to get supplies to civilians trapped in their homes after severe ice storms cut off large areas of the country.

Ukraine has been beefing up its armoured vehicle fleets by adopting assets from other western nations. This includes the adoption of US Humvees and the private acquisition of up to 75 ex-British unarmed military Saxon vehicles. In August 2014, Ukraine announced an extra $3bn to defence spending in reaction to continued Russian incursions. There is naturally an urgent need for the country to modernise its armed forces, having seen little investment under the oversight of former-President Viktor Yanukovych. Current mechanised and armoured forces include T-64 and T-64BM 'Bulat' MBTs; BTR-4, BTR-60, BTR-70 and BTR-80, wheeled APCs; and BMP-1, BMP-2 and BMD-2 IFVs. The latest investments follow amendments to the law that now allow Ukraine's state-owned military industries to be exempt from the need to competitively tender for government work.

Notably, the US pledged upwards of $60m in aid to Ukraine in mid-2014 as well as $19m for training and equipment of the Ukrainian National Guard, on top of a billion dollar loan to help reinvigorate the country's economy. Likewise, at the September 2014 NATO Summit, the Alliance pledged approximately $19.4m in financial aid. The latest negotiations (mid-2015) have seen further commitments towards non-offensive support to the country's forces, including training and data services. The size of the international crisis response force has also grown in size as a result of an escalation in Russian numbers along the border. It has

been confirmed that US tanks and armoured combat vehicles will be stationed in Poland, Lithuania, Latvia and Estonia (as well as the aforementioned possibility of Hungary). A company- or battalion-sized force of around 750 soldiers is also expected to be located on rota in Poland, Romania, Bulgaria and Hungary.

Lithuania announced plans in July 2015 to buy a number of Boxer AFVs from Germany

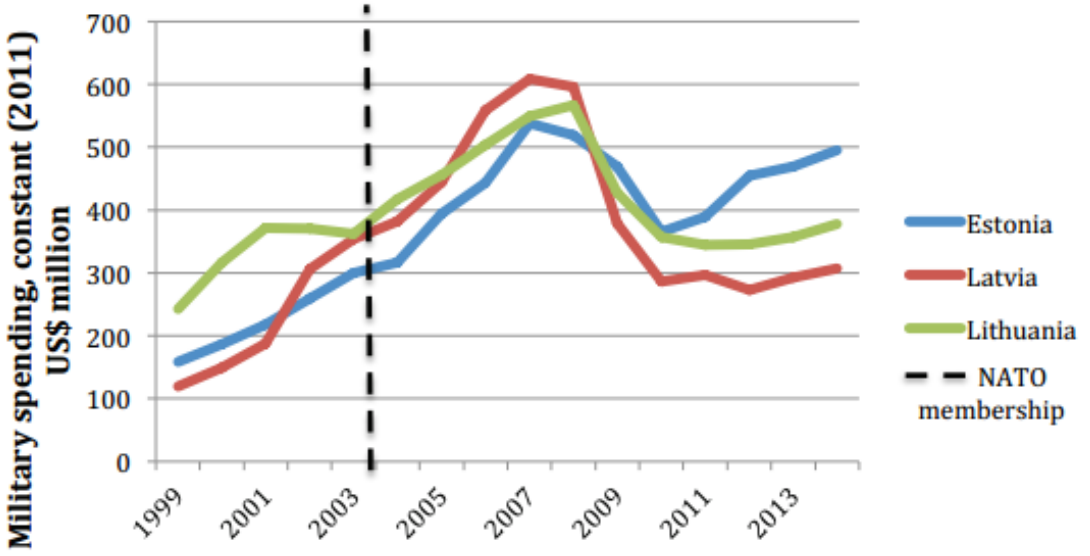
Spending within other neighboured nations in the East, particularly in the Baltic, has been rising of its own accord. **Lithuania** announced plans in July 2015 to buy a number of Boxer AFVs from Germany, with a proposal to be submitted to the State Defence Council. Unconfirmed Lithuanian media reports suggest this could entail at least 100 vehicles with mass production to begin from 2017. It was previously reported that the country intends to spend around €350m ($387.6m) on combat equipment in what would be the biggest ever investment into Lithuanian weapons.

Latvia passed a 2015 budget that allocates $253.8m towards building up the country's armed forces, reaching 1 percent of GDP and represents a 12 percent increase on 2014. Parliament also passed a new defence funding bill in which the country will commit to gradually raise defence spending to 2 percent of GDP by 2020. Under the new legislation, this means a guaranteed budget increase to 1.1 percent in 2016 and 1.3 percent in 2017.

Amid its modernisation effort, Latvia has also strengthened its NATO partnership by purchasing 123 surplus combat reconnaissance vehicles in a package worth $61.45m, including overhaul and refurbishment. These vehicles will allow the Latvian armed forces to transport infantry, provide reconnaissance, link air defence assets and enable mortar fire controllers as well as providing battlefield ambulances, command posts and armoured recovery capabilities.

Estonia has in turn touted its commitments to NATO, with NATO exercise Trident Juncture due in autumn 2015 to help test rapid response force capabilities. The method of the exercise is to have the Baltic Battalion (BALTBAT) working with brigades from Spain, Portugal and Italy. Earlier in the year, the US Army's Second Cavalry Regiment took part in a military parade to mark Estonia's Independence Day in Narva, a border city overlooking Russia.

MILITARY EXPENDITURE OF THE BALTIC STATES, 1999-2014



Source: SIPRI

Belarus remains somewhat on the fence amid the Ukraine crisis, seeking to maintain political and economic ties with both Kiev and Moscow, but seeming to lean more to the latter as it is benefiting from large loans and joint military drills with Russia. Through multilateral deals, the government has claimed strong earnings through its defence exports (announcing a sweep of $800m in 2014 alone). According to media reports in August 2015, the country may now be preparing to offer new light armoured vehicles to the foreign market. The State Defence Industries Committee is said to be readying two prototypes for the Defence Ministry to test in early 2016 with more than fifteen enterprises run by the Committee understood to be taking part in the project. Over 80 percent of the components would be manufactured in Belarus.

In March 2015, **Croatia** displayed a number of its newly adopted armoured vehicles. These included four variants of the Patria Armoured Modular Vehicle (AMV) – medical, logistical, command and APC – as well as 212 MRAP vehicles donated by the US – comprising the Navistar MaxxPro, the Oshkosh M-ATV, and the BAE Systems RG33 Heavy Armoured Ground Ambulance (HAGA). Croatia had previously acquired Iveco Light Multirole Vehicles (LMVs) and ex-US Humvees to help round out its military police and training requirements. Subsystem integration difficulties have seen delays to the acquisition of the 126 AMVs but the full contingent is expected to be in active service by the end of 2016. Eight of these will be equipped with a 30mm armed weapon station. Several of the MRAPs are being absorbed into the Croatian Special Forces Command (SFCOM), with others also going to the Support Command, Military Police Regiment and the Croatian Army.

Romania has been increasing defence spending with the objective of reaching 2 percent by 2017. Expenditure will be focused not just on armed forces modernisation but also peacekeeping missions, joint operations and border control measures. Meanwhile, the MoD of Bulgaria recently announced a $680m programme to modernise its forces and to decrease dependency on supplies from Russia by 2020. The Pentagon announced in August 2015 that it will station four Abrams tanks, three howitzers, and six armoured reconnaissance vehicles in Bulgaria alongside a US Marine Corps unit.

In July 2015, **Serbia** announced that it will begin serial production of the Lazar 2 8x8 multirole family of vehicles. Designed in 2013, the mine-protected platform can be customised to roles including APC and IFV, with options of additional composite armour and a Remote-Controlled Weapons Station (RWS) with armament ranging from 12.7mm to 30mm. The vehicles are manufactured by the Borbeni Slozeni Sistemi company and its production unit Morava in Velika Plana. While having 15 on order for Serbia, export potential is seen as promising. The Serbian military defence industry is on a slow recovery but with more certainty than other nations in the region.

Serbia announced that it will begin serial production of the Lazar 2 8x8 multirole family of vehicles

Even though the financial situation in **Greece** has nosedived, NATO anticipated that Greece will spend 2.4 percent of its GDP on defence for 2015, a 0.1 percent increase in spending over 2014. The previous year, the country's debt as percentage of GDP was at 175 percent, while its economy contracted by 3.3 percent. Greek officials offered $220m more in defence cuts in talks with creditors, but the response was a demand instead for $440m. The chunk of the current budget goes towards the upkeep of the Hellenic Army's vast armoured vehicles fleet, which includes 460 M113s adopted from the US and 320 Oshkosh Heavy Expanded Mobility Tactical Trucks (HEMTTs) acquired at the end of 2014. The new arrivals include 225 M113A2 APCs to replace Greece's ex-East German BMP-1 IFVs, along with 128 M577A2 command post vehicles, 106 M901A2 Improved TOW vehicles, and the US Army's last operational M106 107 mm mortar carrier.

Nordic defence cooperation is also increasing, partly due to the same crisis in Ukraine. Focus on increasing common capability, bilateral security and patrol services, and cost sharing on major programmes continue to be part of the regional plan. For example, a pact between Sweden and Finland agreed in May 2014 aims to acquire equipment for both countries that is compatible with NATO systems.

In what has been the biggest armoured vehicle competition in Europe, **Denmark** finally selected the GDELS-MOWAG Piranha 5 8x8 wheeled APC in April 2015. In doing so, the Royal Danish Army settled its indecision over whether to opt for a wheeled or tracked fleet, or a combination of the two. The winning bidders fended off other proposals from Nexter (VBCI), BAE Systems (Armadillo), GDELS-Santa Barbara Sistemas (ASCOD 2) and FFG (Protected Mission Module Carrier G5). 206 of the Piranhas will replace the country's M113 fleet, with the option to expand the force to 450. Also announced was the MoD's suspension of its planned acquisition of a new 155 mm self-propelled artillery (SPA) system. According to sources, Denmark is now looking to "explore possibilities to rent or borrow modern artillery from another country" as a stop-gap measure until the country finds itself in a more secure position to invest in a new SPA.

The Piranha V 8x8 has been selected as Denmark's new APC. Source: GDELS

Sweden has committed to raising its defence spending by $1.18bn for the period of 2016 to 2020. In its most recent activity, the country has been partnering with Norway to procure 2,000 military logistics vehicles from Rheinmetall MAN Military Vehicles (RMMV) in a $2.7bn long-term joint investment, with deliveries set to continue through to 2026. Delivery of the first batch of 335 vehicles is due to be finalised in 2017 at a cost of $272m. As a first step, the Swedish armed forces have placed an order for a first lot of 215 vehicles in various configurations. Of these, 51 will have specially protected driver's cabs.

Previously, Sweden has been taking delivery of 102 BvS10 all-terrain vehicles from BAE Systems Hagglünds in a $120m deal that adds to the procurement of 48 units agreed in 2012. The vehicles are being delivered in different variants, comprised of troop carrier, command vehicle, ambulance, and logistic carrier. Manufactured in BAE Systems Hägglunds´ refurbished production facility in Örnsköldsvik, Sweden, deliveries are scheduled to be finalised in 2015. Additionally, in 2014, the government had opened negotiations to sell 20 of the BvS10s to Austria in a US-style foreign military sales (FMS) arrangement.

Controversy erupted in March 2015 as reports surfaced that 250 ex-Swedish BMP-1 (PBV 501) tracked IFVs had been sold to a state-run Czech company Excalibur only to be resold to (private company) Excalibur Army and resold again to Iraq, violating Sweden's export rules. Despite appealing to Germany to void resale permission, Germany allowed Iraq to acquire the vehicles due to the need for its forces to increase its firepower against ISIL militants.

NATO membership continues to be a possibility for **Finland** as it considers whether to better integrate its 250 battle tanks and fighting vehicles into a collective deterrent against Russian aggression. Finland and Sweden have already signed a pact with NATO that allows NATO to provide the two nations with military assistance in emergency cases. While the government has reached a provisional agreement with opposition parties to increase the defence budget in 2016-2020, meeting these will prove a challenge. The country remains in the midst of a recession and is hoping to cut almost $6.5bn in government spending over the next five years.

Extensive reform centred on issues related to operating costs, obsolete equipment and a reduction in conscript size have also been underway. In 2013, all-terrain vehicles – as well as other land systems – were acquired primarily to replace outdate materiel, while 20 surplus Leopard 2A6 MBTs have begun delivery from the Netherlands – to be completed in 2019 – in a $221m investment into Finland's long-term strike force. Meanwhile, Patria delivered the first of 71 renovated XA-180 6x6 APC back to the Finnish Defence Forces towards the end of 2014, involving the installation of new seating and electric systems, and repairs to engines, transmission, and axels. Full hand over is anticipated for completion in 2017, with the possibility of 210 more vehicles contracted for refurbishment.

Norway has decided to invest $500m in two new programmes intended to strengthen its military capability in the High North, including an estimated $356m for the modernisation of 38 of the Army's 52 Leopard 2 MBTs. The modernised tanks will operate in a modular construct as part of the military's evolving network-based defence structure.

In March 2015, the Norwegian Defence Logistics Organisation (FLO) took delivery of the first CV90 infantry fighting vehicle (IFV) from BAE Systems Hägglunds in one of its largest ever Army investments. The $750m upgrade deal is delivering a fully-digitised flexible fleet of 74 infantry fighting, 21 reconnaissance, 15 command, 16 engineering, 16 multi-role and two driver training vehicles. The programme is set to be completed in 2017, seeing Norway's CV90 fleet increase to a strength of 144 in five different configurations, including a variant equipped with a sensor suite for improved surveillance capability. In September 2014, the Norwegian Army contracted Saab to develop and supply its new generation GAMER (BT46) vehicle simulators at a value of $20.2m. The simulator can replicate the ballistics and time of flight of a projectile in real time and give immediate feedback to the gunner and the target. Other innovative training solutions in use by Norwegian forces have included Oculus Rift helmets, enabling crew to effectively "see through" a vehicle while inside via the integration of cameras and virtual reality (VR) technology.

Before the sanctions took effect, analysts predicted that Russia intended to spend $720bn on military modernisation over the next decade

When it comes to **Russia**, the government is struggling to offset the recent economic sanctions imposed upon the country by Western nations. In spite of the economic damage, military spending has continued to inflate, seeing a budget increase by 26 percent between 2013 and 2014 in nominal terms. A similar hike has been planned for 2015, with a 15 percent increase to the military budget in spite of a 3 percent decrease in the economy's output. This translates to the highest post-Soviet budget in Russia's history. Before the sanctions took effect, analysts predicted that Russia intended to spend $720bn on military modernisation over the next decade. Much of this will go towards a near-complete overhaul of its ageing armoured vehicle fleet, swapping Soviet technology with equipment to match or exceed the capabilities seen in Western Europe and North America.

In May 2015, the country made international headlines with its Victory Day parade, showcasing many of these new vehicles. Among them was the Armata family of tracked vehicles (Universal Combat Platform/BMP-T-15) – set to replace Soviet-era heavy armour from as early as 2016. UralVagonZavod Research and Production Corporation is the prime contractor for the T-14 MBT, which is armed with an externally mounted 125 mm smoothbore gun with 32 rounds of ammunition in the autoloader, and is said to operate a firing rate of 10–12 rounds per minute with a maximum effective-penetration range of 8 km. Programme managers have claimed the fifth generation tank is "invisible" to radar, but many analysts believe these claims to be overstated. The army plans to acquire 2,300 T-14s to replace the T-72M3 and T-90 MBT fleets. Likewise, the T-15 heavy IFV, Kurganets-25 IFV and APC, and Boomerang 8x8 will all be moving in to replace the BMP and BTR vehicle series. In addition, the 2S35 Koalitsiya-SV (Coalition-SV) self-propelled artillery (SPA) system will replace the 2S19 MSTA-S SPA currently in service with Russian Ground Forces.

