Presentation

Embedded Tech Trends: Market Insights

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IHS Markit embedded technology research results

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World embedded computer board, modules and systems

Figure ES.1
Forecast for the World Market for Embedded Computer Boards, Modules and Systems (2015-2020)

By product type (Ex. DIY boards)
Revenues ($ millions)

	2015	2020	CAGR
xTCA	321.0	165.0	-12.5%
CompactPCI	202.0	134.0	-7.9%
VME and VPX	493.0	576.0	3.2%
Standalone Boards	666.9	966.0	7.7%
Computer on Modules	765.1	1,157.2	8.6%
PICMG 1.x	90.0	48.0	-11.8%
Total	**2,538.0**	**3,046.2**	**3.7%**

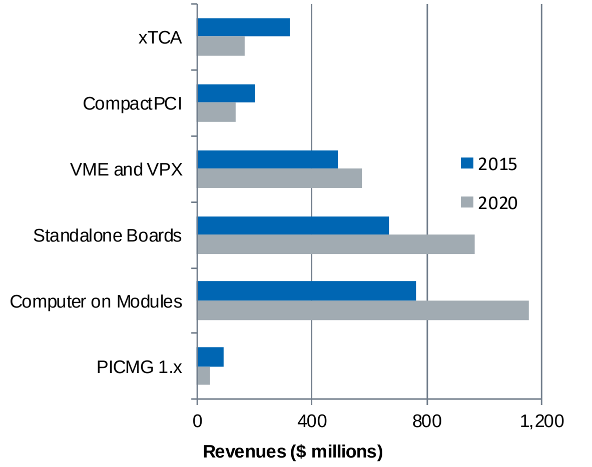
Top three sectors
Revenues ($ millions)

	2015	2020	CAGR
Industrial Automation	715.0	814.0	2.6%
Communications	335.0	204.0	-9.4%
Defense	548.0	603.0	1.9%
Total	**1,598.0**	**1,621.0**	**0.3%**

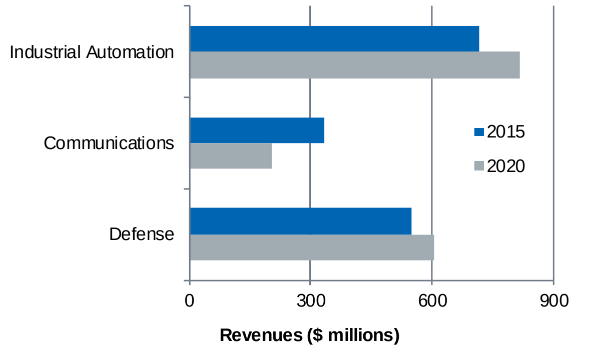
Estimated world market shares
Revenues ($ millions)

	2014	2015
Advantech	10.9%	11.9%
Kontron	8.9%	8.4%
Abaco	7.8%	8.0%
Artesyn	7.8%	5.9%
Curtiss Wright Controls	5.0%	5.1%
Others	**40.4%**	**39.3%**

