Defence iQ

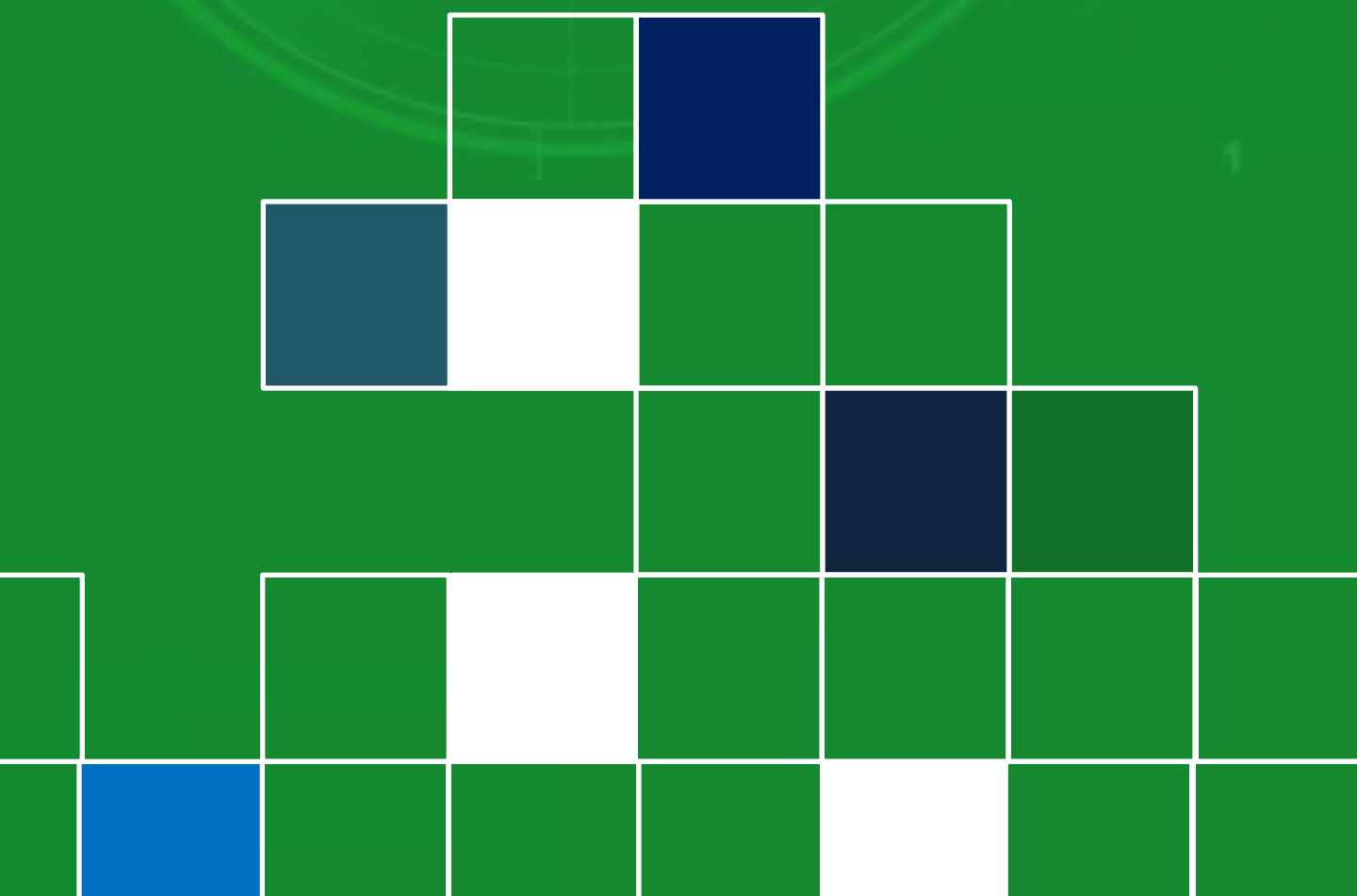
MILITARY RADAR

TRENDS AND ANALYSIS REPORT

2016

Defence iQ

CONTENTS



ABOUT THE RESEARCH

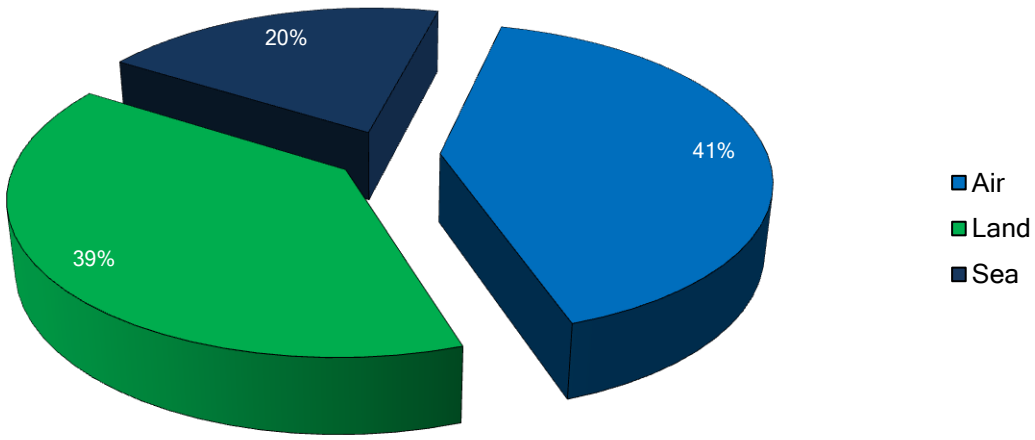
In recent years, there have been a number of key developments in radar technology which have enhanced radar capabilities for militaries worldwide. The technology provides critical capability for armed forces. Recent advancements in range, detection, identification, integration with other sensors, and adaptability to new missions, platforms and environments, make it one of the most dynamic and progressive markets for industry and military stakeholders.

Ahead of the Military Radar conference (30 August – 1 September, 2016 in London, UK), *Defence IQ* commissioned a survey of technical experts and industry professionals to gauge how the market is evolving and to identify the key trends in the market over the next ten years.

This report looks to analyse the data and provide an insight into the future of the radar market. It analyses the scope for growth over the next ten years and focuses on the key factors driving innovation, the challenges for developing and implementing new technologies, regional markets targeted for growth, and identifies the key industry players in the market. The data has also been provided as an average of all sectors – see the graphs filled in with red for this overview.

Respondents were asked to identify their primary area of interest, allowing the data to be segmented into air, land, and sea domains, providing a unique perspective from specific comers of the radar sector. Figure 1 highlights the split between air, land, and sea respondents.

FIGURE 1:
ANALYSIS OF RESPONDENT BY DOMAIN OF PRIMARY INTEREST



UAVs DRIVE DEMAND FOR RADAR TECH

The increased use of UAVs is the most significant factor driving innovation and demand in the radar market according to 70% of respondents. This data is segmented by air, land, and sea respondents in Figure 2a, but the graph below reveals that the dramatic rise of the UAV market is having a huge impact on radar technology as new threats emerge from the use of unmanned systems in theatre as well as in urban environments.

The development of advanced electronic warfare systems (56%) that radar will need to combat and improvements in passive radar capabilities (50%) were also identified as key drivers over the next decade.