NORTH AMERICA

The **US** Army has grown used to not getting what it wants in recent years. Big ticket programmes have been announced for the other services while critical investment in the Army's fleet of protected mobility has been squeezed and suffocated. Many MRAPs and other vehicles have been given away to law enforcement or gifted to the Afghanistan National Defence Force as it streamlined its core fleet and returned to contingency. But while the upgrade, modernisation or replacement of many variants has been in the pipeline for some time, promises of new contracts and platforms have sometimes been hollow. Despite assertions to the contrary since 2005, delivery of the Joint Light Tactical (JLTV) programme has not always been certain; no one spends $30bn on armoured vehicles anymore, do they?

Oshkosh is building the new JLTV with an initial production contract. Source: Oshkosh Corp.

All that changed in August when the Pentagon recently awarded the JLTV programme to Oshkosh Corporation for an initial production contract worth $6.7bn.
The deal to replace the dependable but ageing and cumbersome Humvee is expected to be worth closer to $30bn in the long-term with the Pentagon looking to procure 49,099 vehicles for the Army and the Marine Corps likely to get an additional 5,500.

At the International Armoured Vehicles conference in London in January Col. John Cavedo, JLTV JPO programme manager, insisted that the "genius of JLTV is integration", highlighting the "tremendous competing requirements" of the programme. The contract had over 1,000 purchase descriptions and requirements but Cavedo said meeting all of these would be impossible and so set about tiering priorities. JLTV is designed to combine the heavy protection of an MRAP with the off-road performance and agility of an unarmoured AWD vehicle. With JLTV offering high performance and protection, the cost element on the armoured vehicle manufacturer's iron triangle is inevitably high too with each vehicle expected to cost up to $0.4m.

JLTV is designed to combine the heavy protection of an MRAP with the off-road performance and agility of an unarmoured AWD vehicle

Oshkosh saw off competition from a Lockheed Martin-led consortium and AM General, with all three bidders delivering 22 prototype vehicles to the Army last summer for trails testing and investing billions in new infrastructure for the project. At the time of writing Lockheed Martin had formally appealed the decision but not AM General.

Low Rate Initial Production is slated to begin in the first quarter of fiscal year (FY) 2016. The Army and Marine Corps will procure approximately 17,000 vehicles under this initial contract, with a decision on full rate production by the Department expected in FY18. Procurement of 5,500 USMC vehicles is front-loaded into the JLTV production plan. Initial USMC operating capability is expected in Fiscal Year 2018 with fielding to Marine Corps complete in FY2022.

The Army anticipates having its first unit equipped in FY2018. Army procurement will last until approximately 2040 and replace a significant portion of the Army's legacy light tactical vehicle fleet with 49,099 new vehicles.

The Armoured Multipurpose Vehicle (AMPV) programme is underway with BAE Systems winning a $1.2bn engineering, manufacturing and development (EMD) phase contract by default after General Dynamics Land Systems pulled out of the competition.

BAE's Armoured Multi-Purpose Vehicle. Source: BAE Systems

AMPV, which is looking to replace 2,900 M113 infantry carriers, is expected to cost the pentagon in the region of $13bn. Following the EMD phase, AMPV is expected to be delivered over a 10-year full-rate production time frame at just under 300 vehicles per year.

BAE will deliver 29 of its tracked AMPVs in five variants over the next four years, despite a protest by General Dynamics for the government to reverse its decision and consider its eight-wheeled Stryker vehicle. The appeal was thrown out with the Army insisting that the tracked platform better suits its requirements delivering greater mobility.

AMPV will focus on five missions: general purpose; medical evacuation; medical treatment; mortar carrier; and mission command. The Army is expected to acquire 2,097 AMPVs over 13 years.

In September 2014 the US Army released a requirement for three light armoured vehicles to help it transition into a more expeditionary force and increase air-landing capabilities. The three vehicles – mobile protected firepower (MPF), ultra-lightweight combat vehicle (ULCV), and light reconnaissance vehicle (LRV) – were vetted at the Army's annual manoeuvre conference at Fort Benning, Georgia.

ULCV is reported to be the Army's highest priority, which will be able to be carried by sling load from rotary wing aircraft or inside aircraft such as the C-130 or C-17. Six companies took part in validation trials earlier in the year to set requirements; the vehicle should be around 2 tonnes with a range up to 300 miles.

As the name suggests, mobility is the key requirement for the ULCV so it will be light on the armour front. The procurement signals a wider trend in the vehicle market that sees militaries favour mobility over protection as the nature of war transitions to more expeditionary, urban combat.

In March 2014 the Pentagon resurrected the USMC's fatigued Expeditionary Fighting Vehicle (EFV) programme and is now memorably designated: Amphibious Combat Vehicle Phase 1 Increment 1 (ACV Increment 1.1). The Marines will acquire 200 ACV 1.1 vehicles. The service will also develop a tracked, fully amphibious version, known as ACV Increment 1.2, and to acquire about 470 vehicles.

The ACV programme – together with legacy requirements from the Marine Personnel Carrier (MPC) – will replace the Marine Corps' AAV-7A1 series amphibious assault vehicle, which moves Marines from ship-to-shore. The Marines have used the AAV since 1971 and over the years the AAV has become increasingly difficult to operate, maintain, and sustain.

The prospect of amphibious warfare and ship to shore humanitarian aid operations is becoming an increasingly important capability that the Marine Corps is underprepared for

In theory, with the US continuing its strategy to "pivot East" – despite having to unexpectedly re-focus on the Middle East, Africa and Europe in recent months given the rise of ISIL and the cooling of relations with Russia – the prospect of amphibious warfare and ship to shore humanitarian aid operations is becoming an increasingly important capability that the Marine Corps is underprepared for. The ACV/MPC programmes are designed to bolster mission range and efficiency.

BAE Systems' Amphibious Combat Vehicle 1.1 entrant. Source: BAE Systems

For example, the AAV's two-mile ship-to-shore range is viewed by many as a significant survivability issue not only for the vehicle itself but also for naval amphibious forces.

A request for proposal was issued in November 2014 following the RFI in April, which called for industry to deliver 16 prototype vehicles nine months after contract award in April 2016 at a rate of four vehicles per month. Initial operating capability (IOC) is expected to be around 2020.

The **Canadian** government has not had much luck with its armoured vehicle procurement programmes since 2009. The Close Combat Vehicle (CCV) project was eventually cancelled after years of uncertainty and disaffection, primarily from the Canadian Army. Despite being designed to build upon the Army's mobile protected capability by augmenting that already offered by its Light Armoured Vehicles III (LAV III), the superior capabilities offered by the LAV III against its baseline requirements made need for the CCV redundant.

The LAV III modernisation programme is now underway with General Dynamics Land System-Canada (GDLS-C) awarded a $253m contract by the Canadian government to upgrade the vehicles. In October 2011, GDLS-C initially received a $1bn contract to upgrade 550 LAV III vehicles, with the option to modernise a further 80. This is now reported to be for 616 vehicles.

The government awarded a contract to Textron Systems Canada Inc. in 2012 for the acquisition of 500 Tactical Armoured Patrol Vehicles (TAPVs) for the Canadian Army, and for associated long-term support. After overcoming development challenges relating to the vehicle's mobility, Textron is now preparing to begin delivery to the Army in early 2016. There is an option for another 100 vehicles in the deal, reported to be worth up to $534m. The TAPV, designed to replace the Army's wheeled Coyote light armoured vehicle and the RG-31 patrol vehicle, is part of Canada's broad family of land combat vehicles project.

In addition to the TAPV programme the Army is reported to be considering complementary capabilities and had begun work on the requirements for a project focusing on indirect fire modernisation. Textron released a mortar indirect fire variant of its Commando vehicle in 2013.

The LAV III from GDLS-C. Source: General Dynamics Land Systems Canada

MIDDLE EAST

In 2015, the Middle East has been a hotbed of activity, conflict and violence. The persistent threat from ISIL, which appears to be losing little ground in its assault on Iraq and Syria despite continued air strikes from the US and her partner nations, continues to destabilise the region and remains a volatile force.

In the latest tactic to provoke the Western world, ISIL fighters have begun destroying priceless ancient artefacts and landmarks, including a 2,000-year-old temple in the UNESCO-listed Syrian city of Palmyra. This followed the execution of Khaled Asaad, the 82-year-old archaeologist who worked for 50 years as head of antiquities in Palmyra. The group is perpetrating these acts to show that it will stop at nothing to establish an Islamic State. So far only regional militias, groups of rebels and what remains of national armed forces are fighting ISIL on the ground. The outlook for Iraq and Syria, and much of the Middle East and North Africa, under the plague of ISIL looks grave and shows little sign of improving any time soon. Frequent terrorist attacks across the region, including the mass killing of tourists on a beach in Sousse, continue to further exacerbate the conflict.

The Middle East, together with the APAC region, is expected to boost vehicle procurement volumes significantly over the next ten years and offset anticipated reductions in the US and Europe

Largely because of the continued instability of the region many countries in the Middle East, including Turkey, are continuing to modernise their armoured vehicles and acquire new fleets. The Middle East, together with the APAC region, is expected to boost vehicle procurement volumes significantly over the next ten years and offset anticipated reductions in the US and Europe. Moreover, in the last two years alone the UAE and Qatar have introduced mandatory military service in response to the rise in regional conflict.

The Middle East accounts for over 10.5 percent of armoured vehicle fleets in the world, with active procurement programmes in Algeria, Bahrain, Iraq, Israel, Libya, Morocco, Qatar, Saudi Arabia, Tunisia and the UAE. The region is forecast to continue increasing its spending on armoured vehicles until at least the end of the decade.

The **Turkish** armoured vehicle market offers one of the most compelling opportunities for foreign manufacturers to break new ground and seek end-users for its technologies, from advanced armour to unmanned systems. The outlook for protection mobility in Turkey is buoyant and robust in an otherwise sluggish market for armoured vehicles globally.

But it is not just foreign firms that are benefitting from the country's investment in armoured vehicles; Turkish industry is the real winner. Its indigenous industry is continuing to gain significant traction as it invests in infrastructure to manufacture and develop armoured vehicle technologies. Turkey is aiming to achieve independence from imported equipment by 2023, so investments are flooding into modernisation programmes and as Turkey acquires new armoured fleets.

Ever since the Undersecretariat for Defence Industries (SSM) delivered its 2007 – 2011 Strategic Plan, Turkey's defence industry has enjoyed a rapid period of investment and development. Turnover increased 59 percent from $1.72bn in 2006 to $2.73bn by 2010 while exports almost doubled to $634m during the same period, according to the latest SaSaD (Defence Industry Manufacturers Association) figures.

Turkey is now positioning itself to become a key global exporter of armoured vehicles over the next decade; backed by a robust economy and the second largest military in NATO, Ankara is primed to emerge as an important stakeholder in the armoured vehicle market.

In the most recent global survey of armoured vehicle professionals, 3 percent of respondents identified Turkey as a key market with significant potential for growth over the next 10 years. Only India, Saudi Arabia and the UAE were identified as a greater priority globally. Interest in the Turkish market saw year-on-year growth of 4 percent, and 9 percent over a two-year period, which again highlights the snowballing opportunities in the country. Increased R&D investment in the early 2000s was one of the critical factors that bolstered Turkey's defence industry and continues to drive innovation today.

Interest in the Turkish market saw year-on-year growth of 4 percent

The FNSS Savunma Sistemleri A.S. (FNSS Defense Systems Inc.) MILDESIGN competition is evidence of a confident market encouraging innovation and pushing the boundaries of engineering that may, one day sooner than you think, inform government procurement decisions. FNSS has been hosting the competition since 2011, the purpose of which is help find, inspire and promote designers and engineering talent in the defence industry. The ultimate aim of the competition is to "support the activities in the development of indigenous [armoured vehicle and defence related] products in Turkey", according to an FNSS statement. The biennial event announced the 2015 winners at the International Defence Industry Fair (IDEF) held in Istanbul in May.

FNSS also unveiled the PARS 4x4 wheeled armoured vehicle at IDEF. The vehicle was produced to fulfil the wheeled requirements for the Turkish Land Forces' Anti-Tank Vehicle programme. It displayed a working prototype of its Kaplan-20 infantry fighting vehicle (IFV) at the same event. Indeed, this year has been one of repeated unveilings for the Turkish defence firm, seemingly revealing a new vehicle or variant at every major exhibition. Earlier in the year FNSS displayed the PARS 6x6 amphibious armoured vehicle, which has enhanced chemical warfare protection capabilities. With neighbouring Syria, the Turkish government has identified CBRN (Chemical Biological Radioactive Nuclear) reconnaissance vehicles as a priority given the Assad government's stockpiling of chemical weapons and alleged willingness to use them.

The Altay Main Battle Tank (MBT) being built by the country's biggest armoured vehicle firm Otokar is a clear example of Turkey's advanced indigenous capabilities. Forming part of the National Tank Production Project, the Altay is now in its final test phases and is expected to be in production by the end of 2015. The first of its kind, the Altay has been designed in-house by Otokar to supply the Turkish armed forces with an indigenous armoured vehicle, but also with the ultimate aim to export to governments in the Middle East and Asia. Saudi Arabia is a potential future customer, with the two nations signing a defence industry agreement in 2013 that looked to increase cooperation on future programmes, which included collaboration on the development, production and procurement of defence equipment and services in the future.

"There is a great interest for Altay from various countries of the world. We have been approached by several countries asking for detailed information and requesting presentations and we believe that once Altay enters into service with the Turkish Army; there will soon be many armies fielding this MBT," an Otokar spokesman said.

The indigenous Altay Main Battle Tank being build by Otokar. Source: Otokar

In March, Turkish engine maker Tümosan signed a €190m ($206m) contract with the country's procurement office, SSM, to design the engine and develop a transmission for the Altay. Underscoring the focus on indigenous capabilities, the company stated it would design the systems in collaboration with as many local partners as possible. "This [programme] will end Turkey's dependency on foreign engines for military vehicles," said Kurtulus Ogun, Tümosan's general manager. Turkey is planning to acquire an initial batch

of 250 tanks, which could increase to 1,000 vehicles with follow-on orders.

Kazakhstan is reportedly seeking to assemble a number of Turkey's BMC-made armoured vehicles under license. State-owned defence equipment manufacturer Kazakhstan Engineering was reported to be in negotiations to produce BMC's EFE and 235-16 4x4 tactical transports, 380-26 P 6x6 tactical transport vehicles, the MRAP BMC 350-16 Z Kirpi 4x4, and BMC 250-10 Z Vuran multipurpose armoured vehicle, according to Jane's. Otokar has previously sold its Cobra armoured vehicle to the Kazakh military.

SSM reported the country had exported $1.6bn worth of goods in 2014. The country's main export items ranged from armoured vehicles to rockets and electronic systems, with the country looking to boost the value of defence exports to $25bn by 2023. SSM has identified Central Asia and Asia-Pacific as priority export markets, which it hopes to facilitate through contracts involving technology transfer and close collaboration.

A number of other armoured vehicle modernisation projects and acquisition programmes are currently ongoing, including the Tulpar heavy Infantry Fighting Vehicle, which is intended to accompany the new generation Atlay MBT in operations; the Arma, 6x6 and 8x8 Amphibious Wheeled Armoured Combat Vehicle; the Special Purpose Tactical Wheeled Armoured Vehicle Programme; and the AV8, an 8x8 Armoured Personnel Carrier.

In 2015 Saudi Arabia increased its defence budget by 17 percent, which was the biggest rise in military expenditure of any nation

Saudi Arabia has the fourth largest military budget in the world and spent a staggering 10.4 percent of GDP on defence in 2014 according to SIPRI. Indeed, in 2015 Saudi Arabia increased its defence budget by 17 percent, which was the biggest rise in military expenditure of any nation. Other than a sign of the times in the region, this increase is also a reflection of its booming oil revenues, although with the price per barrel tanking in 2015 it is yet to be seen how this will affect its defence output in 2016.