Product type: World



largest sectors

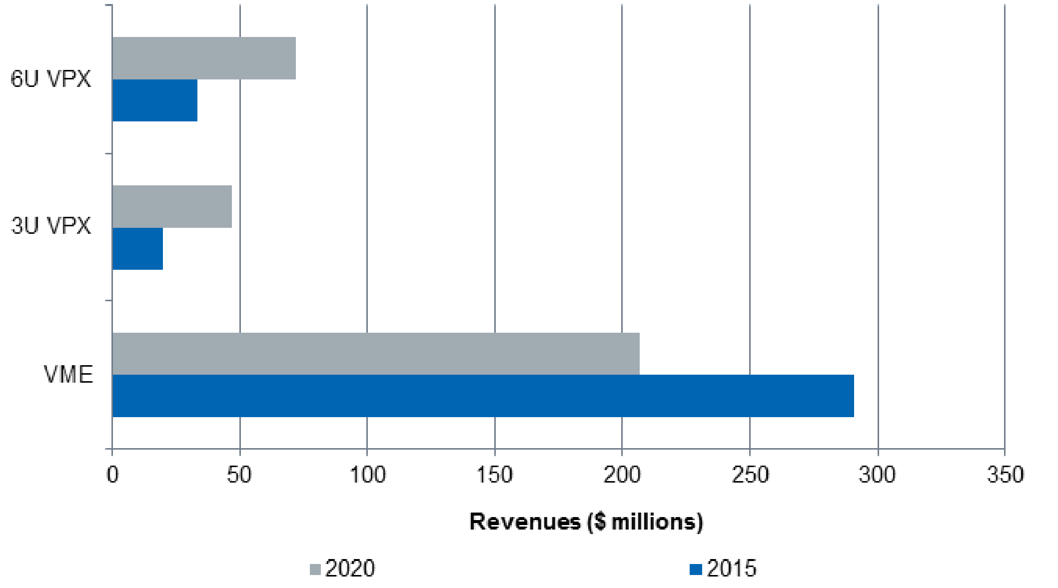


Source: IHS

World market for VITA boards and systems

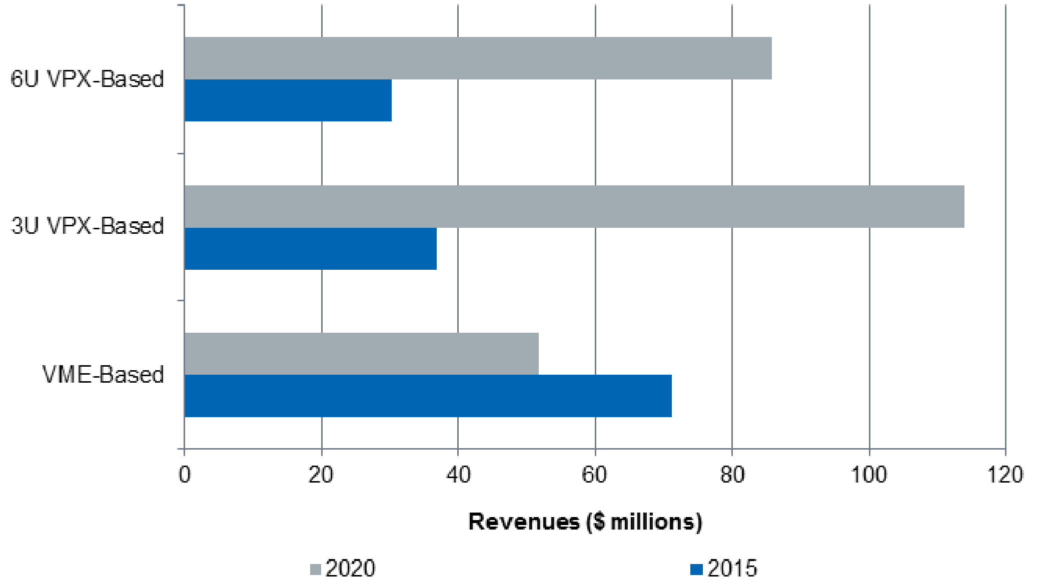
World market for VITA boards and systems by form factor