FIGURE 2: ALL RESPONDENTS
ANALYSIS OF FACTORS DRIVING INNOVATION AND DEMAND IN THE RADAR MARKET OVER THE NEXT 10 YEARS

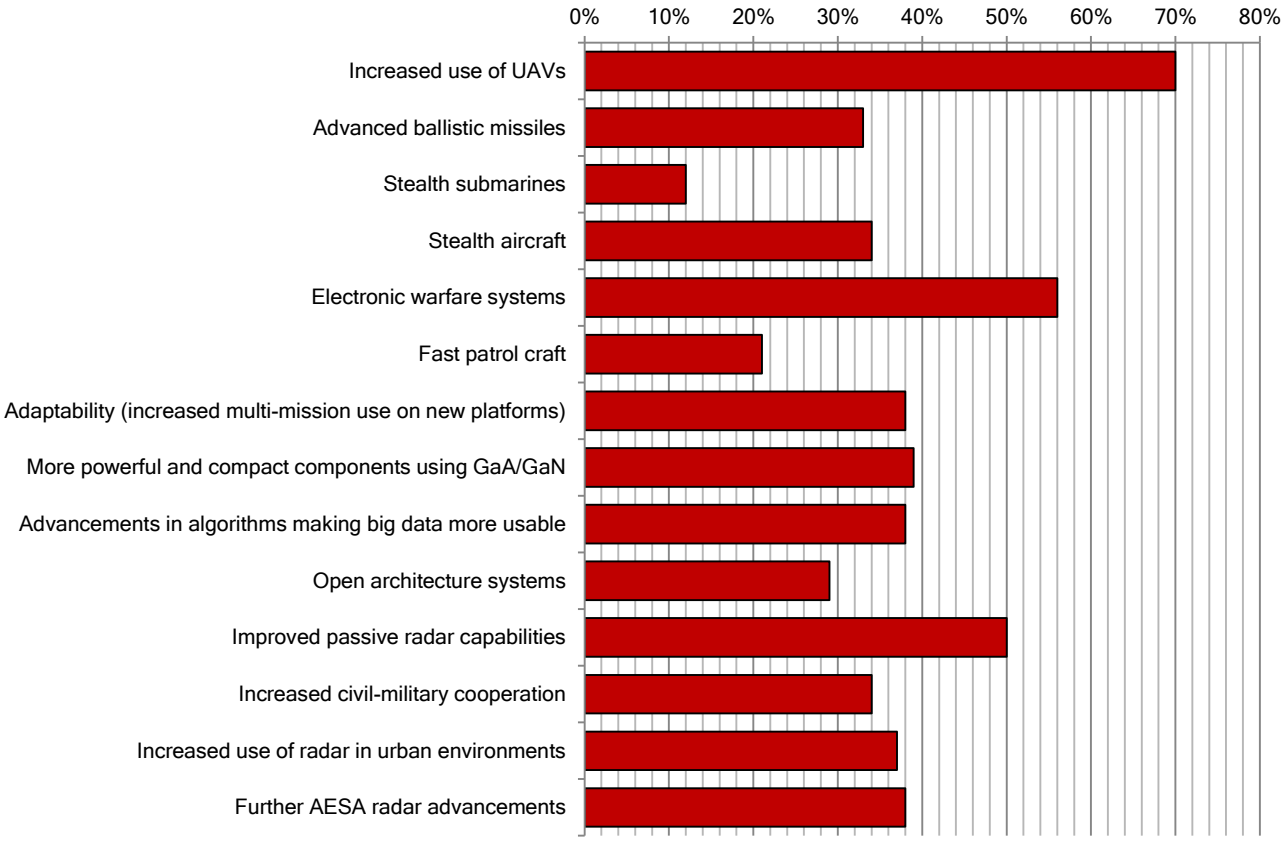
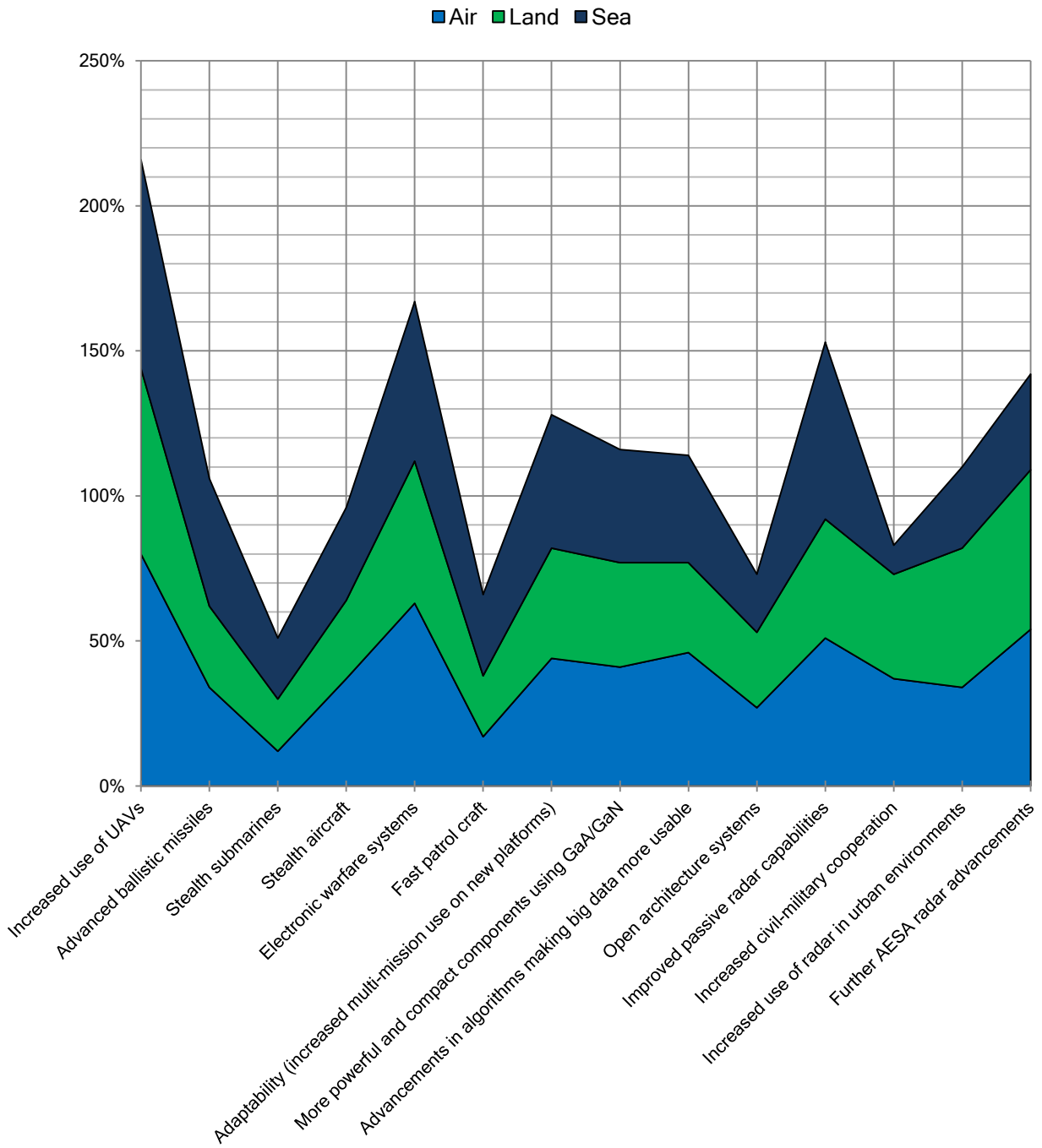
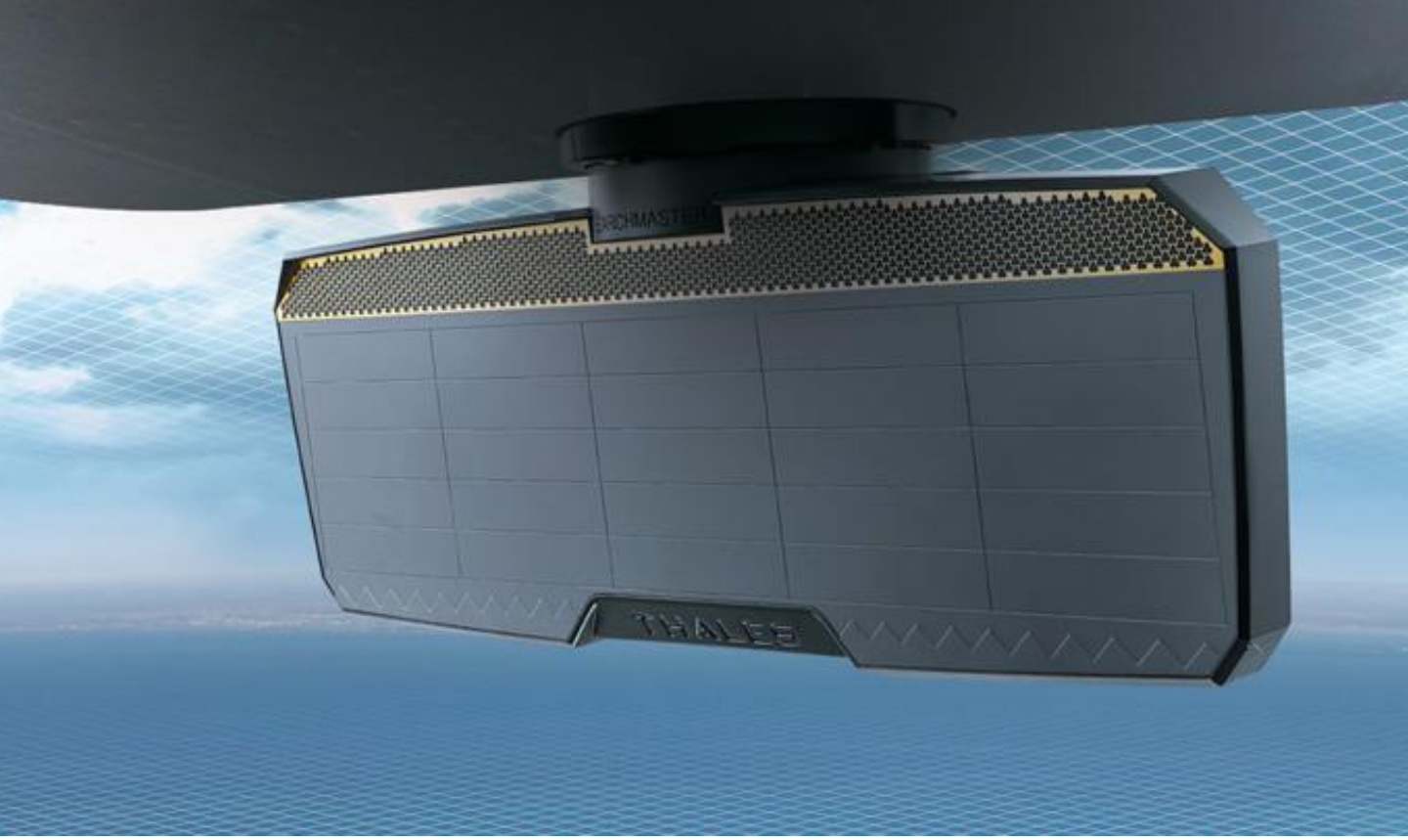