Since the mid-90s, Saudi Arabia has been acquiring advanced military technologies and now touts one of the most densely armed nations in the world, with 200,000 active military personnel. With a limited indigenous defence industry, the country relies heavily on imports from its allies such as the US. Most armoured vehicles are imported, although the Al-Fahd IFV and the Al-Faris 8-400 APC were manufactured by the Abdallah Al Faris Company for Heavy Industries.

Saudi Arabia ordered 200 Aravis MRAPS from Nexter Systems last year. Source: Nexter Systems

Saudi Arabia revealed it had signed a $10bn deal with General Dynamics Land Systems Canada to provide armoured vehicles in February. The 14-year deal included training and support services but other than that few details are known; keeping the requirements and deliverables secret was a condition of the deal. In June, the Kingdom continued its spending spree by signing a $12bn deal with France for the provision of helicopters, aircraft and vessels. In another deal with France, the government ordered 200 Aravis MRAPs from Nexter Systems last year.

Saudi Arabia and France also signed contract in November to provide the Lebanese Armed Forces with $3bn of French armaments. The deal funded by the Gulf Kingdom will see **Lebanon** receive 110 new VAB Mk 3 armoured personnel carriers, 30 surplus VAB Mk 1 APCs, and 100 Sherpa armoured vehicles.

The **UAE** continues to be a hub for growth in the armoured vehicle sector with respondents to Defence IQ's annual survey ranking it as one of the top priority markets.

The country submitted a request to purchase 4,569 surplus MRAPs from the US. Most are Navistar Defense International MaxxPro vehicles, making up over 3,000 of the total, while the remaining vehicles are Oshkosh's MRAP All-Terrain Vehicle (M-ATV) and the Caiman Multi-Terrain Vehicle (MTV) built by BAE Systems.

The UAE is carrying out upgrades on 135 BMP-3s and its fleet of Nexter Systems Leclerc MBTs. It also has a requirement for 600 8x8 wheeled combat vehicles and has 5 Patria AMV 8x8s on order. The UAE Armed Forces also has 1,800 NIMR armoured vehicles from Tawazun Holdings on order. Last year UAE firm Emirates Advanced Research and Technology Holding (EARTH) announced a $235m deal to provide support for 750 MRAP vehicles that US-based Oshkosh Corp sold to the Gulf Arab state in 2013.

The **Iraq** government has requested 16 M548A1 tracked logistics vehicles, 8 M113A2 armoured ambulances and 8 MMWWvs but they have yet to be delivered while 1,050 Cougar light armoured vehicles have also been authorised. Iraq is reliant on military support from the US, UK and other allied forces in the fight against ISIL. In September the UK supplied £1.6m worth of heavy machine guns and nearly half-a-million rounds of ammunition to the Kurdish forces while the government had previously taken delivery of 140 M1A1SA Abrams MBTs from the US.

Iraq was looking to purchase 200 Bradley armoured fighting vehicles according to BAE Systems as part of a huge $4bn deal to acquire US military gear, which also included 50 Stryker infantry carriers, helicopters and air defence systems. There have also been reports of negotiations with Russia for its BTR-82 armoured personnel carrier.

Surrounded by hostile neighbours, **Israel** has been the driving force for armour innovation in the region for decades and continues to export its advanced defence technologies to international customers. In 2012 the Israeli Defence Force (IDF) announced plans to develop a new family of light armoured vehicles as an upgrade to the Merkava Mk4 tank. Meanwhile, the government announced a deal with the US to upgrade a further 100 of its Achzarit heavy armoured personnel carriers, which is expected to be completed in 2017.

The IDF also wants more heavily-protected Namer APCs to replace the thousands of M113s currently on operations but production has been slower than expected. Around 600 Namer APCs are being delivered but so far it is estimated that fewer than 150 have been produced due to budget constraints.

The **Jordanian** Armed Forces ordered 50 Mbome 6x6 infantry combat vehicles in February. After completing a series of trails, South Africa's Paramount Group and the King Abdullah II Design and Development Bureau (KADDB) of Jordan signed a deal to acquire the Mbome and manufacture it in-country. Following the contract signing Major General Omar Al Kaldi, CEO of KADDB said, "The production of Mbombe in Jordan signals an important milestone in the continuing growth of the defence industrial capability in the Middle East."
It is understood that 4 Multipurpose Armoured Platform (MAP) APCs have also been ordered and up to 80 surplus Centauro 8x8 armoured vehicles may be procured from the Italian Army.

> "The production of Mbombe in Jordan signals an important milestone in the continuing growth of the defence industrial capability in the Middle East"

At the International Armoured Vehicles conference in January, Major General Payenda Mohammad Nazim, Inspector General for **Afghanistan**'s Ministry of Defence Afghan MoD said that today the Afghan National Army (ANA) has 195,000 troops "thanks to the sustained efforts of the international community" and that armoured vehicles constitute a major component of the country's future requirements. He said the Army lacked sufficient capabilities, which accounted for the number of troop deaths. The country has received support from NATO nations with numerous deals to supply surplus MRAP vehicles reported. Major General Payenda Mohammad Nazim said armoured vehicles were "top of the list of our priorities and we will tirelessly seek to acquire more."

The ANA acquired around 600 Mobile Strike Force Vehicles (MSFVs) from Textron Marine & Land Systems, which is based on the M1117 Guardian Armoured Security Vehicle (ASV). ANA's MSFVs will come in a number of variants with capabilities including a 40mm grenade-launcher, a 7.62mm machine gun and a 90mm cannon. 2,526 HMMWV's are being delivered.

Qatar thought to be first customer for Renault Trucks's Higuard. Source: Renault Trucks

Although not traditionally a big defence spender, **Qatar** announced a massive $23bn deal last year for attack helicopters, guided missiles, tankers and other weapons from companies including Raytheon, Lockheed Martin, Airbus and Boeing. The deal is a symptom of the rising regional tensions and a clear sign that Qatar is determined to bolster its military capabilities over the next few years.

Qatar's Internal Security Service is believed to be the first customer for Renault Trucks's Higuard, which has taken delivery of 22 vehicles along with 5 Sherpa 4x4 Light APCs.

Egypt had been producing 125 M1A1 Abrams Main Battle Tank kits in partnership with General Dynamics Land Systems but the $395m contract was suspended last year after the military overthrew the Mohammed Morsi government. However, co-production of the kits has now resumed and five M1A1 Abrams tank turrets were recently delivered to Egypt. Major General Charles Hooper, the US Embassy's senior defence official in Cairo said after resumption of deliveries in August, "The co-production of M1A1 tanks in Egypt provides the people and the Armed Forces of Egypt with a strong economic and security capability. The delivery of the turrets will allow over 2,000 Egyptian citizens to work at the production plant, as well as provide the Armed Forces with additional means to fight extremism in the region."

ASIA-PACIFIC

Military expenditure in Asia hit $439bn last year, an increase of over 5 percent, according to figures from SIPRI. Almost half of that is accounted for by China ($216bn), which boosted its spending by 9.7 percent. It follows a clear trend of increased military expenditure in the region; Vietnam boosted its budget by 9.6 percent, as did Australia by 6.7 percent, followed by South Korea's 2.3 percent rise and India's 1.8 percent. Indeed, aside from China's rapid increase in spending in recent years, both Vietnam and Cambodia have more than doubled their military spend over the last decade.

There is an arms race going on in Asia

The spending boom can be seen as a direct result of heightened regional tension and disputes over territories. Even Japan has renounced its post-WWII self defence doctrine and has begun to rapidly build up its defence forces. It is expected to oversee its fourth straight year of defence budget hikes this year.

Quite simply, there is an arms race going on in Asia.

According to SIPRI data, three of the top five arms importers in the world are based in Asia – India, China, and Pakistan. India recently overtook China as the top arms importer after Beijing invested in its indigenous defence industry to lessen reliance on foreign deals. India is hoping to mirror China's success in this area as it seeks to bolster its defence infrastructure and award contracts to Indian firms.

In addition to regional tension between state actors is also the increased threat from insurgent groups, particularly in Thailand, Singapore, Pakistan, India and South Korea. This all points to an upturn in defence investment. The Asia-Pacific region is forecast to be the principal growth area for armoured vehicles over the next ten years. Australia, China, India, Malaysia, New Zealand, Pakistan, the Philippines, Singapore South Korea, Taiwan and Thailand all have major armoured vehicle procurement programmes that are planned or already under way. The vast majority of demand is for tactical trucks, main battle tanks and armoured personnel carriers.

Signalling further tensions in the Asia-Pacific region, **Japan**'s Ministry of Defence requested a 2.4 percent increase in its annual budget last year. The 2015 budget totalled ¥4.9tn ($47.25bn). In a budget request document, Japan's MoD stated that the regional security environment has become tenser recently, citing China's increasing activities in Japan's vicinity as well as North Korea's missile launches. Its main priority is to increase its intelligence, surveillance and reconnaissance (ISR) capabilities although it will bolster its land forces too. This played out recently at the RUSI/1SL Sea Power conference at DSEI in September when Vice Admiral Umio Otsuka, president of the JMSDF staff college and Vice Admiral Yuan Yubai, commander of the PLA Navy's North Sea fleet, spoke at odds about the South China Sea. Responding to VADM Otsuka's remarks about the territory, VADM Yubai said, "The South China Sea, as the name indicates...belongs to China."

Japan to buy AAV7 amphibious assault vehicles. Source: BAE Systems

In the budget request, Japan was looking to acquire a fleet of armoured personnel carriers at a cost of ¥47bn ($7.4bn) as a successor to the Type-96 APC. Japan will also buy AAV7 amphibious assault vehicles made by BAE Systems to help offset the threat from China as it continues to eye island territory in the East China Sea. Development of Japan's wider amphibious capability is thought to be a priority given China's considerable naval modernisation plans. The JDF will also acquire command and communication vehicles and recovery

vehicles as it seeks to establish an Amphibious Preparatory Unit. However, Japan has yet to give the go-ahead for the procurement of an amphibious assault vehicle, which would be manufactured in Japan.

A nuclear/biological/chemical (NBC) reconnaissance vehicle is also required according to the budget request.

While boosting its amphibious and light-medium vehicle fleets, the Japanese Ground Self-Defence Force (JGSDF) will reduce its heavy armour from around 700 main battle tanks to just 300. The Type 10 MBT continues to see some interest from the JGSDF, with an overall requirement for 97 vehicles, which is much reduced from the original plans to acquire more than 500.

MHI will manufacture the Manoeuvre Combat Vehicle with the first units expected to enter service with the JGSDF in 2016 after a test period.

Interest in the Indian market has been slipping for the last three years as its sluggish nature is resulting in fatigue and consumer apathy

India remains the most attractive international market for foreign investors, although according to this year's survey it now shares top spot with Saudi Arabia (both 40 percent). Interest in the Indian market has been slipping for the last three years as its sluggish nature is resulting in fatigue and consumer apathy as long-term contracts drag on and red tape continues to hamper progress. It is still a popular market and remains a priority for much of the armoured vehicle industry but that trend is evidently on the downturn.

Much to the delight of industry – and surprise of some analysts and on-lookers – India has jump-started its Future Infantry Combat Vehicle (FICV) programme, which is the largest land system programme India has ever undertaken. The future of FICV has been uncertain for the last two years but the Indian MoD has now invited ten companies to submit designs for the vehicle in an expression of interest (EoI) document. Up to 2,610 FICVs are expected to be acquired by the Modi government in an INR600bn ($10bn) deal to replace the Army's obsolete fleet of BMP-1s and BMP-2s. Indian defence firms such as Bharat Forge and Ashok Leyland are expected to be included at the tender stage as part of the 'Make India' investment programme. The MoD is expected to finance 80 percent of the cost of two FICV prototypes, of which one will be selected for production following two years of field trials. Two vehicles will be shortlisted by late 2015 with a prototype required from each manufacturer by 2017. In a move designed to share the economic benefits of the contract, the successful vendor will be contracted to build 1,566 FICVs while the runner-up in the competition will manufacture the remaining 1,044 platforms to an ideal specification and cost.

India also plans to acquire 1,657 T-90 main battle tanks by no later than 2025, with 1,000 required to be built locally under license.

Malaysia's largest armoured vehicle manufacturer, Deftech, is progressing with the AV8, an 8x8 APC to be the nation's next generation multi-purpose, multi-mission, wheeled armoured vehicle. The AV8, which has been developed in partnership with Turkey's FNSS, undertook qualification trials last year and the first 12 vehicles were delivered to the Malaysian Army in December. A total of 257 APC vehicles are expected to be delivered by 2018 in 12 variants. The AV8 is a replacement for the ageing fleet of Simbas (6x6) and Condor (4x4) armoured fighting vehicles and is a further development of the FNSS Savunma Sistemleri Paris (8x8).

With 410,000 troops, **Vietnam** boasts one of the largest armies in the world. It's a trend in the region; Asian nations account for more than half of the world' top ten largest militaries. Centuries of war and incursions have left Vietnam a worn but resilient force in Southeast Asia. Despite its turbulent past, the country has been on the upswing recently with its economy being one of the fastest growing in the world since 2000. Vietnam has been boosting its naval assets in recent years as tension with China increases over the disputed sovereignty of land in the South China Sea. Should the discord continue, it may dedicate more of its rapidly rising defence budget to its land forces too. Currently, its fleet of M-113s are due to be modernised and upgraded.

In **South Korea**, the domestic defence industry is sluggish, meaning it is concentrating on exporting its technology to drive revenue. In 2006, South Korean arms exports reached $250m but last year it secured $3.6bn sales. It's an indication of the surge in advanced technologies the country is responsible for over the last few decades underpinned by the global expansion of Seoul-based conglomerates such as Hyundai and Samsung, both of which have interests in the defence industry.

Hyundai Rotem's K2 Black Panther MBT

The K2 Black Panther MBT is due in service in 2016 to replace the K1 MBT. The Republic of Korea Army (RoKA) has placed an initial order of 100 vehicles although there is an option for a further 400. The first K2 was delivered in June last year for evaluation and trials. The K2 has now entered serial production while the K21 has been moving through the production phases for several years. Around 450 amphibious K21 next-generation infantry fighting vehicles (NIFVs) are planned to replace the K200 series infantry fighting vehicles.

Australia is becoming an increasingly important strategic ally to the US and the country's armoured vehicle modernisation project is making it an attractive region for manufacturers.

Bids are in for Australia's Project Land 400 Phase 2, which is the Australian Army's largest ever acquisition programme. In September, BAE Systems and Patria teamed to offer the 8x8 AMV35 Combat Reconnaissance Vehicle (CRV) while a Rheinmetall and Northrop Grumman partnership offered a new version of Boxer8x8.

Land 400 will replace the Army's fleet of M113AS4 APCs, ASLAVs and its Bushmaster protected mobility vehicles between 2020 and 2025. The fist CRVs are required by 2021 with initial operating capability in 2023. Around 1,100 are currently required although this number is likely to reduce. All teams have ensured the majority of the work for Land 400 will be conducted locally.

Similarly, Supacat's Extenda HMT vehicle will also be built in-country after Australia signed a $98m contract for 89 of the special operations vehicles.

The Land 121 modernisation programme will see the Australian government acquire 7,500 vehicles in light, medium and heavy variants. Land 121 – also known as Project Overlander – was awarded to Rheinmetall MAN Military Vehicles Australia in 2013 to supply 2,500 logistical vehicles to the Australian Defence Force. Around 2,500 trucks were ordered under Phase 3B, which are due for delivery from 2016 through 2020.

The Army ordered 1,052 Bushmaster PMVs from Thales Australia. The company received a number of export orders for the Bushmaster too, including 86 for the Royal Netherlands Army, 30 went to the UK while Jamaica ordered 12 and Japan ordered four.

8x8 AMV35 Combat Reconnaissance Vehicle (CRV) bid for Australia's Project Land 400 Phase 2. Source: Patria

Indonesia has received 28 refurbished Marder 1A3 infantry fighting vehicles from Rheinmetall Landsysteme. There are another 14 due for delivery under the terms of the contract signed in December 2012. A further eight Marder 1A3 IFVs will be supplied for spares, although these could also be deployed in the short-term.