Figure 2.11: The market for VITA boards by form factor: World



Data issued: November 2016
Source: IHS

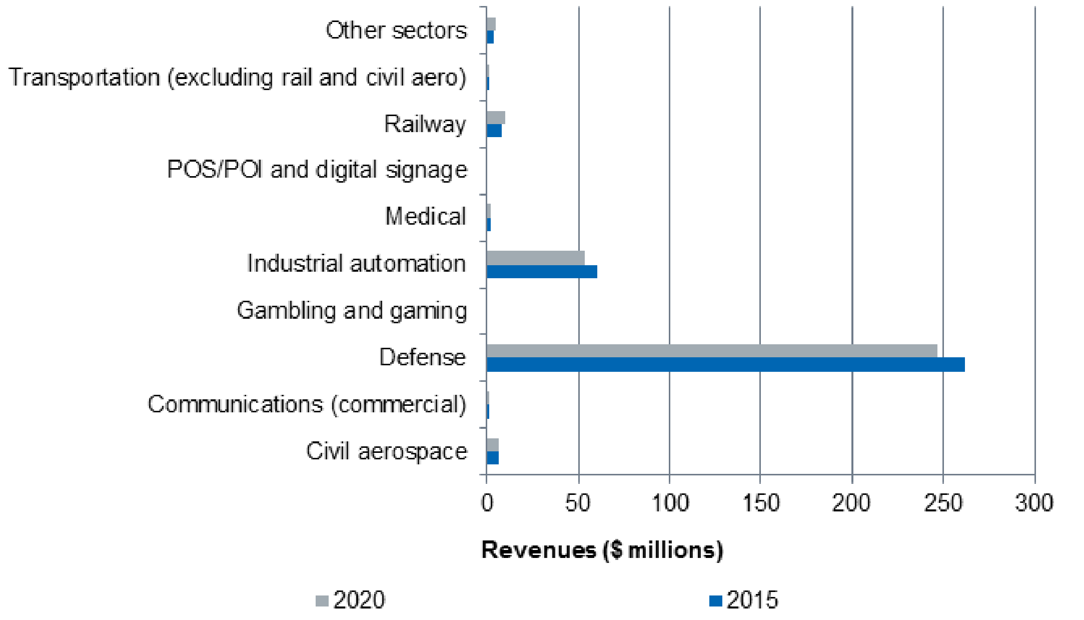
Figure 2.13: The market for VITA systems by form factor: World



Data issued: November 2016
Source: IHS

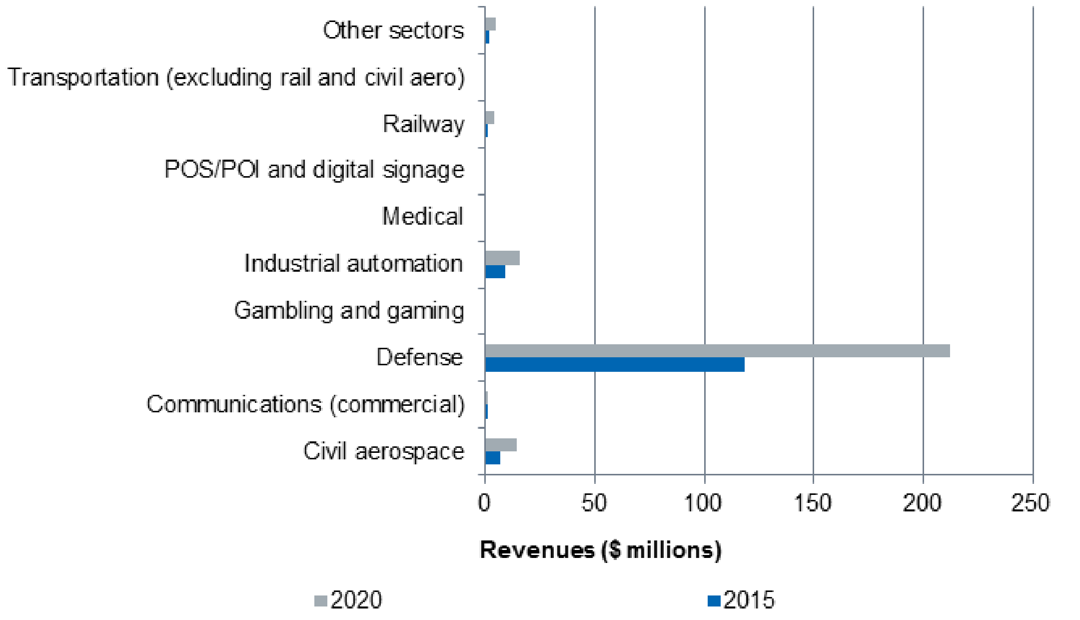
World market for VITA boards and systems by industry