FIGURE 2a: DOMAIN SPECIFIC RESPONSES
ANALYSIS OF FACTORS DRIVING INNOVATION AND DEMAND IN THE RADAR MARKET OVER THE NEXT 10 YEARS





BUDGETS TOO LIMITED, TECH MOVING TOO FAST

Looking at Figure 3, the biggest challenge for the development and implementation of new radar technologies over the next decade relates to budget limitations. All respondents from air, land, and sea domains identified budget restrictions as the key issue preventing either R&D into new radar technologies or the acquisition of commercial solutions.

The development of the same or similar radar technologies in isolation – i.e. where there is little communication or knowledge sharing between partners – and the rapid advancement of new radar technologies that can lead to premature obsolescence of other systems were also identified as key challenges.

The biggest discrepancy between respondents from the three sectors (Figure 3a) centered around the rapid technology progression of radar leading to premature obsolescence. Almost half (49%) of respondents from the land domain identified this as a key challenge while just 22% working within the maritime sector did. According to the data, radar experts and end-users in the air domain tend to be more risk averse than – nearly half (48%) highlighted the fear of making an expensive mistake as a challenge for stakeholders, compared to 23% in the land domain.

FIGURE 3: ALL RESPONDENTS
OVERVIEW OF BIGGEST CHALLENGES FOR DEVELOPMENT AND IMPLEMENTATION OF NEW RADAR TECHNOLOGIES OVER THE NEXT DECADE

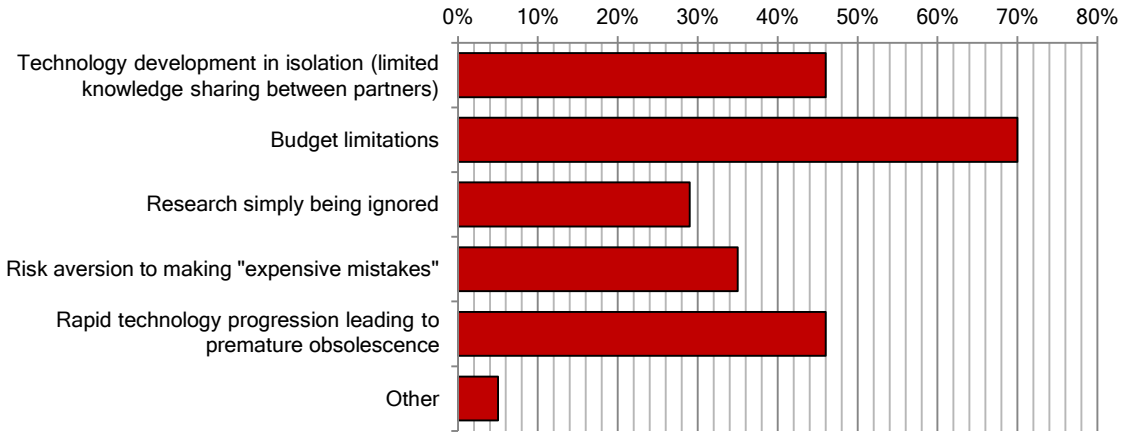


FIGURE 3a: DOMAIN SPECIFIC RESPONSES
OVERVIEW OF BIGGEST CHALLENGES FOR DEVELOPMENT AND IMPLEMENTATION OF NEW RADAR TECHNOLOGIES OVER THE NEXT DECADE