Ukroboronprom, Ukraine's state-owned defence industry holding group, has been selected to supply the Indonesian MoD with the amphibious BTR-4 8x8 wheeled armoured personnel carrier. There is a requirement for 50 BTR-4 vehicles in total.

Indonesia's locally-built armoured personnel carrier, the 6x6 Anoa, has had a number of export enquiries since it was produced in 2009 from Malaysia, Iraq, Nepal, Oman and Bangladesh.

Over 10,000 **Bangladeshi** troops contribute to the UN's peacekeeping forces, which is more than any other country. Bangladesh is an equalising power in the region and pioneered the creation of the South Asian Association for Regional Cooperation (SAARC) in the 1980s. It is currently going through a multi-year modernisation period, which includes the potential upgrade of its ageing T-54/Type 59 and Type 69 main battle tanks.

Singapore's ST Kinetics continues to be a dominant force in the export market. It acquired 90 percent of Technicae Projetos e Serviços Automotivos Ltda, an automotive maintenance, repair and overhaul (MRO) services company based in Brazil, indicating both its intent to grow globally as well as its focus on MRO, which will be an important market over the next decade. It injected more cash into the venture earlier this year.

Although Pakistan's indigenous market is beginning to gain traction, it relies heavily on imports

Since **Pakistan** initiated Operation Zarb-e-Azb last year, suicide bombings and terrorist attacks have halved in North Waziristan according to reports. Up to 30,000 troops and armoured vehicle forces are involved in the operation aiming to stifle al-Qaeda and its affiliates in the region. As of November 2014, 90 percent of North Waziristan had reportedly been cleared of cleared of insurgents. Demand for armoured vehicles in Pakistan is high, yet with the economy stumbling, Islamabad is struggling to acquire the counterinsurgency vehicles it needs to protect its government and military officials.

Although Pakistan's indigenous market is beginning to gain traction, it relies heavily on imports, accounting for 4 percent of the global total of arms imports in 2014. In recent years the government has been averse to bringing in surplus vehicles, particularly from the US, but in September last year a $198m foreign military sale for 160 MaxxPro MRAPs was submitted to Congress. Deals to produce General Dynamics' Dragoon four-wheel-drive armoured fighting vehicle and the Chinese VN1 eight-wheel-drive AFV are also reported to have been on the table in the last 12 months.

Underscoring the state of the indigenous industry, the highly-anticipated Burraq MRAP being built by state-owned Heavy Industries Taxila was axed, reportedly due to lack of cash, and replaced instead by the US MaxxPro import.

Last year, **Thailand**'s state-run defence research and development organisation, the Defence Technology Institute (DTi), unveiled the 'Black Widow Spider' – an 8x8 armoured vehicle it has been developing for the last few years. Ricardo and DTI completed the initial phase of technology development (TD) for the vehicle and are now moving into the next phase. The vehicle will have a V-shaped hull and be protected to STANAG Level 4. It is said to meet a range of Thailand's future armoured vehicle requirements, which include 200 MBTs required by 2017. The country is also ordering 21 WIN 4x4 Armoured Multi-Purpose Vehicles (AMPVs) and at least 240 BTR-3E1 APCs are being delivered from the Ukraine. The Scorpion light tank is scheduled for an upgrade.

AFRICA

The African defence and security environment is changing, bringing with it a number of financial and administrative changes, while pushing many national defence budgets to record-levels at a time when global expenditure continues its dip. Across the continent, it is estimated that the mean budget rose by 8.3 percent, translating to $44.9bn (or 2.5 percent of total global expenditure thought to be $1.75tn), while 35 percent of African states are currently undertaking operations outside of normal peacetime operations.

In the latest Global Firepower estimates, the most powerful regional militaries remain in the north, with Egypt, Algeria, Morocco and Tunisia taking first, second, sixth and seventh, respectively. South Africa, Nigeria and Ethiopia fill third to fifth while Kenya and Angola pick up the tail, with the latter spending significantly more but Kenya possessing a higher capacity for deployment. Latest SIPRI figures pegs a $2.6bn expenditure growth in Africa from 2013-2014, with increases recorded in both the north and Sub-Saharan regions.

African states will continue to come to the realisation that they need increased strategic capability

Major conflicts have endured over the past year with varying instances of success and failure when it comes to suppressing radical insurgencies. In the west, there is ongoing unrest in Mali in spite of a February 2015 peace agreement, with new rebel factions splintering off and undertaking fresh raids. Likewise, Nigeria is in its sixth year of a campaign against Boko Haram – one which has already claimed the lives of around 15,000 and has intensified this past year with the involvement of ISIL fighters. Looking east, fighting has intensified. In August, Al-Shabab militants overran an African Union base in Janale, Somalia. Following the overthrow of the government in 2011, the latest civil war in Libya entered its second year, with various rival factions vying for political and religious supremacy, making the country an unstable prospect for the foreseeable

Burundi National Defence soldiers demonstrate squad movements with a Casspir during a mechanized infantry course. Source: AFRICOM

future. Between the coasts, unrest has also been a significant problem this past year in Sudan, South Sudan, Central African Republic (CAR) and Burundi, to name a few. These of course have made a significant impact on the region's armoured vehicle fleets.

While conflict is no stranger to Africa, it is just as important to recognise the positive progress that is being made continent-wide, with more democratic governments beginning to take shape and many economies seeing growth. Where armoured vehicles are concerned, local industry is fledgling but no longer confined to South Africa and Northern Sahara. Nigeria and Uganda, for example, have made independent steps into domestic assembly and production. As Defence IQ has reported, African states will continue to come to the realisation that they need increased strategic capability. At the same time, there is a heightened belief among African governments that they can take a more proactive and sustainable approach to their involvement in the defence market. This includes a predicted expansion for regional companies, such as Denel and Paramount Group, who believe African nations will be increasingly more attracted to African brands and the benefits they claim to offer to the total regional market.

Foreign equipment imports are of note here. China is now the third biggest global arms exporter and within Africa, Sudan is one of its main clients. Tanzania, Morocco and Algeria have also become customers of

Chinese equipment in the past five years – as has Namibia and Cameroon in smaller number – all purchasing relatively low-end technology. Russia has long been an important supplier to a range of African states and Ukraine has found business in providing second hand equipment. Indian vehicle manufacturer Tata Motors has supplied 585 military vehicles to a variety of African countries for use in the United Nation's Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) mission in Mali. Meanwhile, US donations and sales have been targeted chiefly at strengthening nations fighting Islamist insurgencies.

Last year, US defence services provider Dyncorp International partnered with African suppliers and OTT Technologies **Mozambique** to build vehicles for African troops stationed in Mali. As part of a task order under the African Peacekeeping Programme (AFRICAP), the team is responsible for procuring and supervising the manufacture of and transportation for 115 armoured personnel carrier vehicles for MINUSMA in a $173m US State Department contract. The manufacture sparked controversy in March 2014 when the Mozambican Tax Authority threatened to seize the vehicles if tax and custom irregularities could not be resolved. Meanwhile, the Mozambican Armed Forces (FADM) has been combating Renamo rebels in spite of reports that less than 10 percent of its armoured vehicle fleet was not fit for service as of 2014.

Sources have reported that **South Sudan**, Africa's newest nation, ordered an $850m budget – around 15 percent of its GDP – in order to suppress rebellion shortly after the country's insurgency gave rise to civil war two years ago. At time of writing, the peace agreement between the existing government and rebel groups aligned with the former Vice President seems uncertain. Members of the Ugandan People Defence Forces (UPDF) have also remained in the country, particularly within the Western Equatoria State, undertaking operations against the Lord's Resistance Army (LRA) and prepared to return to Juba if the crisis flares again.

Algeria remains the biggest defence spender in Africa. Since 2004, expenditure has more than doubled, seeing an increase of 176 percent. Now, due to continued security concerns, the country has committed to an annual spend of $10.4bn ($11.15bn) – a record for any African state. Large-scale terrorist attacks within the country's borders, a continued 'arms race' with neighbouring nations and the Defence Ministry's takeover of the Municipal Guard from the Ministry of Interior have all played a part in this remarkable procurement push. In mid-2014, Germany-based Rheinmetall and project developer Ferrostaal industrial group were due to sign a deal with Algeria for 980 Fuchs 2 armoured personnel carriers and a vehicle factory. The deal is part of a wider arms package between Germany and Algeria, valued at around €10bn. Cooperation between the two nations has seen Algeria at the top of Germany's arms export customers in 2013, shifting equipment from tank parts to SUVs at a value of well over $1bn.

Hundreds of German Fuchs 2 APCs have been assembled in Algeria. Source: Scott T Sturkol

Algeria has also formed a partnership with the UAE to jointly produce NIMR vehicles for its military, police and peacekeeping forces. These are designed to not only be a modular, flexible option but also specifically integrated with a high grade cooling system to cope in excessively hot climates. In 2012, Algeria began an order of 300 T-90 tanks from Russia to compliment its 325 existing T-72s, as well as 150 T-62s, and 270 T-54/55 tanks that are reaching the end of their usability.

Even though it is technically in peace time, Angola spent more on its military in 2014 than any other sub-Saharan African nation at $6.8bn. The budget represents almost a 400 percent increase since the country's civil war ended in 2002. Feeding off its crude oil resources, Angola is seen as a regional leader thanks to its involvement in peace negotiations in the DRC and actively participates in the UN Security Council. defence spending in Angola is set to rise again in spite of the plunge in oil prices and government cuts in other areas. Armoured vehicles are provided to 100,000

active soldiers and a reserve army of ex-combatants designed to ensure internal stability. In a 2013 deal, the government ordered 45 Casspir New Generation 2000B vehicles from Denel, comprising 30 armoured personnel carriers, four fire support vehicles (able to carry two 23 mm cannons or a recoilless rifle), two command vehicles, two recovery vehicles, two ambulances, three logistics vehicles, a water tanker and a diesel tanker.

Social and political tensions continue in **Egypt** with civil unrest still bubbling over the recent changes in government. More pressing is the situation surrounding the rise of ISIL, with tourists and foreign workers targeted in the north, undermining the current administration's efforts to re-establish a sense of security. Armed Forces have been hit with attacks, including suicide car bombings, in Sinai Peninsula, claiming the lives of many soldiers. The US delivered five M1A1 Abrams tank turrets in August to Cairo East Air Base as part of ongoing security support. Other forces have been deployed to break up cross-border smuggling of weapons and other illegal goods, reportedly apprehending over 1,300 vehicles travelling across the Karem Abu Salem border in August, and numerous 4x4s attempting to enter **Libya** in mid-2015. The seizure came on the back of Greek customs intercepting a ship attempting to deliver armoured Typhoon GSS-300 military vehicles and armoured cars to Libya around the same time.

Although defence spending has been sliding in **Ethiopia**, the country retains a powerful military force that boasts hundreds of T-72 and T-55 tanks. Local industry has developed the ability to manufacture and refurbish its Soviet-era armoured vehicles and the armed forces have acted on a strategic front-foot, aggressively policing its borders and pre-emptively attacking threats. In July 2015, 3,000 Ethiopian armoured fleets were said to have crossed into Somalia to attack Al-Shabab militants.

Following another year of combat against Boko Haram, **Nigeria** finds itself struggling to import military equipment given the extent of international embargoes in existence. The government is therefore championing a drive towards "near self-sufficiency", with manufacturing plants already beginning to spring up. However, the country is expected to see a defence spending decrease on the basis of oil prices, as well as from a possible shift in spending priorities for the new Buhari government, which finds itself pressured to invest in service delivery and infrastructure improvement.

With internal security in such crisis, the commercial armoured vehicles market in Nigeria has also boomed. Politicians and other affluent Nigerians were estimated to have spent over $5m on bullet-resistant vehicles in 2014, marking a 20 percent rise on the previous year. The market value for armoured vehicles imported into the country that year – including special purpose vehicles (SPVs) and passenger vehicles (PVs) – was valued at more than $60m.

Nigeria finds itself struggling to import military equipment given the extent of international embargoes in existence

At the same time, the new government is set to undertake an audit of equipment sales signed under the former administration, including the acquisition of APCs, MRAPs and MBTs. Auditors will investigate where the equipment has been purposed and how the deals were arranged. Developments have not only been seen among the armed forces. The Nigeria Police Force (NPF) took delivery of 263 patrol vehicles in early 2015, making up the initial delivery of 2,564 new police vehicles which former-President Goodluck Jonathan promised to deploy to ensure peace and security in Nigeria. These included 170 Nissan NP-300 Hardbody pick-ups, 129 Nissan Frontier Twin-Cabs, 50 Nissan Patrol 4WD SUVs, 10 Toyota twin-cab 4x4 armoured vehicles and four Ford 550 4x4 APCs.

Uganda's defence budget has risen by 10.8 percent. The bulk of the expenditure is understood to be financing operations of the UPDF peace keeping mission in Somalia, as well as building up land forces and special equipment. The UPDF has also taken delivery of 23 "specialized vehicles" through a US donation, including eight bullet proof Land Cruiser SUVs, 12 MRAPs, and three training vehicles. Another fifteen vehicles are set to make their way to the country. Meanwhile, the UPDF has established its own facility to refurbish and reassemble APCs and other vehicles at its Magamaga army barracks.

Developments in local assembly are emerging hand-in-hand with development of the country's metal works industry and efforts to adopt or train skilled engineers.

A smattering of other developments have been seen across South African company OTT Technologies finalised delivery of 12 Hunter light strike vehicles to **Ghana** under a $850,000 contract in 2014. In 2015, it was reported that The Ghana Armed Forces received $1.7 m worth of equipment from Germany – including military trucks, vehicle maintenance equipment and 4x4s – and will use the hardware in support of its contribution to the Economic Community of West African State (ECOWAS) Standby Force. The country's soldiers are currently involved in a one-year peacekeeping deployment to Liberia. In May 2014, the **Tanzania** People's Defence Force acquired a number of Chinese Type 63A light amphibious tanks and 30 Type-59G tanks. The country has increased its 2015/2016 defence budget by 34.4 percent to sustain the recruitment and training of new soldiers and ongoing equipment acquisition. This takes its total to $380m. **Namibia**-based company Windhoeker Maschinenfabrik (WMF) is developing a 6x6 armoured recovery vehicle and an 8x8 armoured vehicle alongside the new Mk III APC in production. **Djibouti**'s armed forces have publically displayed one of its Norinco WMA301 tank destroyers in 2015, adding to its growing inventory of military hardware that includes Cougar MRAPs and RG-33 APCs. **Cameroon**, as another one of the nations combating Islamist militants, recently acquired Type 07P IFVs and has paraded PTL-102-type tank destroyers. In November 2014, Germany donated 60 Mercedes Wolf jeeps and 60 Unimog trucks to Cameroonian forces to further their strength against the insurgency. Towards the beginning of 2015, around 200 vehicles accompanied troops from **Chad** and **Niger** over the Nigerian border to bolster this same mission. **Gabon** signed a contract for 12 Nexter Systems Aravis armoured vehicles to equip the battalion that is serving with the Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA), receiving the first unit in June 2015.

While its domestic and foreign commitments grow, **South Africa**'s defence budget has continued to experience a downward trajectory. $3.8bn earmarked in 2015 represented a decrease in real terms owing to an inflation rate of 5 percent. However, the government is still aiming for modest increases of 5.7 percent and 6.36 percent for 2016 and 2017. The chief of the army announced in mid-2015 that the nation's soldiers are "well prepared to defend the nation and to carry out international missions envisaged by government," including the pledge of an African Capacity for Immediate Response to Crisis (ACIRIC). Peace across the continent is viewed as a catalyst for economic development, encouraging South Africa to ready for immediate intervention to hotspots in other African states. However, amid the budget restrictions, there remains scepticism that the SANDF can meet these requirements, having already been stretched to – and perhaps even beyond – capacity. Amid anti-immigration violence witnessed on its own soil towards the early half of 2015, the Army was deployed to support police and act as a deterrent.