Figure 2.12: The market for VITA boards by industry: World



Data issued: November 2016
Source: IHS

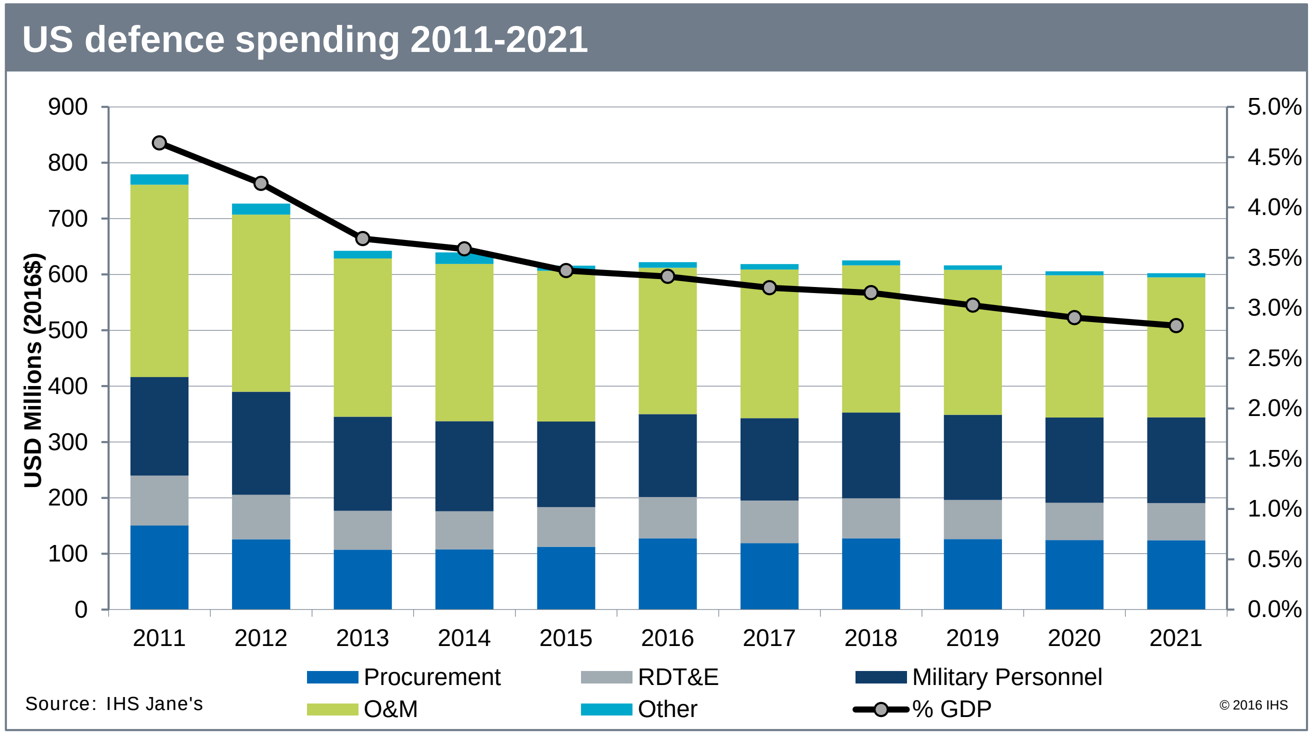
Figure 2.14: The market for VITA systems by industry: World