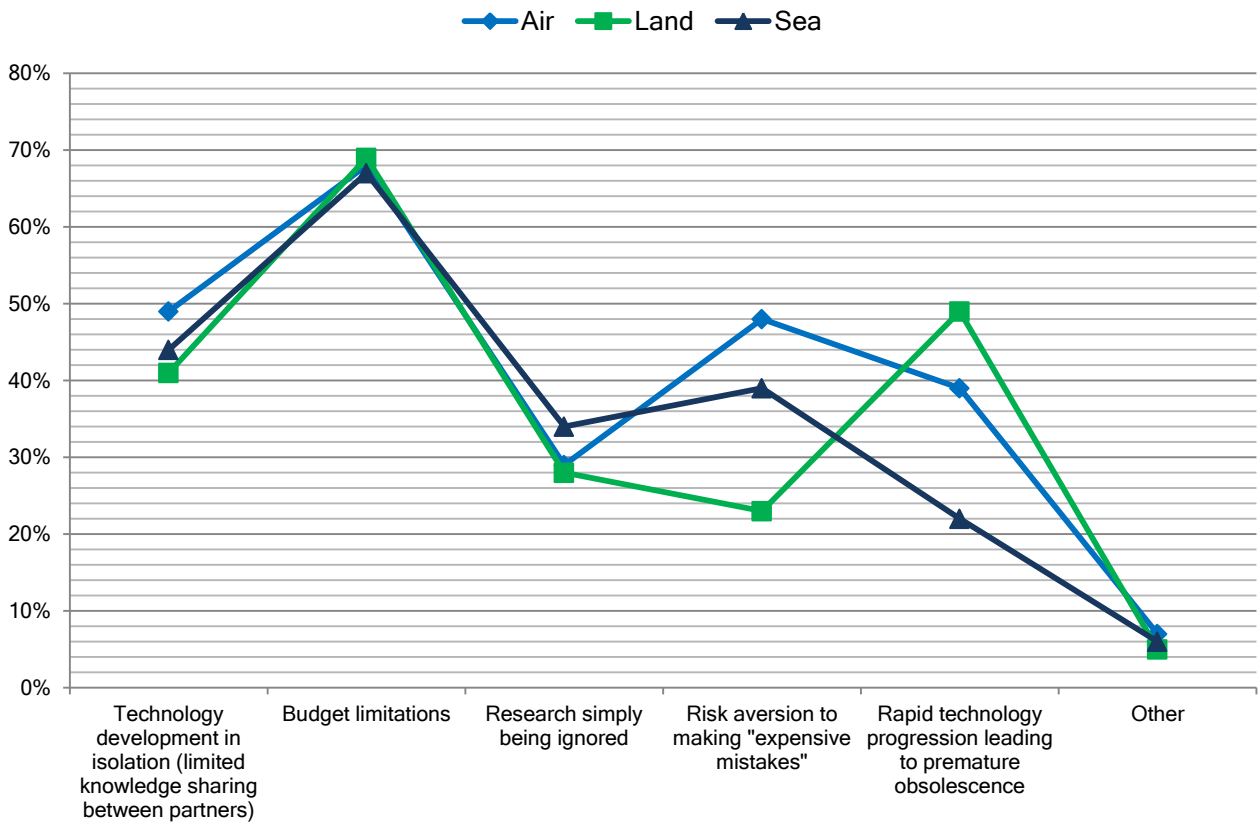
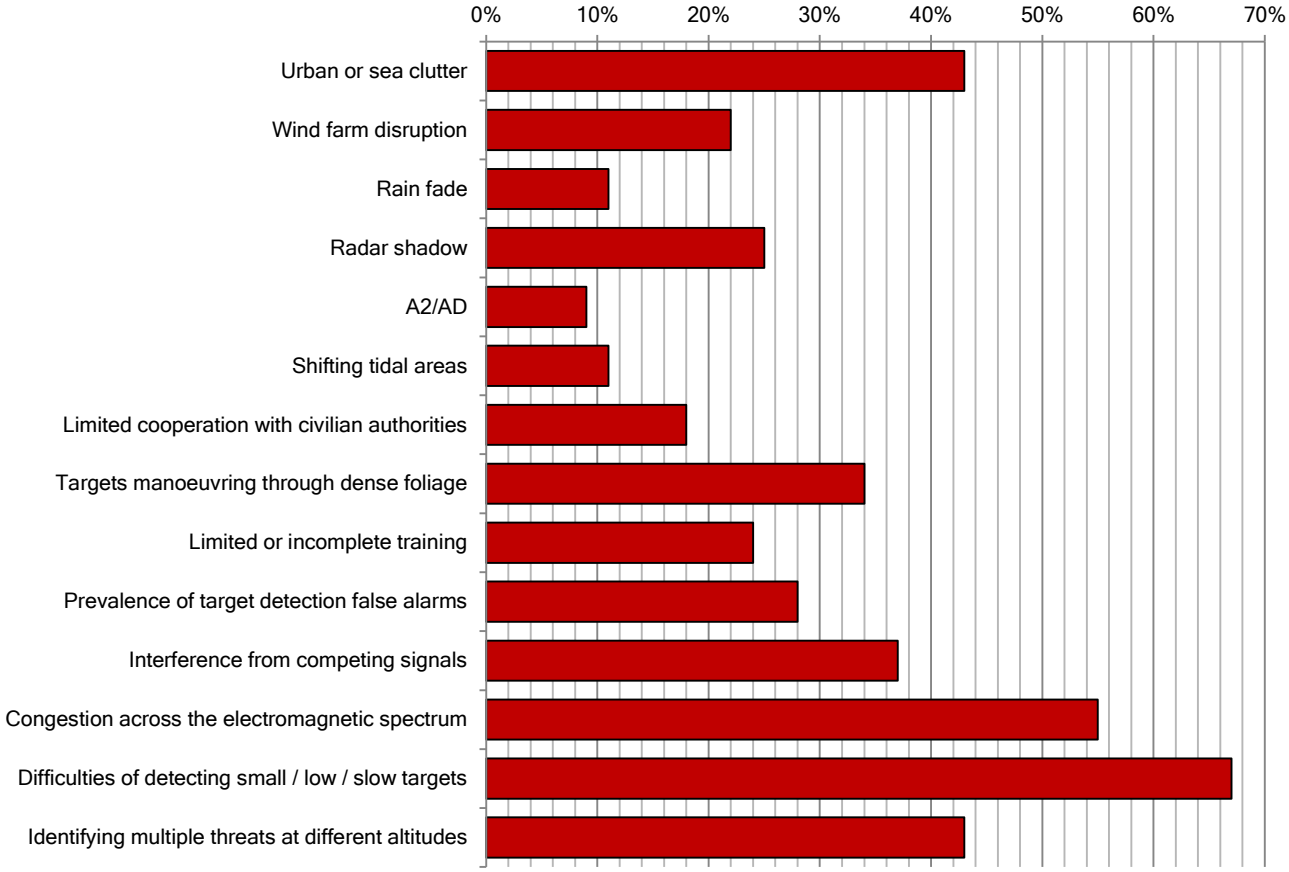