Gabon has signed a contract for 12 Nexter Systems Aravis armoured vehicles. Source: Nexter Systems

The availability of vehicle transportation is also of concern due to an ageing C-130BZ fleet and little other air or naval capacity to fill the gap outside of risky chartered options. In addition to the immediate airlift requirement, the SANDF continues to build towards the implementation of its last Defence Review, which should see delivery of 238 Badger IFVs from Denel SOC Ltd completed within the next year, and accelerated replacement of the Casspir, Mamba and Samil vehicles through Projects Sapula and Vistula.

The decline of the international MRAP market has hit South Africa hard. However, in a major commercial development for the nation's – and indeed the wider African – armoured vehicles market, leading manufacturer Paramount Group acquired DCD Protected Mobility's manufacturing facility at Isando in April 2015, along with industrial assets and personnel. The deal allows Paramount to significantly increase the

production capacity of its portfolio, with a potential output of 400 vehicles a year. In February 2015, Paramount announced that it would produce the first 50 of its Mbombe 6x6 ICV in Jordan for the Jordanian Armed Forces, in association with King Abdullah II Design and Development Bureau (KADDB). Another recent joint venture between Paramount and Kazakhstan will see the construction of a number of South-African designed armoured vehicles (namely the Arlan MRAP, Nomad armoured police vehicle, and Barys IFV) in Astana with a sizeable percentage of the output to be put on the export market.

In April 2015, Denel Systems finalised its acquisition of Land Systems South Africa (LSSA) from BAE Systems at a total value of $80m. Under BAE Systems, LSSA has sold large numbers of its RG32M MRAP to Finland, Ireland, Saudi Arabia, Sweden, and Tanzania for use in an increasing number of more specialised roles. Other South African companies have also seen ample success on the foreign markets. Pretoria-based Integrated Convoy Protection has built and sold more than 600 of its REVA (Reliable Effective Versatile Affordable) 4x4 MRAP vehicles to the likes of South Sudan, Iraq, Yemen, the UAE, and Thailand. Kenya also began acquiring a fleet of 50 OTT Technologies' Puma M26-15 MPV in 2011, while the later Puma M36 Mk 5 MPV was ordered for MINUSMA.

A cash-strapped Zimbabwe government signed off a £380m defence budget in 2015

A cash-strapped **Zimbabwe** government signed off a $380m defence budget in 2015 – up from $356m –with around $50m intended for the procurement of 633 armoured vehicles, including all-terrain troop-transport trucks, along with water cannon and anti-riot equipment for its military and police forces. Severe socio-economic pressures on the population have left the government fearing an Arab Spring-style uprising.

At time of writing, new bills are being assessed in **Kenya** that may allow soldiers to operate within civilian areas to keep order. Legislation may result in new demands for urban and riot equipment. For 2015, Kenya increased its defence budget by 20 percent to $861m. Meanwhile, the US gifted the Kenya Defence Force $100m in aid this financial year to enhance the fight against Al-Shabaab. It was reported in July 2015 that auditors have queried the military's procurement of 32 APCs in 2008 by the Kenya Defence Forces over concerns that the contract did not represent value for money. The vehicles were deployed in Southern Sudan as part of the Kenyan contingent in United Nations Mission in South Sudan but on purchase were discovered to have defective roofs, had been fitted with tyres unable to withstand punctures, suffered gear and power faults, among a number of other issues.

Kenya's National Police Service has embarked on an equipment upgrading process that includes the acquisition of APCs, command and control vehicles and armoured ambulances in the face of rising cases of terrorism and banditry in the country. As late as February 2015, eight companies had been invited to present their solutions to meet a range of equipment requirements. Late 2014 saw 20 police officers killed in an ambush.

Also of note, Inspector-General released a statement in July 2015 ordering anyone in the country in possession of an armoured vehicle to declare it and obtain mandatory approval. All armoured vehicles must now meet the requirements of the newly enacted Security Laws (Amendment) Act 2014 which states that such vehicles must have special certificates from the government.

LATIN AMERICA

The Latin American defence market remains largely active thanks to continued modernisation requirements and the economic dependence on both local industry and internal security. However, potential for market growth, particularly when it concerns armoured vehicles, is difficult to predict, with some nations seeing contracted budgets (such as Brazil, Venezuela and Argentina) and others upping expenditure (including Mexico and Peru). As such, the latest figures see little movement up or down for total regional spending.

Armoured vehicle acquisition has continued continent-wide, but predominantly for lighter, paramilitary platforms rather than heavy armour. MRAPs and IED-protected personnel carriers are seen as a must for those nations still combating domestic guerrilla groups, while ballistic-protected, agile platforms are seen as vital resources in the response to violence initiated by narcotrafficking organisations. Rather than a sense of conventional warfare, security threats remain chiefly confined to these politically militant and criminal entities, resulting in an increase in cross-border cooperation between Latin American nations.

Brazil continues its high-profile replacement of the Urutu Cascavel with the Guarani VBTP-MR. Source: Brazilian MoD

Latest SIPRI figures tap Latin America as seeing only a $0.6bn decline in regional expenditure. The latest findings from Forecast International see the overall spending figures for military equipment "expected to increase over the period 2015-2019 by a compound annual growth rate of 4.9 percent, with regional totals increasing from $80.525bn to $102.246bn."

After several years of expansion and investment into vast modernisation programmes, **Brazil**'s 2015 defence procurement reduced from a previously approved $7.3bn to $5bn, raising the risk of programme delays or indefinite suspensions. This 25 percent reduction is a direct result of the nation's recent fiscal crisis, itself exasperated by political instability. The Minister of Defence has appealed for ongoing strategic programmes to avoid rash cancellation, citing the significant funding that has already been invested into many of these.

Of prominence has been the production and delivery of the Army's VBTP-MR 6x6 Guarani amphibious medium APC, a component of the wider military modernisation programme. In early 2014, the 33rd Motorized Infantry Battalion received the first 13 of the APCs, making it the first regular army unit to be issued with the new vehicle. Overall, 2,044 units have been put into production, with deliveries beginning in 2012 and due to carry through to 2030. The VBTP-MR is replacing the ageing Urutu Cascavel fleet. Designed by the Science, Technology and Innovation System of the Army, the new vehicle was developed in partnership with IVECO Defence. Throughout the process, simplicity has been an important factor governing design decisions, with a preference towards COTS. As a requirement, at least 60 percent of the vehicle components are originating from local industry. The first export orders were announced in 2014 with the Lebanese army ordering an initial 10, while production has also begun on the 8x8 Marine variant.

More recently, the Army's Manufacturing Directorate (DF) has shortlisted local Avibras Indústria Aeroespacial and Iveco Veículos de Defesa as final bidders for the lightweight 4x4 wheeled multirole protected vehicle (Viatura Blindada Multitarefa - Leve de Rodas: VBMT-LR) programme. The contract is due to be awarded before the end of 2015 with an initial 32 vehicles entering production. These units will fulfil an urgent requirement for peacekeeping vehicles, and could be followed by two tranches of 77 units each. Even so – and in further evidence of the national downturn – Brazilian deployments overseas are being reduced, with the current number of troops deployed to the United

Nation's Stabilization Mission in Haiti (MINUSTAH) sinking from 1,343 (May 2015) to 850 by 2016.

Top of the immediate security priorities is Brazil's planning for the 2016 Summer Olympics. It is understood that the armed forces require $56.7m in 2015 and another $30.5m in 2016 to provide effective protection during the Games with total defence spending in support of this endeavour set to reach $167m. Fresh in the memory of organisers will be the civil protests experienced before and during the 2014 FIFA World Cup in Rio, therefore making policing a key concern for the coming year.

Top of the immediate security priorities is Brazil's planning for the 2016 Summer Olympics

In 2013, **Mexico**'s President laid out the 'National Defence Sector Programme' aiming to strengthen all defence institutions in charge of protecting the territory, fight against organised and transnational crime, and assure the security of the civilian population. With the issues ranging from intelligence strategy and narcotraffic to cybersecurity and 'smart cities', the adoption of a multidimensional and transnational position has become essential for the country's future. As such, Mexico's defence budget sprang 11 percent in 2015.

As part of this strategy, the Ministry of National Defence (SEDENA) launched a procurement programme in June 2015 for 105 new armoured vehicles as well as a programme to upgrade its existing 6x6 Panhard Defense ERC 90 Lynx armoured reconnaissance vehicles. In what is a $107.4m injection, the country intends to procure the fleet to bring four of its nine Armoured Reconnaissance Regiments (RBRs) to full spec. Currently the army deploys 207 Panhard Defense ERC 90 combat reconnaissance vehicles, 4x4 VBL scout vehicles, and 6x6 VCR APCs. In 2014, 2,200 ex-US Humvees were sold to the Mexican military at a cost of $245m, in order to both expand existing army architecture and enhance interoperability between Mexico and the US. This particular deal underscores the fresh approach to defence exports that Mexico is taking, turning their eye away from Europe and towards their American neighbours.

Growth is also being driven in Mexico's commercial armoured car industry by continued high levels of violent crime. New domestic and foreign competitors have entered this market, establishing assembly plants in Mexico and appealing most to government authorities and business owners. The rate of increase in privately-owned armoured vehicles is in fact higher in other parts of Latin America than in Mexico but a sense of insecurity continues to pervade as cartels and other crime groups spread out. The criminal threat is of serious concern to Mexico's economic future. According to recent studies, as much as 3 percent of Mexico's GDP is lost to crime and violence each year, with most occurring from direct losses and a third spent on security and prevention. Also of concern is the extent to which criminal organisations are upscaling their own armour and equipment, including the emergence of so-called 'narco tanks' intended to combat both police, military and rival gangs on the streets.

Mexico is modernising its fleet of ERC 90 Lynx armoured vehicles

Argentina has been hinging on a $5.9bn defence budget for 2015, in spite of continued problems resolving national debt, representing little change on the 2014 budget. Some projections even see a 1 percent-or-more increase within the next four years. Much of the nation's recent military expenditure has been spent on the repair and upgrade of equipment, including that of the Armoured and Mechanised Vehicle Modernisation, Repair and Conversion Centre, which is responsible for modernising the Army's M113s, Unimog 416 tactical vehicles and TAM MBTs. Procurement of 4x4 and 4x2 light vehicles is also believed to be on the agenda. Rumours that Argentina was interested in

ordering 14 Brazilian VBTP-MR Guarani vehicles in the 8x8 variant go back to 2012, but with increasing pressure on the country's finances, it is believed this acquisition has been suspended indefinitely if not entirely cancelled. Inversely, Argentina finalised an order in June 2015 for 110 8x8 VN-1 wheeled amphibious fighting vehicles from China North Industries Corporation. Designed with an operational weight of 21 tons, a single VN-1 armoured vehicle is capable of carrying 11 soldiers in full equipment and an additional three-man crew. Argentina secured license to assemble the vehicles at its Tandanor-CINAR shipyards. The first batch of the vehicles will be provided to the 'Cruz del Sur', a joint peace keeping force formed by Argentina and Chile, and the rest to the 10th Brigade of the Argentine Army.

Towards the beginning of 2015, **Peru** was reported as looking to acquire 106 AFVs and 105 MBTs as part of its Army 'Harpay Nina' ('Firepower') programme. The project is part of the army's 'Ugarte' modernisation plan. It is also known to be prioritising a new fleet of IFVs, but is undecided on a tracked or wheeled platform. Possibilities include the LAV III, YPR-765A1, Marder 1, BTR-80, BMP-1/2, Pandur, M113, BMR-600, BTR-80A and BMP-3. Aside to this, May 2015 saw GDLS Canada unveil the first pair of LAV-II "Cayman" 8x8 armoured vehicles of a 32-strong fleet ordered by the Peruvian Armed Forces in 2014 (in the range of $55m-$67m) and intended to be used to patrol the coast, lakes and rivers, as the Peruvian Marines prepare for expansion in 2016. These vehicles have been designed to Peruvian specifications – lightweight, amphibious, manoeuvrable over difficult terrain, and low-maintenance. GDLS is also providing the logistics support package.

Colombia has taken delivery of its new fleet of Textron Commando Advanced 4x4 APCs. Source: Textron Systems

The Colombian military purchased a total of 67 4x4 Textron Commando Advanced APC high mobility vehicles

The 2015 defence budget for **Colombia** (including police) was positioned as $12.2bn, with hopes of reducing this in subsequent years if peace agreements can be reached with the Revolutionary Armed Forces of Colombia-People's Army (FARC). On the whole, conflict with the guerrilla movement has significantly receded, with the past three years seeing dedicated negotiations, extended ceasefire agreements and deals between the government and rebels to collaborate against drug traffickers. Talks are complicated by issues such as rebel demobilisation and victim reparations but many are optimistic in finding a long-term resolution to the violence. Similar negotiations are planned for the country's second largest rebel-group, the Ejército de Liberación Nacional (ELN). An IED emplaced by the ELN destroyed a Colombian Army M1117 Pegaso 4x4 armoured security vehicle (ASV) in February 2015.

The Colombian military purchased a total of 67 4x4 Textron Commando Advanced APC high mobility vehicles in 2013, 39 of which were ordered without turrets and another 28 ordered with 40 mm/.50 calibre remote turrets, at around $1.13m each. Deliveries were completed in 2014. The contract also included repair services for two previously acquired vehicles. The Commando is a larger version of the older American M1117 ASVs and offer blast protection to respond to the IED emplacement threat from FARC rebels. The army has about 300 armoured vehicles, including a large number of Humvees.

In May 2014, Canada-based INKAS Armoured Vehicle Manufacturing announced that it would supply four of its new INKAS Huron APCs to the Colombian police force to assist in tactical missions and – presumably – border patrol. The country rests in a geographic situation that means troops must operate across deserts, mountains, plains and jungles, resulting in a tough demand for manoeuvrability.

Having enacted the biggest change in regional defence spending between 2012 and 2013 – a hike of 33 percent – **Paraguay** re-drafted and scaled back its equipment and modernisation figure from $568m to a more moderate $200m in 2014. Recent senate reforms have been passed to expand military powers in the continued fight against guerrilla insurgents of the Paraguayan People's Army (EPP) and drug traffickers. While a small force, the EPP have upped their attacks on its targets in recent years, including bombings, arson and assassinations. The Army currently operates a fleet of 6-15 light to medium tanks, as well contingents of M-9 and EE-11 APCs and upgraded EE-9 Cascavel armoured cars.

Between 2011 and 2015, **Chile**'s defence expenditure decreased from $4.2bn to $2.6bn despite still registering a spend-per-capita figure higher than any other country in the region. However, analysts now project expenditure to return to growth at a CAGR of 5.74 percent from 2016–2020, when it will reach a value of around $3.5bn. The country has been investing heavily into its 'Northern Border Plan' by increasing the presence of police and armed forces nationwide, while the Chilean military has been providing limited "support" functions to local authorities without infringing on laws preventing armed forces from being used in an internal security role. In the vehicles domain, the Army has been primarily exploring acquisition in the areas of maintenance and recovery, spare parts, vision and night fighting technologies and target acquisition. The development of training centres to improve the versatility and professionalism of its fleets has also been emphasised. Aside to fleets of Leopard 2A4s and 1V MBTs, the armed forces boast Marder and YPR-765 AIFVs, M-113 A1/A2 and Piranha APCs, as well as a Marine force adopting new Scorpion light tanks and Mowag Rowland 4x4s. Chile is working to further its potential for trade and strategic partnerships with a number of foreign nations, including the US, South Africa, Israel and China.

Bolivia continues to experience protests from within its own military over working conditions, resulting in the dismissal of hundreds of soldiers and the deployment of armoured vehicles to the capital La Paz in a bid to quell demonstrations that have been marred by violence. There remains an uneasy relationship between the military and the government. The Army stocks 36 SK-105 Kurassier light tanks and 24 EE-9 Cascavel reconnaissance vehicles, along with APC fleets including M113s, EE-11 Urutus, M9 Half-tracks, V-150s and Mowag Rowlands (used by police).