Data issued: November 2016
Source: IHS

Defence Budgets

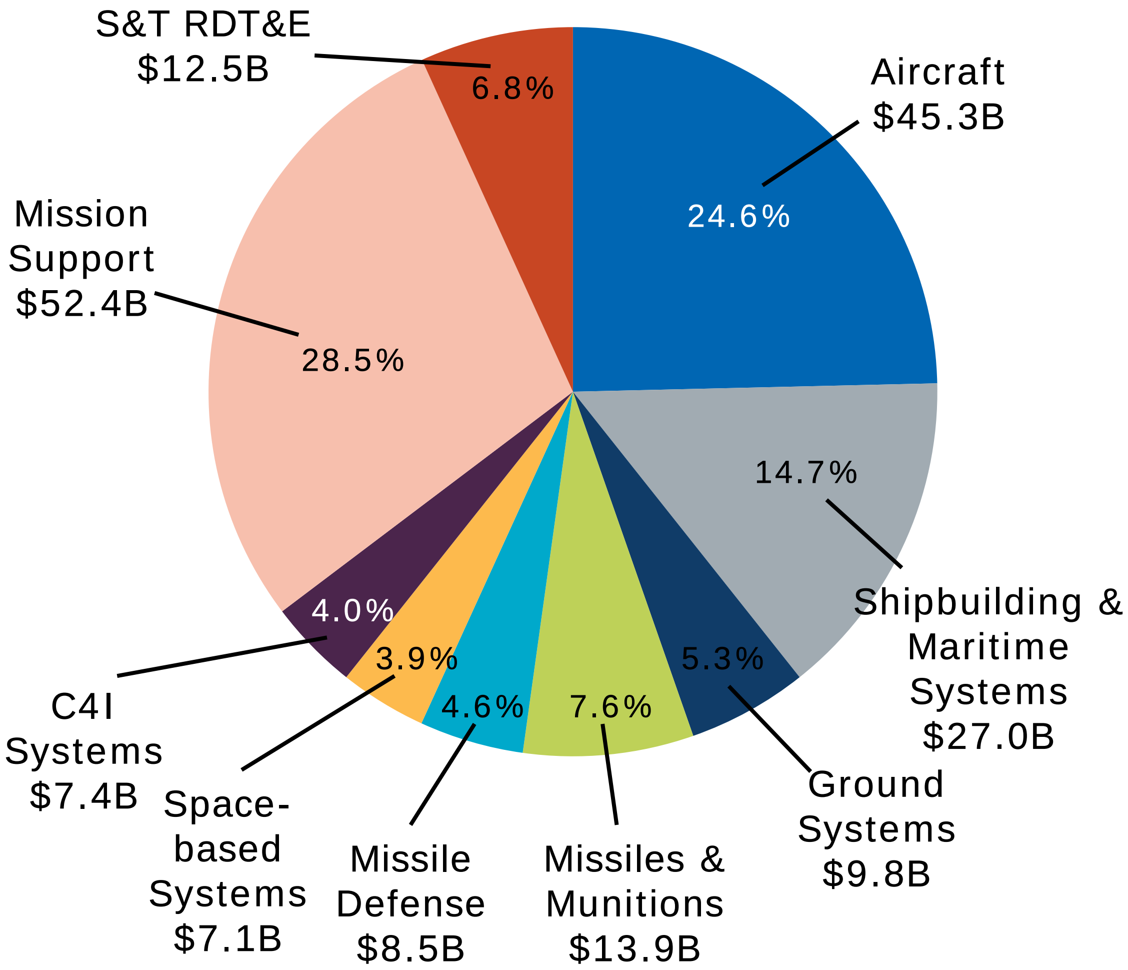
United States Defence Budget Profile



- Defence % of GDP decreasing: 4.6% in FY11 → 3.0% in FY19
- USD176 billion FY14 investment smallest in a decade – result of sequester
- Investment peaks in FY16 (32.4% of DoD); then decreases at -1.1% CAGR

US Defence Investment Averages 31.7% through future years

FY17 DoD Budget by Mission Category



FY17 PBR

in USD billion	Base Budget		
Weapons Category / Mission Area	**FY16**	**FY17**	**Delta %**
Aircraft & Related Systems	50.6	45.3	-10.5%
Shipbuilding & Maritime Systems	27.5	27.0	-1.8%
Ground Systems	9.9	9.8	-1.0%
Missiles & Munitions	12.7	13.9	9.4%
Missile Defense	9.1	8.5	-6.6%
Space-based Systems	7.0	7.1	1.4%
C4I Systems	7.1	7.4	4.2%
Mission Support	52.9	52.4	-0.9%
S&T RDT&E	13.0	12.5	-3.8%
Rescissions	-1.8	0.0	
Total	**188.0**	**183.9**	**-2.2%**