FIGURE 4: ALL RESPONDENTS
ANALYSIS OF MOST SIGNIFICANT CHALLENGES FOR MILITARY RADAR OPERATORS



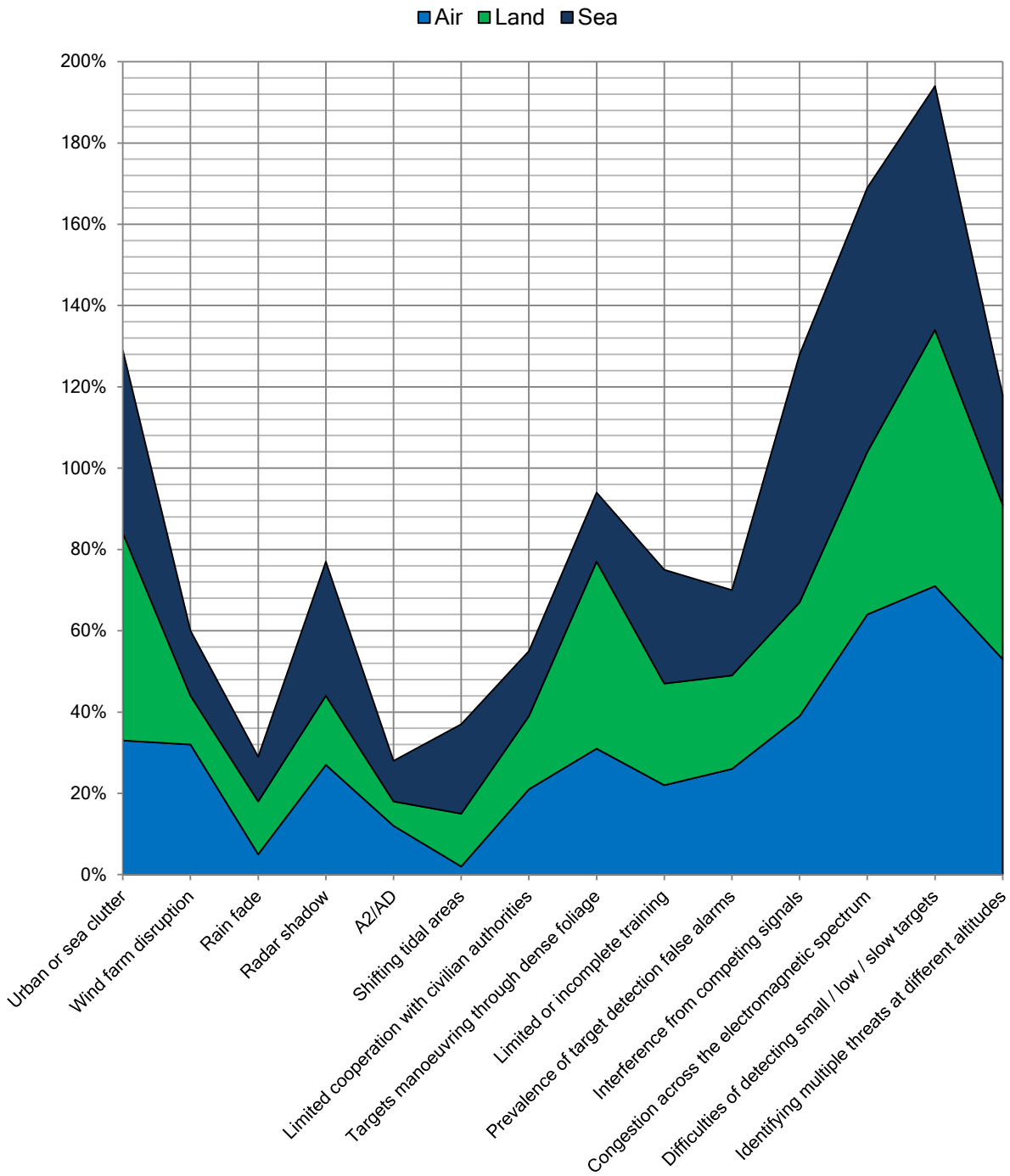
THE MILITARY OPERATOR'S PERSPECTIVE

Thinking specifically about the challenges for military operators in Figure 4 (as opposed to those for technical and commercial stakeholders in Figure 3), the problems in detecting small, low, and slow targets was identified as the critical issue over the next ten years. Over two-thirds of respondents (67%) highlighted this as a challenge, which corresponds to the analysis in Figure 2 where the proliferation of UAVs was seen to be a key driver for improvements in radar technology.

Congestion across the electromagnetic spectrum (55%), identifying multiple threats at different altitudes (43%), and urban or sea clutter (43%) were all identified as other challenges.

FIGURE 4a: DOMAIN SPECIFIC RESPONSES

ANALYSIS OF MOST SIGNIFICANT CHALLENGES FOR MILITARY RADAR OPERATORS



All eyes east

Although Asia-Pacific is generally seen to be the most attractive or lucrative market for radar demand over the next decade across the three domains (Figure 5), those working within the air sector actually identified Eastern Europe their key target (Figure 5a).

Countries in the region – including Romania and Poland particularly – are increasingly beginning to play a central role in NATO's air and missile defence capabilities. For example, in one of the most significant European missile defence developments in recent years, the Aegis Ashore ballistic missile defence facility at the Deveselu facility in Romania was declared operational on 12 May.

Lockheed Martin's Aegis Ashore is the first operational land-based version of the Aegis Ballistic Missile Defence system, a sophisticated collection of phased-array radars, fire control directors, computers and missiles. Another Aegis Ashore facility is also underway at the Redzikowo Base in Poland, again underscoring the growing market for new radar technologies in the region.

> *"Recent advancements in range, detection, identification, integration with other sensors, and adaptability to new missions, platforms and environments, make it one of the most dynamic and progressive markets for industry and military stakeholders.*

FIGURE 5: ALL RESPONDENTS
ANALYSIS OF MOST ATTRACTIVE OR LUCRATIVE MARKET OVER NEXT DECADE

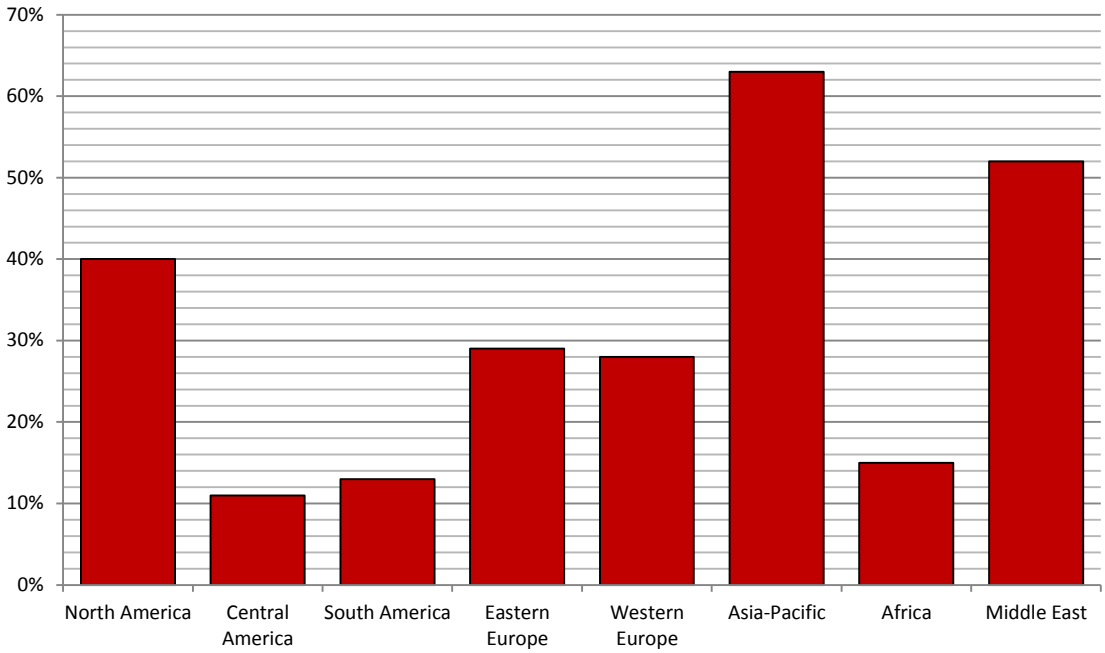
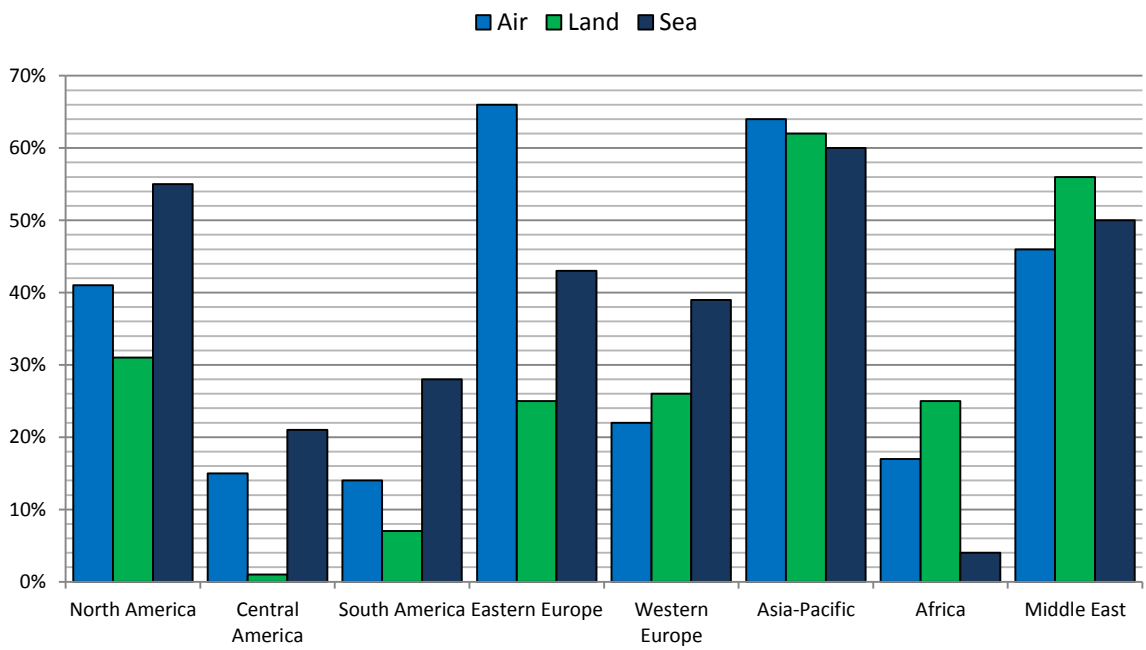


FIGURE 5a: DOMAIN SPECIFIC RESPONSES
ANALYSIS OF MOST ATTRACTIVE OR LUCRATIVE MARKET OVER NEXT DECADE



RAYTHEON LEADING THE WAY

Raytheon is expected to have the biggest impact on the radar market over the next ten years according to 70% of respondents. The company recently announced it had completed a series of milestones to upgrade the Patriot Air and Missile Defense System. The projected upgrade is designed to deliver 360-degree capability enhanced with gallium nitride (GaN).