Still at odds with the US and its allies, **Venezuela** continues to foster relations with Russia and China, among other rivals to the West, including military equipment deals. The constitution was rewritten in 2014 to allow for the military to participate in political rallies, while opposition leaders have been imprisoned for protesting the Maduro government. However, violent clashes between state forces and demonstrators over recent years along with diving oil prices has led to serious internal security concerns. In a single 2015 protest, 16 national guard vehicles were destroyed. Owing to a severe economic slump, Venezuela slashed its defence budget in 2014 by 34 percent, marking the largest decline in military spending in Latin America.

Venezuela continues to foster relations with Russia and China, among other rivals to the West, including military equipment deals

In June 2015, Venezuela received the first batch of a 557-unit military vehicle order from China. The consignment includes VN-4 4x4 wheeled armoured vehicles, ABV-1 assault breacher vehicles and WTC-1 water cannon vehicles, alongside 200 NG2629 6x6 vehicles produced by China North Industries Corporation. Full delivery is expected by the end of 2015 or early 2016. Plans have been to purchase a total of 2,106 military vehicles for ground forces between 2009 and 2019. As of August 2014, Venezuela has also began taking delivery of the Chinese-made VN-1 8x8 amphibious APC (an export version of the ZBL-09) to be used by the Marine Corps. In spite of the shipments, weapons purchases are expected to slow further as the country attempts to reign in its financial crisis.

Ecuador has been looking carefully at provisions for "new roles" for its land forces, including peace keeping, natural disaster relief and custom vehicles for internal security. However, unpopular government policies

and reforms at home have been met with demonstrations, to which security forces have responded with military mobilisation. Meanwhile, the relationship between Ecuador and the US – aside to other Western nations – has become strained in recent years, furthering the prospect that military equipment will be purchased from rival nations, either regionally or afar. One example of this is shown in its recent procurement of Venezuelan Tiuna UR-53AR50 multipurpose military vehicles.

In April 2015, the Army received 709 HOWO-series logistics support vehicles from the China National Heavy Duty Truck Import and Export Corporation (CNHTC) through a package announced by the Ecuadorian government at $81m. Before the acquisition, 70 percent of the country's land transport fleet was reported to be obsolete and only 51 percent operational.

Uruguay, per capita, is one of the world's leading contributors to UN peacekeeping forces and invests in the hardware to support its mission. It operates a range of armoured vehicles, including a fleet of tanks, and recently introduced the Tigr GAZ-233036 SPM-2 4x4 into the domestic police service, having purchased the fleet from Russia in 2011. A recent civilian outreach programme (Operation Soldado Amigo) has seen troops transported by heavy and light vehicles to remote towns in order to help locals with construction and other community-building tasks.

SPECIAL FEATURE:
INVESTMENT OUTLOOK 2016 - 2026

This feature seeks to provide a long-term outlook for global armoured vehicle production, highlighting in particular where potential investors in the protected mobility industry should be looking, in order to secure the highest possible return. Several major defence primes across Europe and the US are explored for financials and recent or upcoming contracts, and broader investigations are made into which countries stand to achieve the most (and the least) growth, in absolute and relative terms, over the next twenty years in this vital industry.

The nature of global defence industries is undergoing a series of changes. The 2010 UK Ministry of Defence report 'Global Strategic Trends - Out to 2040' predicts a number of trends, three of which are particularly telling as to the role and future worth of armoured vehicles in global militaries. The protection of strategic imperatives such as sources of oil and gas, both sea-based and terrestrial, will remain crucial. In addition, food and water sources may become priorities for military protection. Secondly, rising urbanisation will escalate social, cultural, and economic tension within cities, increasing the need for law enforcement and city-based humanitarian relief to address urban conflict and organised crime. Lastly, technological parity between nations will be nearer than ever. The need for 'hi-tech' military hardware will still be there, but the asymmetric edge in warfare is expected to come from people and investments in human capital. All of these factors – supported by analysts from governments, think-tanks, and agencies worldwide – arguably rely on military armoured vehicles.

The myriad capabilities of armoured vehicles are well-founded; they are irreplaceable on the battlefield, underscoring why the global market is buoyant as it continues to recover from the 2008 economic crisis. Less clear, however, are the prospects for the companies and national industries that produce them. If armoured vehicle producers are to meet demand for their products in an increasingly unstable world, they must stay capable of agreeing joint ventures and raising capital in order to fund new facilities and R&D.

INDIA

INVESTMENT OUTLOOK: **VERY GOOD**

India's defence budget is predicted to grow at a CAGR of over 13 percent over the next few years. The Modi government's policies of boosting Indian manufacturing output, combined with its drive to take a more active role in Asian and African security missions, and recent predictions that India will, by 2022, overtake China as the world's most populous country, mean that its infantry and cavalry requirements are unlikely to go anywhere but upwards.

"India is focused on defence due to the presence of existential threats on two borders - Pakistan and China," said Tom Captain, Global Aerospace & Defence Sector Leader at Deloitte, in an interview with Defence IQ. "The India market for armoured vehicles and ground based armaments should be robust for at least the next 20 years due to this as well as recapitalisation of last generation, less capable equipment. The new DPP and "Make in India" policy will continue to challenge Western defence firms with offset, workforce capacity, investment requirements and delivery schedule commitments."

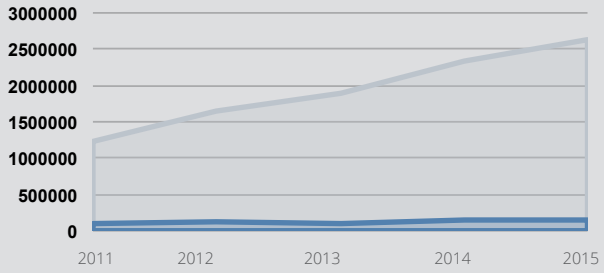
It must be noted, however, that offsets, while intended to bring hi-tech skills and technological understanding to Indian defence companies, have not managed to overcome the determination of US and European companies looking to protect their niche technological advantages. New Delhi will need to overcome the technology gap if it is to provide for its own defence concerns, let alone export to growing markets and perform military interventions across Africa and the ASEAN.

A report by Dr.S.N. Mishra in the Indian Defence Review found Transfer of Technology (ToT) accounting for considerable savings in air and missile platforms and components; however, significant gaps still remain in terms of the availability of skilled workers capable of re-producing major sub-systems and components. Whether such slow ToT and past issues with bureaucracy on the part of India's government would affect indigenous armoured vehicle manufacturers such as Tata Motors or Ashok Leyland remains to be seen.

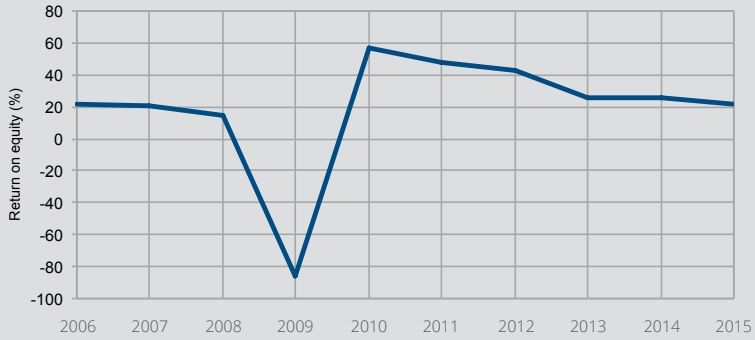
At a committee in early 2015, amongst several Indian defence companies present, Tata Motors proposed an overhaul of the country's armoured fighting vehicles and infantry main combat vehicles. The proposal was largely approved by the panel, further boosting Tata's prominence in the protected mobility market and India's land defence manufacturing sector.

COMPANY SPOTLIGHT:
TATA MOTORS LTD.

TATA MOTORS REVENUE AND INCOME 2010-2014 (IN INR MILLIONS)



TATA MOTORS ROE (%)



With consistently improving revenues and market share, equally consistent attractiveness and returns to investors, and good industry and government relations, Tata Motors Limited is forecast by analysts to continue growing in performance and valuation for the foreseeable future. Tata's share price within the next year alone is expected to grow between 3 percent and 108 percent, at a median estimation of 51.1 percent.

Notable Activities

Though the company has largely focused on civilian transport vehicles, recent reports state that Tata Motors expects up to 40 percent of revenues for the next few years to be driven by its defence interests as it seeks to disenthrall its business from the cyclical nature of commercial vehicles.

By the end of December, Tata Motors will have begun delivering the first of 1,200 military trucks to the Indian Army, the first of an INR 9bn ($140m) order announced in July 2015.

The company intends to move more distinctly into infantry combat vehicles rather than their historical limitation to utility and cargo vehicles for the military, and hopes to open up new markets, from ASEAN to Eastern Europe and Latin America.

Tata Defence armoured truck. Source: Tata Motors

BRAZIL

INVESTMENT OUTLOOK: **VERY POOR**

Two years ago, the situation for Brazilian military vehicles might have seemed a lucrative prospect. The government, as evidenced through Brazil's 2008 National Defence Strategy (NDS), was strongly devoted to developing Brazil's defence-industrial complex and hi-tech knowledge base. The Brazilian economy was prospering just as one might expect of a member of the BRIC group. Furthermore, the Guarani project granted to Italy's Iveco looked likely to provide Brazil with a wealth of new 6x6 vehicles that could later be reproduced by Brazilian engineers for export to partners across the world. These factors combined made a strong case for considering Brazil as the next major export powerhouse in the global defence market.

A VBTP-MR Guarani 6x6 in Brazil

Since then, however, two major problems have arisen to disrupt the NDS's objectives. Felipe Salles, Editor and Partner at Base Militar web magazine, explained these to Defence IQ:

"The NDS clearly puts developing the defence industry first; and decided that transfer of technology would be a key aspect for deciding which programmes would be built. Because the Guarani was decided before that, before the new procedures for a foreign company building in Brazil, Iveco is certainly NOT in line with the directives of the NDS. So it doesn't push Brazil into the more independent place to become a supplier, it doesn't allow for free exports of Brazilian armour to wherever we'd like to export them."

Compounding the lack of tech-absorption are a series of major corruption scandals that have shaken the Brazilian economy to its core, leading to recession, budget slashes, and a downgrade of the country's credit rating. Salles further explained that major construction companies are undergoing investigation for corrupting government officials, and defrauding Brazil's state-owned corporations in collusion with politicians. Any company that might one day have moved to substitute Iveco in producing armoured vehicles for Brazil, to eventually become a global exporter of ground vehicles, in a similar role to Embraer for Brazilian aircraft, is now up to its neck in suspicion.

The CEO of Odebrecht, a multinational giant, was arrested for over $2bn in bribes to Petrobras, as well as a more recent conviction for slave-like working conditions and ongoing investigations into money-laundering through a network of major banks.

"It's not a good prospect," Salles puts it bluntly.

Few Roads in the Amazon

There is also, contrary to what the Guarani deal might suggest, an absence of domestic demand to drive armoured vehicle investment. Aside from massive defence budget cuts putting a stop to any new procurement plans the armed forces may have hoped to launch in the future, Brazil's geography poses a more long-term dampener to local armoured vehicle industries. The northern and western frontiers of Brazil are devoid of traversable terrain, with swamps and thick rainforest dominating, making these borders unsuitable for ground work. Whether oil and gas routes through the Amazon will develop and change this remains to be seen.

The south borders Argentina, Brazil's closest regional partner and ally. This is markedly different to India, which is bordered by existential threats in the form of Pakistan and China, and therefore must stay capable of transporting personnel and equipment in a timely fashion. Even if relations with Argentina were to break down, theoretically speaking, the country does not come close to matching Brazil's defence capabilities, meaning there is little impetus on this front to drive innovation and invest in new military hardware.

Plans already in progress, including the 8x8 VBR-MR Guarani, are likely to continue, but not at the scale Iveco or Brazil's MoD might once have hoped. Successive Brazilian governments are unlikely to let go of the strategic need to develop local defence industries and hi-tech export capabilities. However, any new developments before 2018 are nigh-impossible. Beyond that, the road to armoured vehicle output is rocky at best.

TURKEY

INVESTMENT OUTLOOK: **VERY GOOD**

Turkey is perfectly placed to become a major armoured vehicle player in the future. Local demand is driven internally by former Prime Minister - now President - Tayyip Erdogan's calls for Turkey to achieve independence from defence imports by 2023. Externally, the grave threat from ISIL, not to mention the ongoing conflict with the Kurdish PKK, have demanded increases in Turkish defence spending – the Hurriyet Daily News, a Turkish newspaper, reported last year that the country's defence procurement budget could double by 2018.

As of 2014, Turkey's defence budget amounted to 1.25 percent of GDP. While this is notably less than the NATO requirement, an aide to Erdogan stated that the external threats to Turkish security merited an increase in military spending to potentially 2 percent or even 2.5 percent, and that 1.25 percent fell short of what a country in Turkey's position actually needed.

These threats, combined with Turkey's vast network of roads - which runs from Istanbul in continental Europe, over either side of the Sea of Marmara into Asia, across every corner of the country and deep through war-torn Syria - means that investment and growth in domestic armoured vehicle producers is not only guaranteed, but essential for national security.

The need for military vehicles is also driven by the ongoing Syrian refugee crisis. With 2 million refugees already in Turkey and Ankara vowing to accept more, the country's powerful humanitarian response depends on personnel and equipment moving safely between the refugee camps and their contributors.

Seeded and Growing

It also helps that the country is already home to three experienced armoured vehicle manufacturers. Otokar, BMC Defence and FNSS (the latter of which is 49 percent owned by BAE Systems) are three of the largest defence manufacturers in Turkey, all producing a wide range of four, six, and eight-wheeled vehicles, as well as tracked platforms.

Otokar's Arma 8x8. Source: Otokar

Aside from domestic demand, Otokar and FNSS export to at least 20 markets, with considerable business going to nearby Turkmenistan, Azerbaijan and Pakistan. Relatively low costs in terms of unit production and transportation give Turkey certain advantages that suppliers in the US and Europe may find difficult to challenge.

'Good-enough' is not good enough

The road to Turkish dominance of Central Asia's defence markets is not wholly clear. Just as Brazil's future has been thrown into chaos by corruption scandals, Turkey continues to suffer political unrest, and Erdogan, leading the charge for a Turkish military-industrial complex, has ongoing corruption charges to deal with. His $500m, 1000-room presidential palace was declared illegal earlier this year, and a court order was issued for his family to vacate the building in July. Turkey's whole economy, not to mention its defence industry, could suffer dearly as cases continue.

As in India, there remains a question about how hi-tech Turkey's capabilities are. Western firms, particularly in the US, continue to restrict technology transfers to Turkey. Offset agreements made with Ankara have not been used effectively in creating a hi-tech base for Turkish defence industries. However, with multiple armoured vehicle producers competing against each

other, innovation to improve technology has long been necessary for Otokar, BMC and FNSS. And with knowledge gained on AM General's Humvee and utilised in the production of the Otokar Cobra LAV, the hi-tech advantage of the west over Turkey in armoured vehicles may well be coming to an end.

Of course, for Turkish defence industries to appeal to investors, the ability to buy shares must first be granted. There is no real free market among Turkish defence companies; BMC Defence is owned by the government's Savings Deposit Insurance Fund (TMSF), and both Otokar and FNSS are controlled by family-owned holding companies. Though privatisation and liberalisation would facilitate greater capital accumulation and joint-ventures both in Turkey and around the world, certain corruption charges directly concern the privatisation processes of local companies. Opportunities may well be missed in the future; any IPO for Turkish armoured vehicle producers should be a profitable affair for all involved.