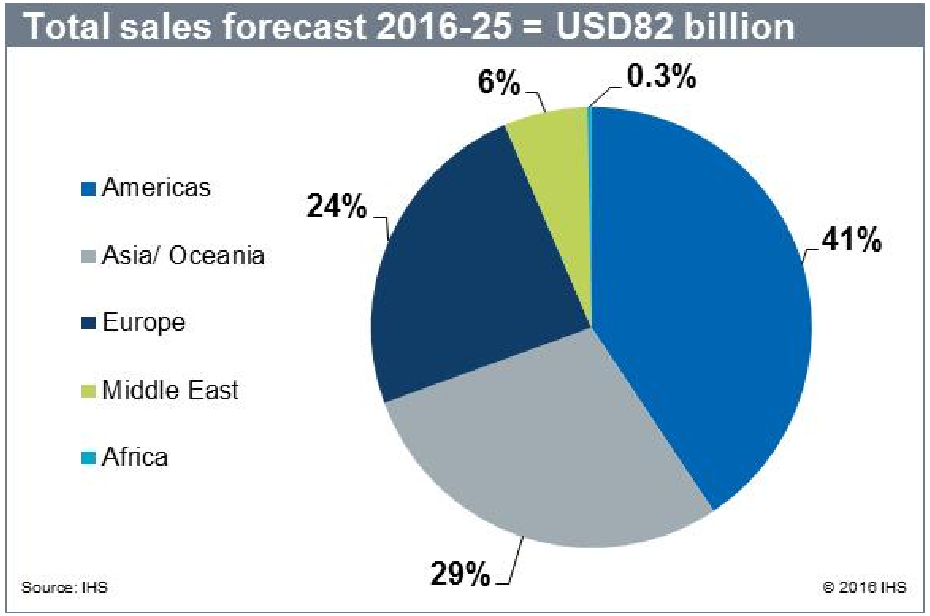
includes Procurement, RDT&E and NDSF accounts