Lockheed Martin (57%), Thales (55%), BAE Systems (47%), and Northrop Grumman (46%) were all identified as other market leaders.

FIGURE 6: ALL RESPONDENTS

ANALYSIS OF COMPANIES EXPECTED TO HAVE BIGGEST IMPACT ON RADAR INNOVATIONS OVER THE NEXT DECADE

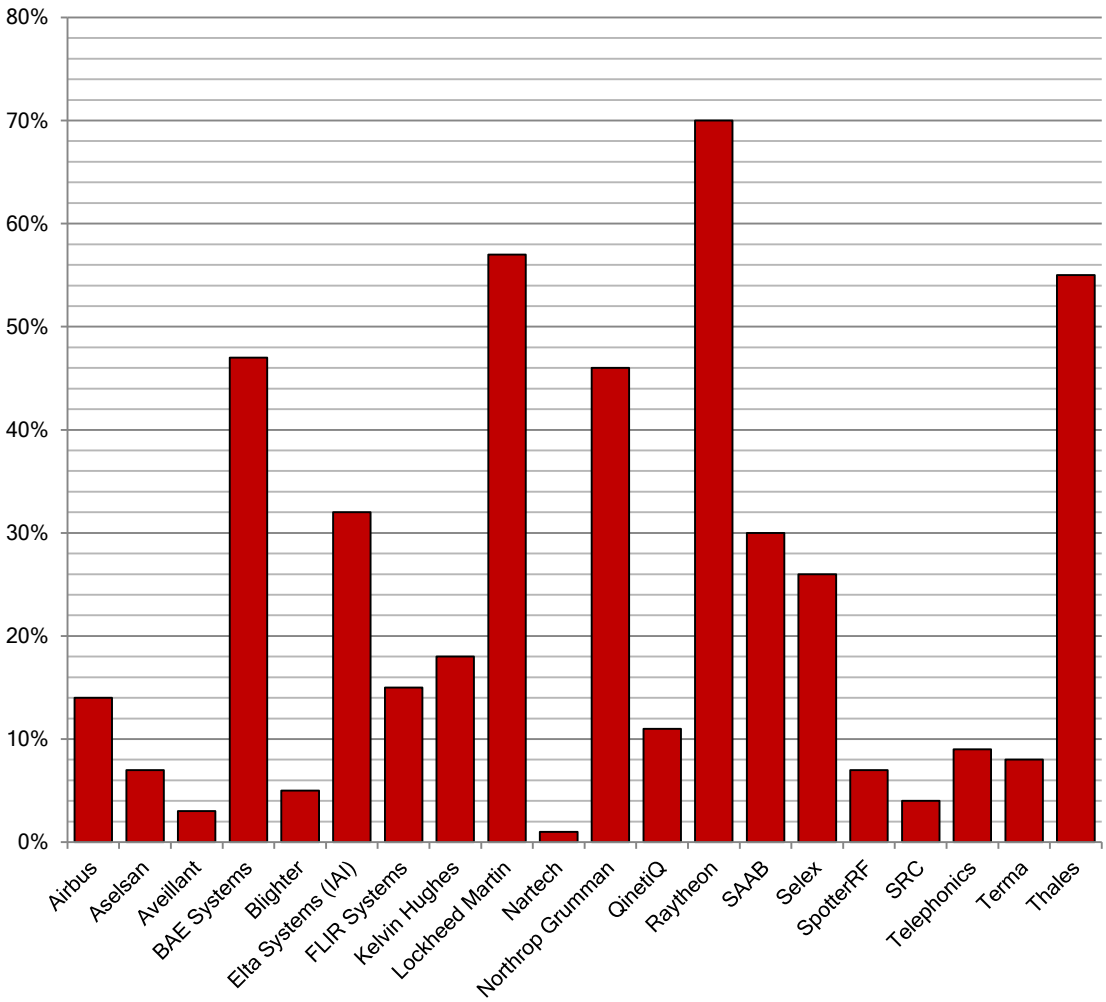


FIGURE 6a: DOMAIN SPECIFIC RESPONSES
ANALYSIS OF COMPANIES EXPECTED TO HAVE BIGGEST IMPACT ON RADAR MARKET INNOVATIONS OVER THE NEXT DECADE

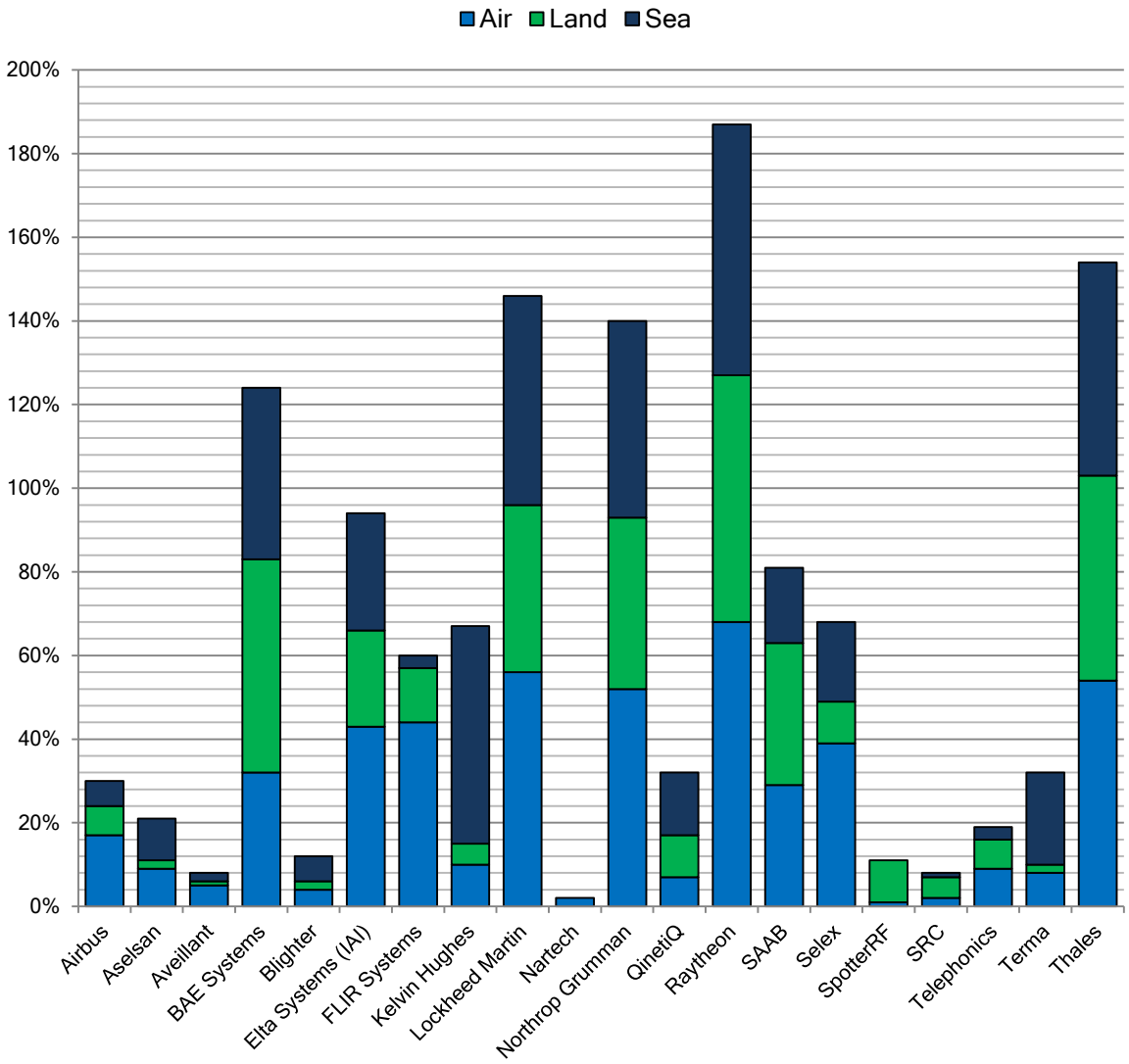
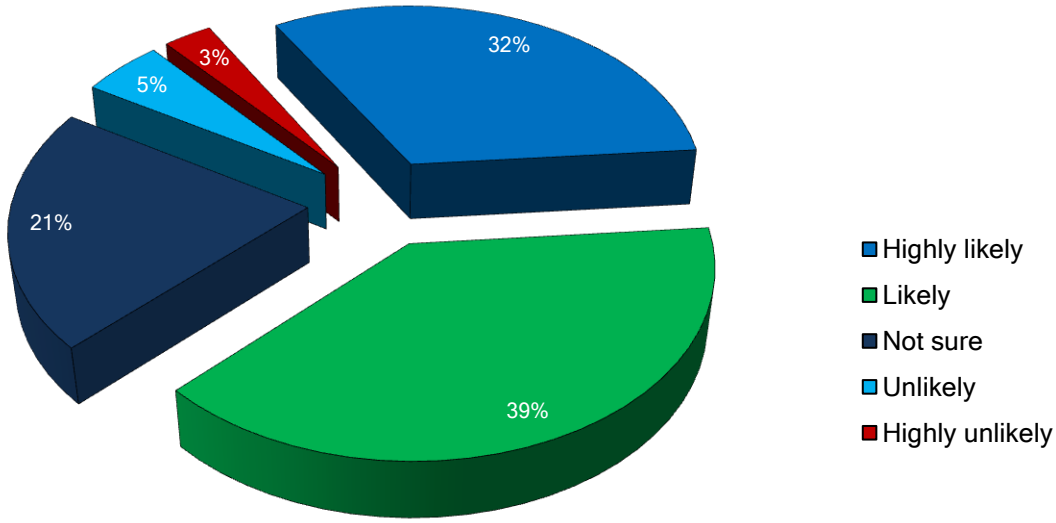