EUROPE

INVESTMENT OUTLOOK: **POOR**

Defence budgets across the western world have contracted. Europe generally holds a poor disposition towards large military budgets - where austerity has bitten, the vast majority of NATO members continue to avoid the required defence budget target of 2 percent of GDP. Analyst Martin Lundmark from the Swedish Defence Research Agency, speaking at RSIS event 'The Global Arms Industry in 2030 (and Beyond)' in November, predicted only four countries in Western Europe being significant exporters to global defence markets over the next few decades: Britain, France, Germany, and Italy. He further elaborated:

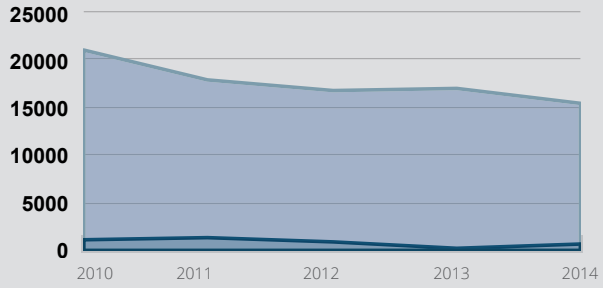
"The overall size and turnover of the European defence industry will decrease relative to the rest of the world. The land segment of armoured vehicles, artillery, hand-held weapons and ammunition will also experience considerable consolidation, with some of them being acquired from the US. The European defence industry has been concentrated to the dominant nations and become more dependent on [their] defence spending."

"This does not, of course, take Russia into account, where defence companies have presented serious challenges to US and European dominance of defence markets. This report elects not to study or make forecasts of Russian companies, given factors such as the ongoing embargo against Russia and the persistent difficulties involved with getting financial data on such companies, or investing into major state-owned Russian primes."

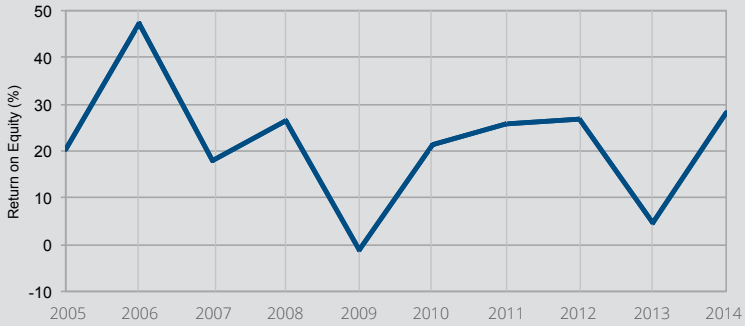
A few factors may benefit Europe's defence industries in the future. Calls to step up defence spending among NATO members are getting louder, potentially encouraging investment in defence primes and smaller companies along European supply chains. The presence of a newly-aggressive Russia will make calls from within and without only more urgent. And the potential erosion of Europe's hi-tech military vehicles in favour of cheaper, 'good-enough' vehicles from countries such as Turkey and South Korea is, while possible, far from a foregone conclusion. Indeed military researcher Richard Bitzinger sees European "mega-firms" continuing to dominate global defence markets for some time to come.

COMPANY SPOTLIGHT: BAE SYSTEMS

BAE SYSTEMS REVENUE AND INCOME 2010-2014 (IN GBP MILLIONS)



BAE SYSTEMS ROE (%)



As revenues have steadily fallen over recent years, so has the confidence of financial analysts looking at BAE Systems. Though the median share price growth expectation remains steady at 20.6 percent, given consistently profitable performance and a strong average return on investment (ROE) of 21.79 percent over the past ten years, uncertainty reigns with the highest and lowest estimates for the next year ranging between 36.1 percent and -14.8 percent.

Notable Activities

Land systems, and their associated services and support, make up 15 percent of BAE Systems' overall sales. Combat vehicles come close to half of overall land-centric sales. A wide range of Mine-Resistant Ambush Protected (MRAP) and multi-role vehicles are produced.

The company was awarded a contract worth up to $1.2bn to replace the US's M113s by developing and producing a new Armoured Multi-Purpose Vehicle (AMPV). As of March 2015, engineering and development work had already begun, with the first 29 vehicles to be produced in 2016 and deliveries to begin in 2017.

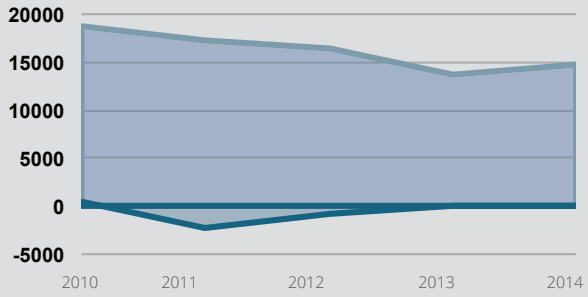
Presently, the company is competing for the US Amphibious Combat Vehicle (ACV) programme to replace the outdated Assault Amphibious Vehicle. Conducted in incremental stages, BAE Systems' submission for ACV 1.1 is considered a front-runner, alongside contenders from Lockheed Martin, SAIC, and General Dynamics. Two winners will be chosen for the contract in autumn 2016, with preliminary estimations putting the worth of the contract well over $1.5bn.

Amphibious Combat Vehicle 1.1. Source: BAE Systems

COMPANY SPOTLIGHT: FINMECCANICA

FINMECCANICA

FINMECCANICA REVENUE AND INCOME 2010-2014 (IN EUR MILLIONS)



FINMECCANICA ROE (%)

With disappointing profits and shaky revenues, Finmeccanica does not, in the immediate term, appeal to share price speculators. Upper and lower brackets for predicted share price growth in the next year range from 26.1 percent to -26.1 percent, with a tentative median of 9.2 percent. Returns on equity are particularly weak, indicating poor use of shareholder-raised capital on the company's part.

Notable Activities

Finmeccanica's land vehicle interests are handled by its Oto Melara company, which produces a variety of combat and ISTAR systems for armoured vehicles produced jointly as a consortium with fellow Italian military vehicle producer Iveco. Most recently, the Iveco/Oto Melara team has produced the 8x8 Freccia Infantry Fighting Vehicle (IFV) for the Italian Army.

As mentioned, the Freccia was a notable success for Finmeccanica's subsidiaries and partners. The initial order consisted of 249 vehicles, with another 381 vehicles approved in early 2015, for a possible price around €2.65nn ($2.95bn).

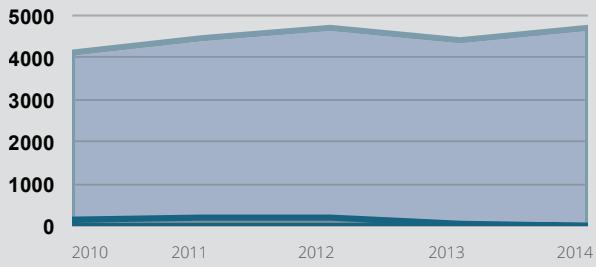
More recently, the Iveco-Oto Melara consortium won part of the contract to provide 8x8 vehicles for the Spanish Army. General Dynamics will act as prime contractor of the base vehicle, while Oto Melara will build the mobile gun system. Around 400 units are expected to be built for the Spanish armed forces.

Oto Melara expects significant growth in emerging markets in Latin America, particularly Brazil, for its artillery systems in the future.

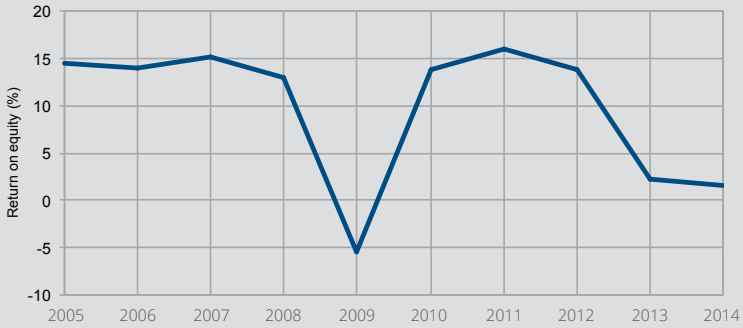
VBM Freccia 8x8. Source: Finmeccanica

COMPANY SPOTLIGHT: RHEINMETALL

RHEINMETALL REVENUE AND INCOME 2010-2014 (IN EUR MILLIONS)



RHEINMETALL ROE (%)



Revenues and profits for Rheinmetall have been steady over the past few years, with indications leaning towards a greater market share. However, analysts are polarised over the immediate future of the company, with many split between buying shares and holding them.

In terms of share price performance over the next 12 months, the median forecast is an unremarkable 4.5 percent, with a top estimate of 16.1 percent and the lowest projection being a contraction of 26.3 percent.

Notable Activities

FRheinmetall continues to supply a portfolio of combat vehicles to customers across and outside of Europe, in part thanks to its track record of highly successful joint ventures. Through its three management sectors, the organisation offers a range of combat systems, electronic solutions, and vehicles. While the company also supplies automobile parts and solutions, nearly two-thirds of its offices around the world are devoted to its defence company.

In May 2015, Rheinmetall confirmed its partnership with two state-owned Polish companies to produce 200 amphibious APCs for Poland's armed forces, additionally fulfilling the requirements for the country's Light Armoured Reconnaissance Vehicle (LOTR) programme requirements, valued at €300m ($334m).

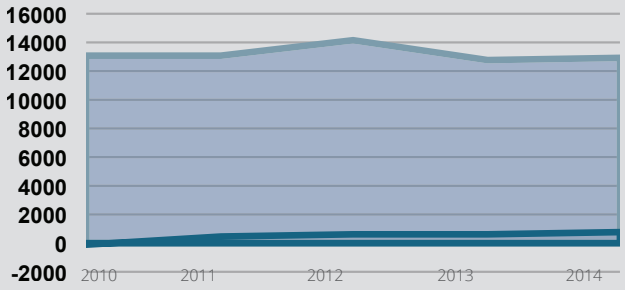
ARTEC Boxer. Source: Rheinmetall

Currently, the German company is also competing for Australia's Project Land 400 Phase 2, intended to supply 225 Combat Reconnaissance Vehicles (CRVs) to Australian land forces. Rheinmetall's ARTEC Boxer 8x8, supplied with help from Northrop Grumman and Supacat Australia, is competing against BAE Systems, General Dynamics, and Elbit Systems for Phase 2 of Project Land 400, presently worth around AUD 10bn ($7bn).

Oto Melara expects significant growth in emerging markets in Latin America, particularly Brazil, for its artillery systems in the future.

COMPANY SPOTLIGHT: THALES

THALES REVENUE AND INCOME 2010-2014 (IN EUR MILLIONS)



THALES ROE (%)

With strong financial management over the last few years, a generally consistent ROE, and a wide portfolio of solutions across defence, aerospace, and security, Thales is highly rated by market analysts. The median estimate for Thales's share price in 12 months time forecasts a growth of 7.2 percent, and though low estimates run down to -17.6 percent, the highest estimate reaches 30.3 percent.

Notable Activities

Aside from a range of electronics and systems for armoured vehicles, Thales provides a small range of highly effective Protected Mobility Vehicles (PMVs) for global defence forces, namely the heavy-duty Bushmaster and the lighter Hawkei. Summer 2015 saw Thales win two successive orders. In late July, the French company won a contract worth £125m ($191m) to supply sighting systems and ancillary equipment to the UK's Scout Specialist Vehicle (SV) programme, now renamed Ajax. General Dynamics UK, as the main constructor of the vehicles, will take delivery of 245 vehicle kits from Thales between 2016 and 2021.

Just a month prior, the Netherlands ordered 12 Bushmaster PMVs, which will bring the total to 98 in operation once they are delivered in mid-2016. Aside from its prolific use by Australia, the vehicle has also seen exports to Jamaica and Japan, the latter being a particular coup for the company to break into such a lucrative market.

Dutch Army Bushmaster

UNITED STATES

INVESTMENT OUTLOOK: **GOOD**

A number of significant issues have caused the US's global defence market share to decline in recent years. Defence budgets in its biggest markets - that is, domestically and its traditional partners across Western Europe and Asia-Pacific - are experiencing short-term contractions as austerity bites. Furthermore, exports to growing markets with offset regulations struggle due to the US's regulations on defence exports and historical unwillingness to share hi-tech know-how with countries that want it.

However, analysts still predict the major defence primes to continue leading global industries by 2030. Their most obvious advantage lies in their economies of scale - the bigger the organisation, the more resources, capital, and relationships to take advantage of. Additionally, internal competition between the US's primes drives innovation and productivity to keep them in-demand domestically and internationally - hence why the US still finds growing markets (notably for armoured vehicles) in the Middle East, Eastern Europe, and Mexico. The fact that American products are tried, tested and proven through intermittent wars may also be an underappreciated factor in why US products are seen as reliable by foreign customers.

Certain additional factors could present severe risks to US dominance of defence markets in the future. For example, recent years have seen increasing large-scale share buybacks by US defence primes, alongside the growing practice of tying executive pay to share price growth. While steering company managers towards improving the company's worth, combined with large shareholder payoffs might seem in accordance with investors' interests, these trends mean that company executives are incentivised to concentrate organisational power and wealth in their hands, and are accomplishing it by using up capital that could have been re-invested in R&D or FDI to benefit the organisation 10-20 years down the line.

This trend is notably more prominent in the US than it is in Europe. Lionel Laurent wrote in Reuters in early 2015 that overall share buybacks among US companies totalled $305.2bn in 2014, compared with just $58.6bn in Europe. Investors should take note, and watch to see what effect this has in the future; as Laurent states, "Defenders of buybacks say enriching shareholders can still benefit the economy if the money is reinvested elsewhere. They also point to mining and energy companies as having over-invested and delivered mixed results in recent years."

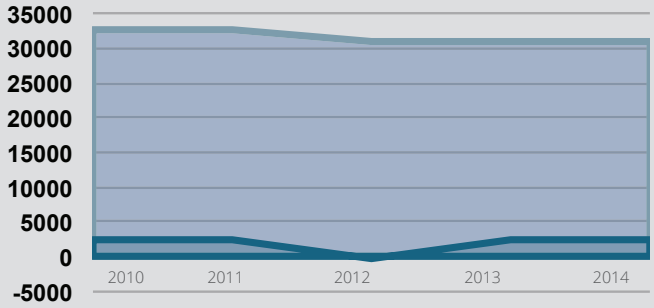
Another potential risk highlighted by analysts lies in the 'Americanisation' of defence exports. US military strategy drives much of the innovation by the primes. This is visible in costly projects like the F-35 aircraft and Littoral Combat Ship, designed for power projection and offense. Growing defence markets in Asia, Latin America, and Africa, however, are not buying expensive military hardware to project force around the world. Instead it is to address domestic and regional interests, such as urban and intercity insurgencies and organised crime, and for rapid humanitarian and disaster aid - and to do so without consuming their much smaller defence budgets. This can be seen in how many F-35 orders have been cut around the world as the cost of the aircraft has risen.

Of course, this is where the advantage of the armoured vehicle lies - rarely expensive and consistently versatile, to the benefit of future urban combats and rapid transportation of aid personnel and supplies, and often adaptable to purposes other than 'power-projection', armoured vehicles are the cheaper, safer bet, to the credit of whichever company produces them.

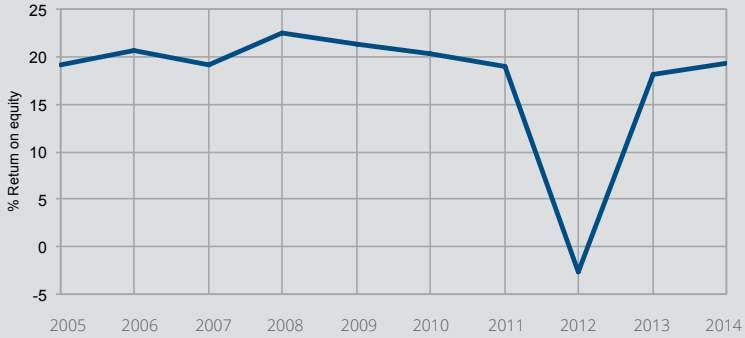
COMPANY SPOTLIGHT: GENERAL DYNAMICS

GENERAL DYNAMICS

GENERAL DYNAMICS REVENUE AND INCOME 2010-2014 (IN USD MILLIONS)



GENERAL DYNAMICS ROE (%)



Though revenues have been static recently, profits and returns on equity at GD remain steady, and analysts are generally confident that GD will outperform the market. The lowest forecast for the GD share price in 12 months, at time of writing, was an increase of approximately 7.2 percent, the highest was 23.4 percent, and the median forecast is 17.8 percent.