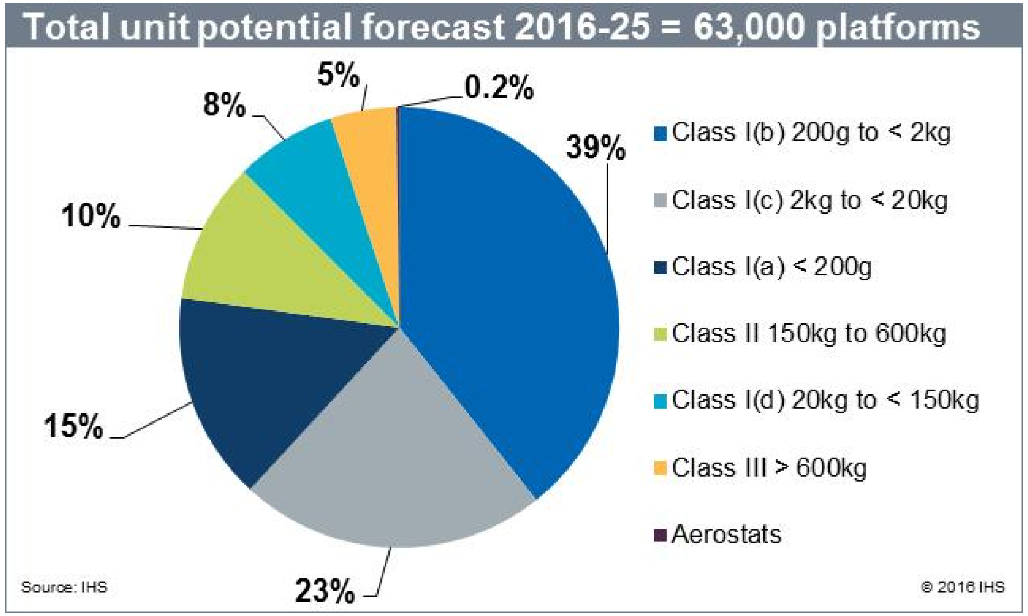
Cyber $6.7B distributed throughout

FY17 Total Base + OCO Modernization Accounts USD183.9 billion

Investment in new platforms

63,000 new UAVs in the next decade

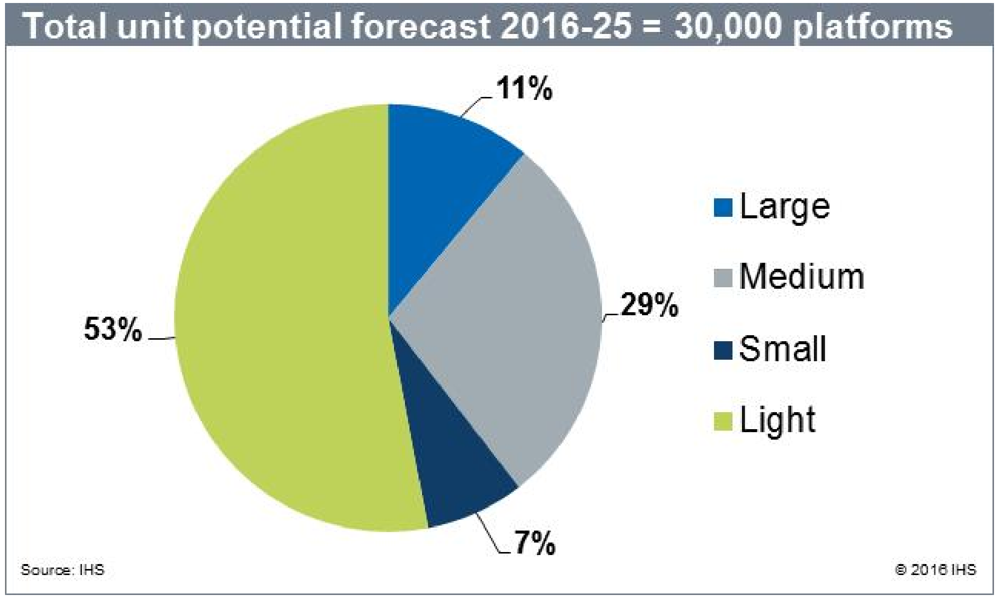


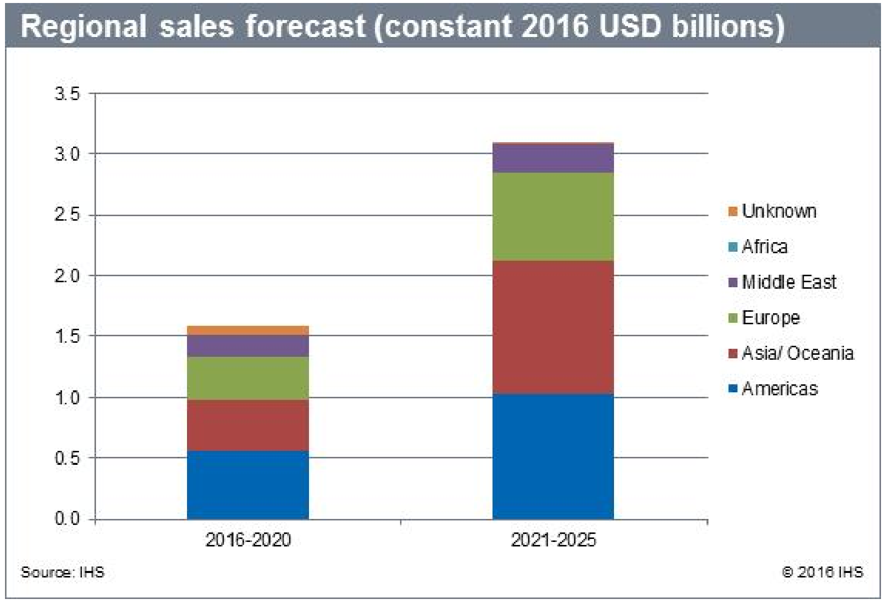


- Unmanned Aerial Vehicle sales will exceed $82 billion/ 63,000 platforms globally *(Jane's)*
- Middle East and Eastern Europe, increasing global conflicts
- All-weather persistent maritime/ ground surveillance
- Operational integration, more flexible missions

- Increasing mission endurance/ greater stealth
- Integration into non-segregated/ contested airspace
- Enhanced sensors, comms, analytics
- Increased levels of platform/ system automation
- Defence funding constraints/ prioritisation