FIGURE 7: ALL RESPONDENTS

WITHIN 10-15 YEARS, HOW LIKELY IS IT THAT COGNITIVE RADAR WILL PROVIDE TRULY INTELLIGENT RADAR THAT WILL INCREASE OPERATOR'S REAL-WORLD AWARENESS ON MISSIONS?



COGNITIVE EXPECTATIONS

While the technology is still immature at this stage, the potential for cognitive radar seems positive with 71% of respondents indicating that within the next 10-15 years it could provide truly intelligent radar that will increase operator's real-world awareness on missions.

Respondents in the maritime sector were particularly enthusiastic about the technology's potential with 86% stating it is either likely or highly likely to make an impact on the operators capabilities. That is compared to 63% of air respondents and 71% of land respondents.

FIGURE 7a: AIR RESPONDENTS

WITHIN 10-15 YEARS, HOW LIKELY IS IT THAT COGNITIVE RADAR WILL PROVIDE TRULY INTELLIGENT RADAR THAT WILL INCREASE OPERATOR'S REAL-WORLD AWARENESS ON MISSIONS?

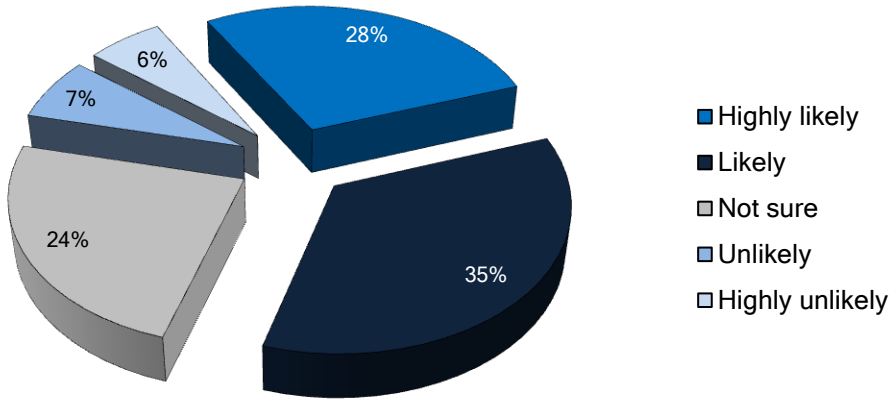


FIGURE 7b: LAND RESPONDENTS

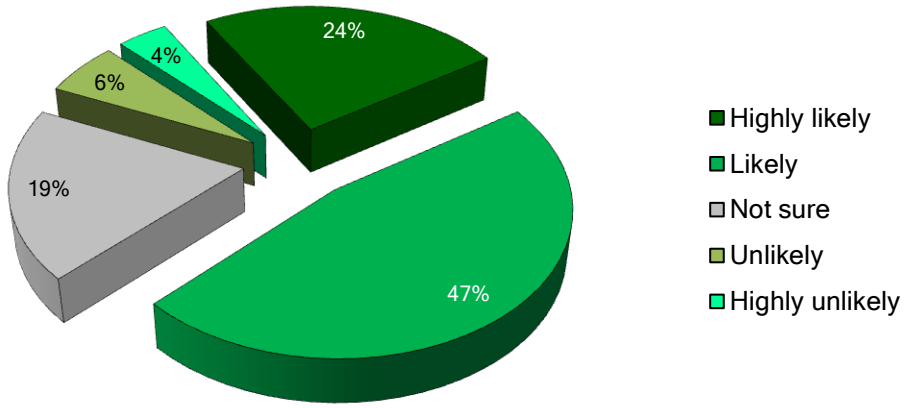
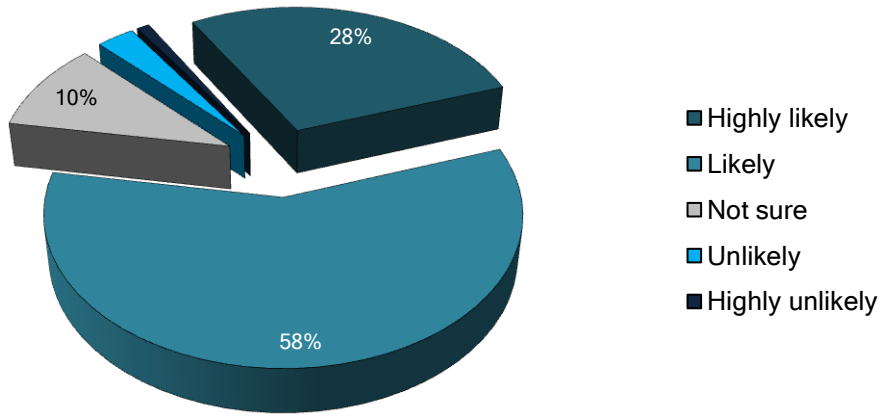


FIGURE 7c: SEA RESPONDENTS



DEMAND AND PROCUREMENT TO RISE

Respondents across all sectors believe that demand for and the procurement of radar systems is likely to increase over the next decade. However, while more than half of air-based respondents (55% in Figure 8a), the other two sectors did not have a majority consensus (38% of respondents in land and 47% in the maritime domain). In fact, for land respondents the most likely outcome over the next ten years is that demand will increase but procurement of new systems will broadly remain the same (Figure 8b).While there is no overall consensus, it is clear that respondents believe demand is highly unlikely to fall in any sector; just 1% of total participants identified this as an expected outcome.

FIGURE 8: ALL RESPONDENTS
WHICH STATEMENT MOST ACCURATELY DESCRIBES THE MILITARY RADAR MARKET OVER THE NEXT 10 YEARS?