As of writing, the most recent buy-back by GD occurred on 4 June 2015, with 10 million shares to be repurchased (the estimated share price at the time running between $135 and $140 per share); just a day after a $0.69-per-share dividend was issued to shareholders. The company gave $4.2bn to its shareholders in 2014, through buybacks and dividends.

Notable Activities

GDLS produces the Abrams Main Battle Tank, along with the Stryker family of armoured combat vehicles, as well as Light Armoured Vehicles (LAVs) and MRAPs. As of 2015, the Combat Systems segment of GD accounted for approximately 20.4 percent of the company's operating earnings.

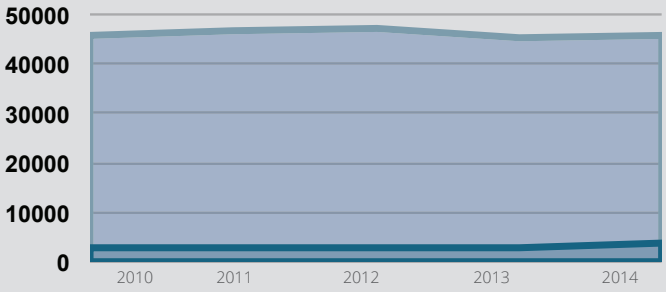
Additionally, General Dynamics European Land Systems produces the ASCOD IFV and a wide range of wheeled armoured vehicles, in 4x4, 6x6, and 8x8 variants. General Dynamics UK was awarded a £3.5bn ($5.35bn) contract to deliver 589 Ajax vehicles for the British armed forces in September 2014. GD UK was also awarded a support contract for the vehicle in July 2015, worth £390m ($596m) and requiring in-service support for an additional four years beyond the original scope of the contract, through to 2024.

GD Stryker. Source: General Dynamics

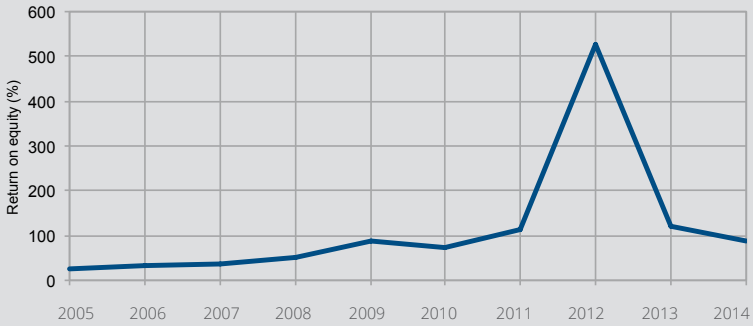
General Dynamics is also in the running for the US Army's Future Fighting Vehicle (FFV) programme, which seeks to replace the M2 Bradley IFV with a vehicle of balanced mobility, protection and offensive capability. The FFV programme has recently, however, been pushed back to the late 2020s, with army officials citing a lack of resources and funding as the main cause.

COMPANY SPOTLIGHT: LOCKHEED MARTIN

LOCKHEED MARTIN REVENUE AND INCOME 2010-2014 (IN USD MILLIONS)



LOCKHEED MARTIN ROE (%)



Both revenue and profits at Lockheed Martin have remained stable over the past five years. With the loss of the Joint Light Tactical Vehicle (JLTV) bid, and other factors, however, optimism is not widespread among analysts. Predictions for the share price in 12 months range from dropping 11 percent to rising 27.5 percent, the median expectation being an increase of 5.9 percent and that Lockheed Martin will still outperform the market.

The company announced a $2bn repurchase of shares had been authorised in September 2014. This enormous buyback, along with the unusually high ROE over the past ten years – particularly when compared with the ROEs of other primes – points to casual reinvestment of profits into Lockheed's technological, productive and human capital. Potential investors may do well to be wary in the future.

Notable Activities

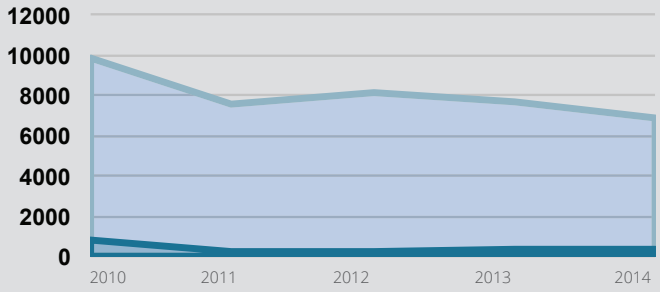
The company produces utility vehicles and mobile armoured artillery platforms for the US military and other clients, as well as unmanned vehicles. However, the company's aviation, space, missile and other assets mean that armoured vehicles make up only a small part of its considerable portfolio.

To help produce the Ajax SV, Lockheed was granted $1bn by General Dynamics UK to provide 245 turrets for the platform. Announced in late 2014, delivery of prototype turrets has already begun. Prior to this, the company was granted $11m in 2012 to develop and apply driverless-capability technology to US military vehicles. The Autonomous Mobility Appliqué System (AMAS) completed its second phase of testing last year.

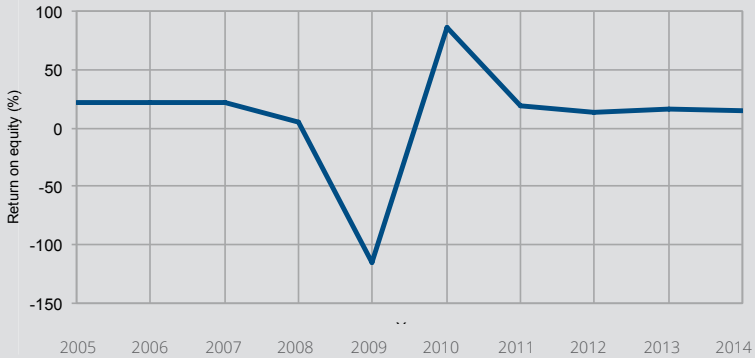
COMPANY SPOTLIGHT: OSHKOSH

OSHKOSH DEFENSE

OSHKOSH REVENUE AND INCOME 2010-2014 (IN USD MILLIONS)



OSHKOSH ROE (%)



The company's declining revenues and potential uncertainty over its ability to meet requirements and deadlines on the JLTV may have tempered analysts' enthusiasm following Oshkosh's victory. Though while the 12-month projections for share price movements are significantly polarised, running between -14.1 percent and +28.9 percent, the median projection of +13.7 percent, being significantly higher than the mid-point between the upper and lower brackets, implies that a safe majority of analysts see Oshkosh stock rising in the near future.

Oshkosh's most recent major buyback announcement (at time of writing) occurred on August 31, with 10 million shares to be purchased from shareholders, at an individual price of $42.05 each.

Notable Activities

Military wheeled vehicles make up a large portion of Oshkosh's portfolio. Equipment and resource transports, troop carriers, off-road capabilities and MRAPs are all offered by the corporation.

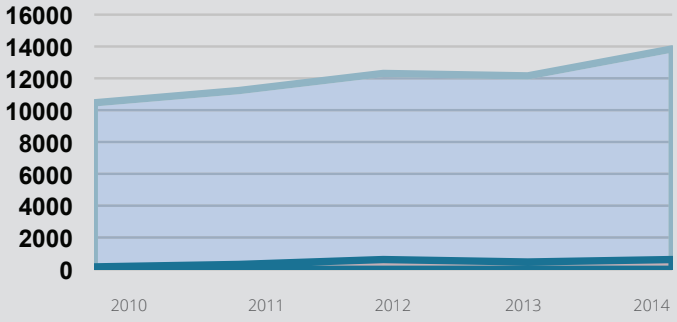
Oshkosh's recent success in winning the JLTV programme contract is well-founded. The $6.7bn programme, potentially worth up to $30bn by the time it is delivered to (partially) replace the AM General Humvee over the next three years - with a further five years optional - will see Oshkosh deliver roughly 17,000 of its Light Combat Tactical All-Terrain Vehicle (L-ATV) to the military.

Oshkosh Light Combat Tactical All-Terrain Vehicle. Source: Oshkosh

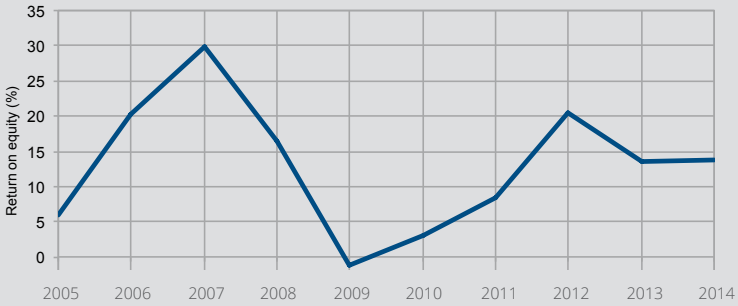
Though an order was issued for Oshkosh to stop work on the JLTV on September 11 2015 following a protest filed by competitor Lockheed Martin, US Army spokesperson Michael Clow stated that the Army remained confident in Oshkosh's ability to provide the 17,000 future armoured trucks for US troops.

COMPANY SPOTLIGHT: TEXTRON

TEXTRON REVENUE AND INCOME 2010-2014 (IN USD MILLIONS)



TEXTRON ROE (%)



Textron's revenues and profits have steadily risen over the past few years. This drives analysts to view Textron stock positively, with a median forecast growth of 21.3 percent in shares over the next year. Highs and lows forecast are 35.9 percent and 4.3 percent, respectively, suggesting a near-guaranteed return for Textron investments over the next 12 months.

The company's last major share buyback took place in 2013, with 25 million shares being repurchased for around $25-$27 each.

Notable Activities

The company's land division currently produces the Commando family of four-wheeled armoured vehicles. In June 2015, the Commando Elite, also known as the Tactical Armoured Patrol Vehicle (TAPV), was cleared of technical issues in order to complete a delivery to Canada for 500 units, originally ordered in 2012, with an option for 100 more. The contract is expected to be worth up to $534m, and an additional $105m contract for five years of in-service support has been also been granted.

INTERNATIONAL ARMOURED VEHICLES 2016
25 - 28 JANUARY, 2016 - TWICKENHAM STADIUM


Event Preview

Welcome to the world's premier armoured vehicles forum

Unconventional, irregular and hybrid warfare carried out by both state and non-state actors continues to be a critical feature of current and potential operating scenarios faced by armies around the world.

Russia's annexation of Crimea was shockingly effective and demonstrated the renewed need for NATO to be able to move Armour in volume and at speed across Europe to meet future threats; Cold War logistics books are being dusted off. Across swathes of Syria and Iraq, ISIL have continued to consolidate their hold with many anticipating they will remain influential in the region for years to come.

The credible threat of being able to deploy significant capability at speed is often sufficient deterrence to render the actual use of force unnecessary. However, to stabilise and ultimately resolve such issues can come the need for 'boots on the ground'; firepower, mobility, protection and information networks. This almost certainly means joint force deployment and in particular a combination of aerial platforms, armoured vehicles, and special forces.

IAVs 2016 will address such questions as; what technology and platforms are we preparing for current and future scenarios? How can the modern armoured vehicle continue to adapt and remain capable in 21st century theatres of conflict? How can we deploy assets at speed? How can we best operate and communicate within a joint and often multinational environment?

So, whether you are a military practitioner, acquisition staffer, decision maker, programme manager, technical expert, industrial supplier or strategic leader, we look forward to welcoming you to Twickenham Stadium in London early next year.

Confirmed 2016 Speakers include:

- **Ms Heidi Shyu**, *Assistant Secretary of the Army (ALT),* **US Department of Defense**
- **General Dennis L Via**, *Commanding General, US Army Materiel Command,* **US Army**
- **Lieutenant-General Anatoliy Pushnyakov,** *Commander of Ground Forces,* **Ukrainian Armed Forces**
- **Lieutenant General Seppo Toivonen,** *Commander,* **Finnish Army**
- **Vice Admiral Mathew Quashie,** *Chief of Defence Staff,* **Ghana Armed Forces**
- **Major General Payenda Mohammad Nazim,** *Inspector General,* **Afghan Ministry of Defence**
- **Major General Richard Opoku-Adusei,** *The Chief of the Army Staff,* **Ghana Armed Forces**
- **Major General Robert Talbot-Rice,** *Head of Armoured Vehicle Programmes,* **DE&S**
- **Major General Francesco Paolo FIGLIUOLO,** *Chief of Logistics Department,* **Italian Army General Staff**
- **Brigadier General Stephen Cadden,** *Chief of Staff Land Strategy,* **Canadian Army**
- **Brigadier General Charles Beaudouin,** *Director Technical Section,* **French Army**
- **Brigadier General Norbert Huber,** *Director Armament and Procurement,* **MoD Austria**
- **Brigadier General Jack Singyangwe,** *Chief of Policy, Doctrine and Strategic Branch,* **Zambian Army**
- **Colonel Ales Vodehnal, Director,** *Land Forces Development Dept.,* **General Staff, Czech Republic Armed Forces**
- **Colonel Glenn A. Dean,** *Stryker Program Manager,* **US Army**
- **Colonel Shane Fullmer,** *Joint Light Tactical Vehicle Joint Program Office Manager,* **US Army**
- **Lieutenant Colonel Jak Walker,** *Commanding Officer, ATDU,* **British Army Headquarters**
- **Major Claus Johansen,** *APC Replacement Programme Manager,* **Danish Army Combat Centre**
- **Bryn James,** *Head - Armour & Protection Science & Technology Centre,* **Dstl**
- **Professor Elias Stipidis,** *Director,* **Vetronics Research Centre**
- **Dr Dong Hyun Kim,** *Director for Mobility & Automotive R&D, Agency for Defense Development,* **Republic of Korea**
- **Dr. Yazid Ahmad,** *Director Mechanical & Aerospace Technology Division (STRIDE),* **Malaysian MoD**
- **Senior Representative, Israeli Defence Force**
- **Senior Representative, Israeli MoD**

IAV 2015 In Review

> Lt. Gen. (ret.) Sir Gary Coward summarised the themes of the conference as “balance, partnership and affordability, affordability, affordability

The International Armoured Vehicles XV event saw the leading edge of armoured vehicle integrators, component manufacturers, high ranking military officials, internationally renowned speakers and authorities gather for the community’s annual landmark event.

Lt. Gen. (ret.) Sir Gary Coward, the UK’s former Chief of Materiel (Land), opened proceedings by noting that investment in defence R&D – particularly within the context of developments in Eastern Europe, the Middle East and North/West Africa – should remain a critical priority for governments.

Philip Dunne, UK Minister for Defence Equipment, Support and Technology, built on this theme, remarking that, “in an age when we face a kaleidoscope of threats…our armed forces will continually be called upon. The imperative to maintain a battle fleet of vehicles is as complicated as ever.”

Lt. Gen. Michael Williamson, Principal Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics and Technology, DoD, stated that “we in the United States see armoured vehicles as key to future operations.”

Other keynote briefings were provided by the French Army’s Brig. Gen. Charles Beaudouin on the country’s armoured vehicle modernization progress, and Lt. Gen. Ben Hodges, Commanding General of U.S. Army Europe, who announced plans to station equipment in Eastern Europe in response to Russia’s “illegal annexation of Crimea”.

Meanwhile, the annual ‘G5’ industry panel debate saw executives from Nexter Systems, Textron Systems, BAE Systems Hägglunds, Milspray, and Ruag discussing the current trends in design and how these will translate into future programmes, as well as the use of hybrid drives and current guidance for governments.

Coward summarised the themes of the conference as “balance, partnership and affordability, affordability, and affordability. This was particularly noted against the backdrop of “a cooler Eastern Europe” and the critical need for partner nations to maintain robust and effective armoured vehicle capabilities.

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