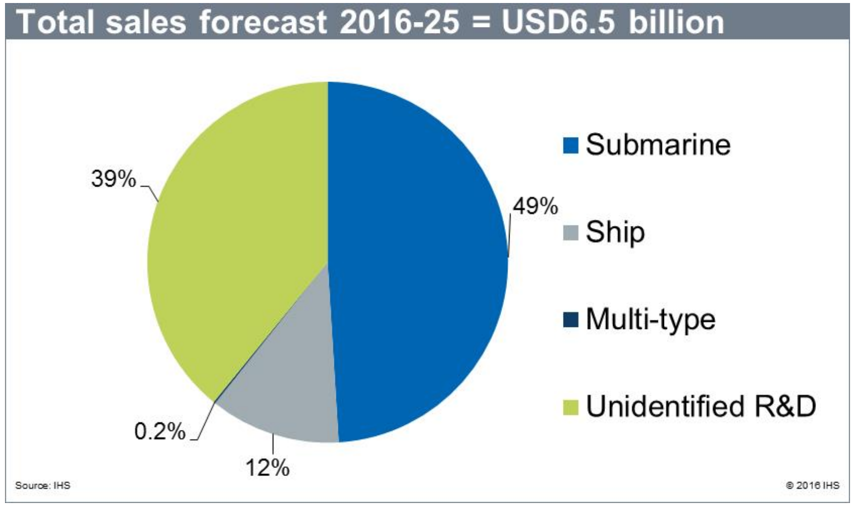
30,000 unmanned ground vehicles to replace old inventory

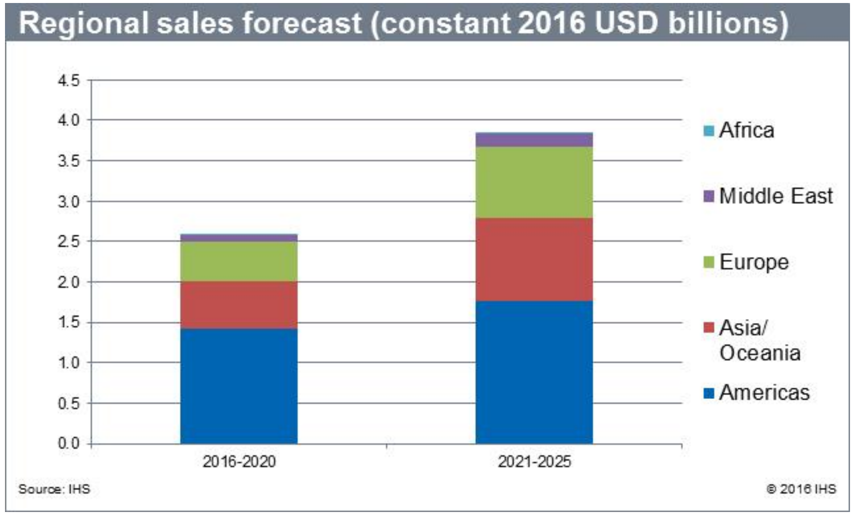




- Unmanned Ground Vehicle demand USD 4.9 billion/ 30,000 platforms 2016-2025 *(Jane's)*
- Extended mission endurance, more operations within hostile environments
- UGV market largely conflict driven and dependent upon its nature
- Continuing/ increasing threat from IEDs
- Global fleet replacement
- Increased role as force enablers
- Armed missions

2000 Unmanned sea vehicles in the next decade





- Nearly 2000 unmanned sea vehicles for defence and security purposes (excl. civil market), over the period 2016-25.
- Sales will grow from just over $400 million in 2016 to over $900 million by 2025
- IHS Jane's forecast total USV sales between 2016 and 2025 to hit $6.5 billion.
- Increasing global tension, enduring conflicts
- Decades of use in mine-hunting/ disposal
- Growing use in mine countermeasures, anti-submarine warfare, counter terror, anti-smuggling, harbour surveillance
- Increasing use in littoral waters
- Integration and networking becoming increasingly important

In summary..

The US defence procurement budget fell in 2012, 2013 and remained flat in 2014. This hurt VITA sales in 2014 and 2015. More positively, the budget for defence procurement rose 2016, although it is not forecast to reach its previous highs.

Any policy changes of the incoming US administration introduce uncertainty to the forecast.

Unmanned platforms may offer good opportunities for volume and value board sales over the next 10 years.

Design wins are likely to be strongest from 2015 through 2017, although any revenue from these design wins will mostly be recognised beyond 2018.

Vendors capturing higher-revenue system-level business will have most to gain.

Thank you! Any questions?

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