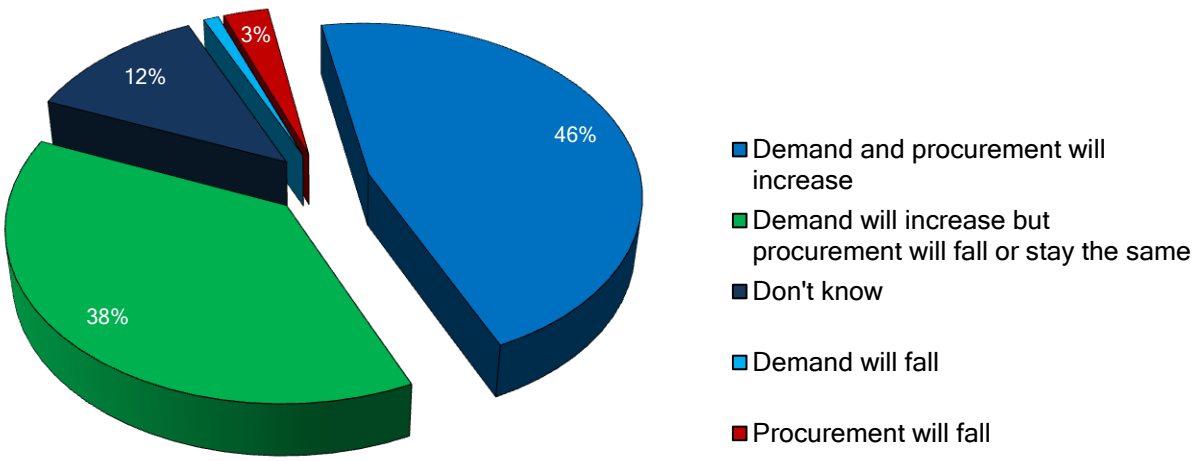


FIGURE 8a: AIR RESPONDENTS
WHICH STATEMENT MOST ACCURATELY DESCRIBES THE MILITARY RADAR MARKET OVER THE NEXT 10 YEARS?

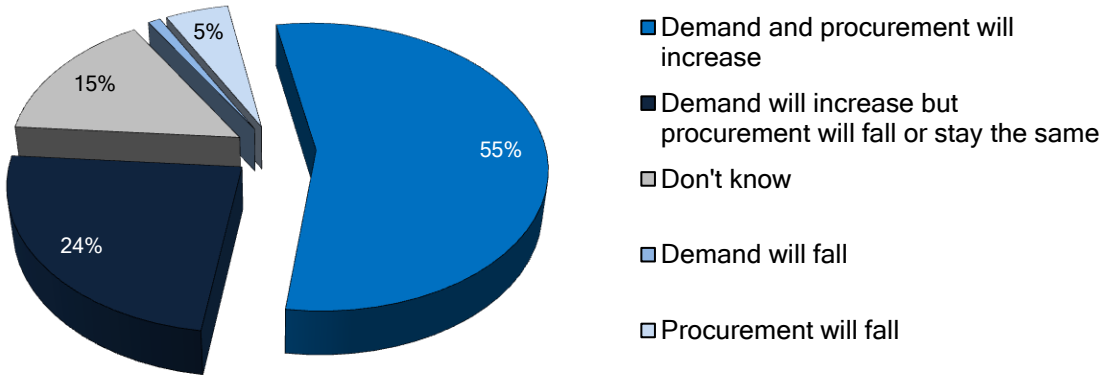


FIGURE 8b: LAND RESPONDENTS

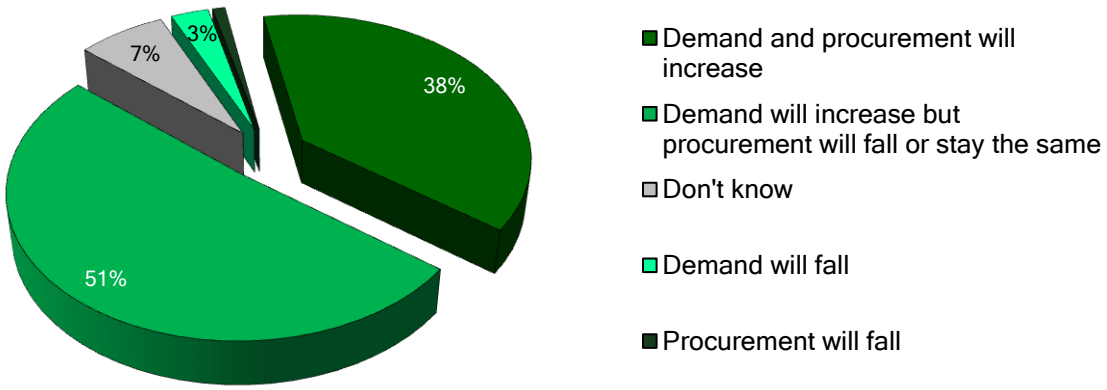
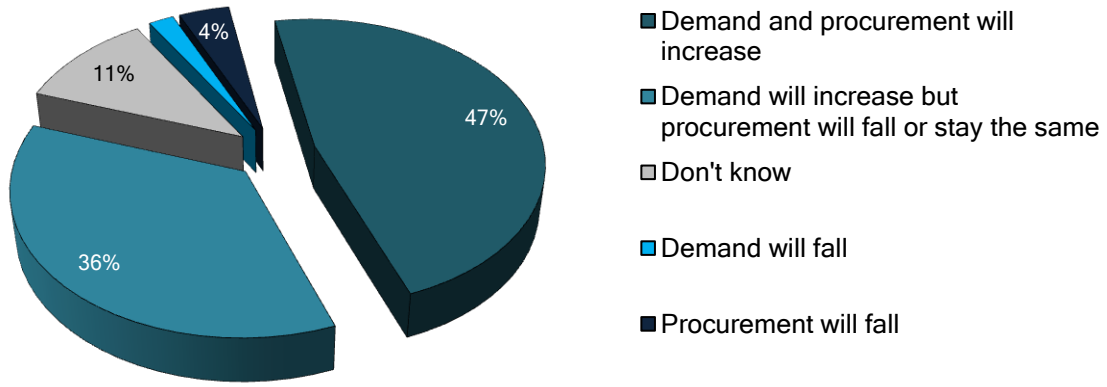


FIGURE 8c: SEA RESPONDENTS



MILITARY RADAR

28 August, 2016
London, UK

DOWNLOAD THE AGENDA

In recent years, there have been a number of key developments in radar technology which have enhanced radar capabilities in areas such as range,detection, identification, integration with other sensors and adaptability to new missions, platforms and environments. As operators are confronted by emerging threats and increasingly congested and contested operational environments, these technological advancements are filling critical capability gaps; therefore, there will be severe consequences for militaries which fail to adapt to recent developments. Ultimately, understanding these complex challenges and making decisions on procurements and upgrades is vital to national security.

Defence IQ is delighted to announce the return of our 14th Annual Military Radar conference. This summit stands alone as an established event which is dedicated to the military applications of radar technology. As a result, it has gained international recognition as a unique forum for discussion and is consistently able to attract senior representatives from military services, commercial organisations and research institutions. With devoted exhibition facilities and networking sessions, this conference provides the perfect environment for military and industry partners to debate changing mission sets and the future capability potential of radar systems.

Top Reasons to Attend:

- ✓ Exclusive testimonies on future requirements, operational experiences, and the results of research programmes to gain unparalleled insights which will inform the future deployment and application of radar systems
- ✓ Unique opportunity for a holistic exchange of information between representatives from military, industry and academia on the future application of radar to ensure that your procurement and training programmes are prepared for imminent capability advances
- ✓ Evaluate the potential capability gaps threatening national security, which are emerging as legacy radar systems are increasingly required to counter new threats and environmental challenges
- ✓ Access innovative methodologies and technological approaches to counter emerging threats and challenging operational environments
- ✓ Adopt a sophisticated, efficient and cost effective approach to resource management during procurement and systems upgrades through a comprehensive review of available technologies and the balance between their utility and required investment
- ✓ Develop new contacts in our dedicated networking sessions to facilitate greater partnering and co-operation between governmental organisations, industry and research bodies

Defence iQ

Email
enquire@defenceiq.com

Telephone
+44 (0) 20 7368 9737