

4 Key Industries Embracing Industry 4.0



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The Revolution Is Growing

Industry 4.0—also referred to as smart manufacturing, connected manufacturing, the Industrial Internet of Things (IIoT), and other monikers—has revolutionized the way companies manufacture, enhance, and distribute products through the use of new technologies.

However, not all sectors and markets are evolving at the same pace. To help both manufacturing providers and industry leaders understand the landscape, ABI Research's Industrial & Manufacturing Markets Research provides insights, perspectives, and data related to digital maturity within individual markets and across the industry landscape. Our research illuminates drivers and inhibitors that are shaping adoption of digital technologies across market maturity, practitioners' investment priorities, and best practices for deploying the technologies. We keep abreast of key trends, including increasing demand for electric vehicles and semiconductor chips, the adoption of machine learning and automation, and a reliance on digital twins.

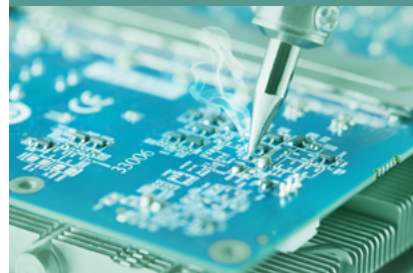
In this report, ABI Research explores the state of Industry 4.0 in four key markets:



Automotive



Electronics
& High
Technology



Oil & Gas



Fast-Moving
Consumer
Goods



Automotive



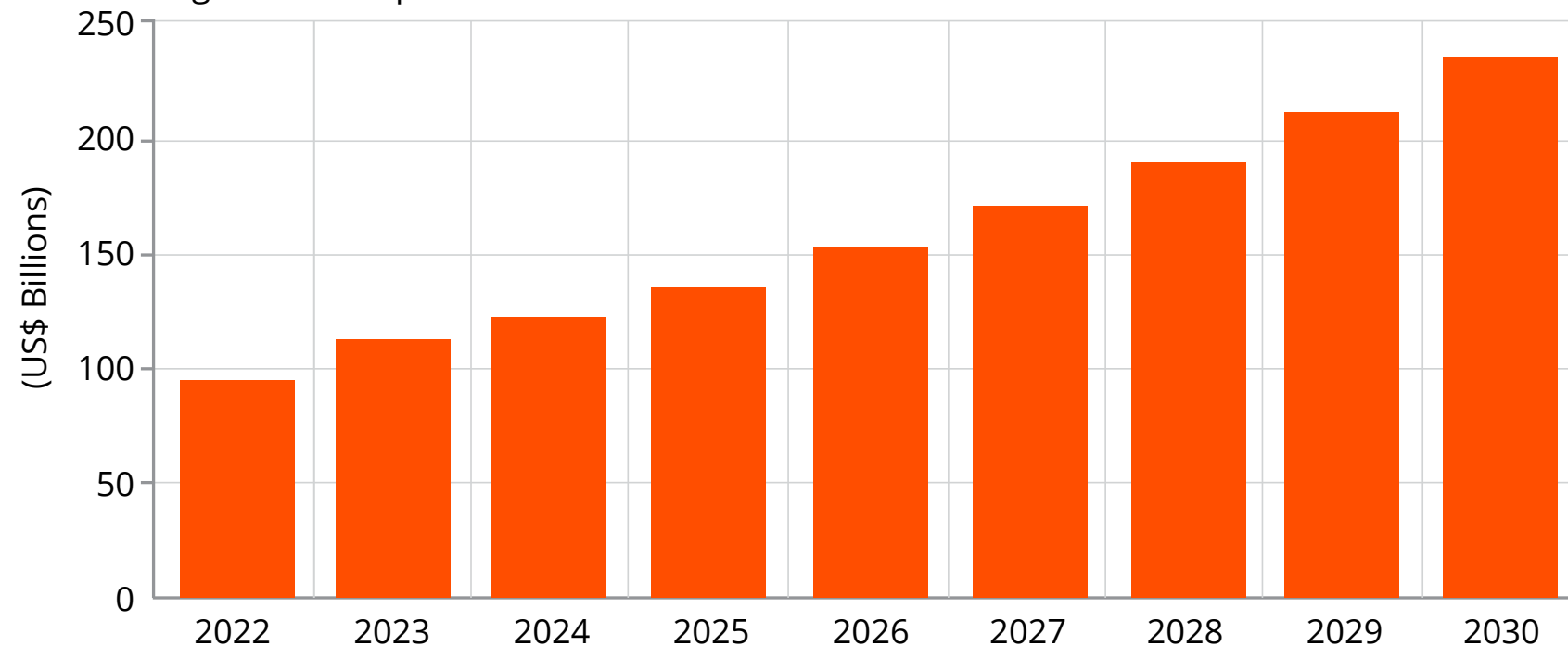
The automotive sector is the biggest spender on digital transformation, with ABI Research forecasting that spending will approach US\$100 billion in 2022. The Original Equipment Manufacturers (OEMs) and their suppliers need to adjust for the move away from the Internal Combustion Engine (ICE) to electric power trains.

OEMs need software to design new types of vehicles and work with their Tier One parts suppliers to ensure the components used will meet not only performance requirements, but also sustainability considerations, while ensuring that each vehicle produced is as unique as its customers.

A further challenge will be transitioning production lines to the new types of vehicles without harming production volumes. The automobile was the first to use automation in a meaningful way in the 20th century and will be at the vanguard of sustainable transportation in the 21st century.



Digitalization Spend in the Automotive Sector



(Source: ABI Research)

Key Trends & Challenges:

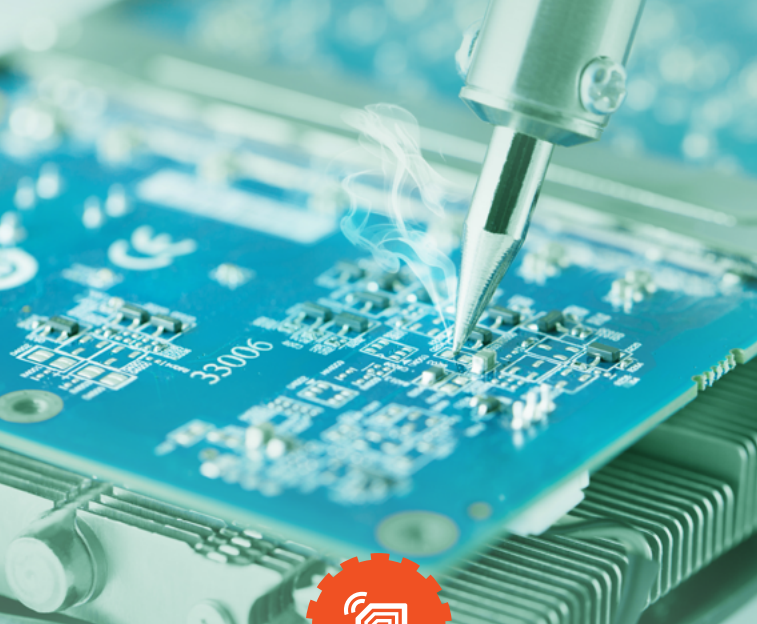
- Greater investment in industrial design platforms as design teams need to devise new components for the electrification age.
- Manufacturing Execution System (MES), Manufacturing Operations Management (MOM) providers tweaking their solutions to accommodate the changing manufacturing landscape.
- Much like the partnerships between technology providers and F1 teams, technology suppliers will need to prove their worth immediately, as competition between automotive Original Equipment Manufacturers (OEMs) intensifies.

Electronics & High Technology

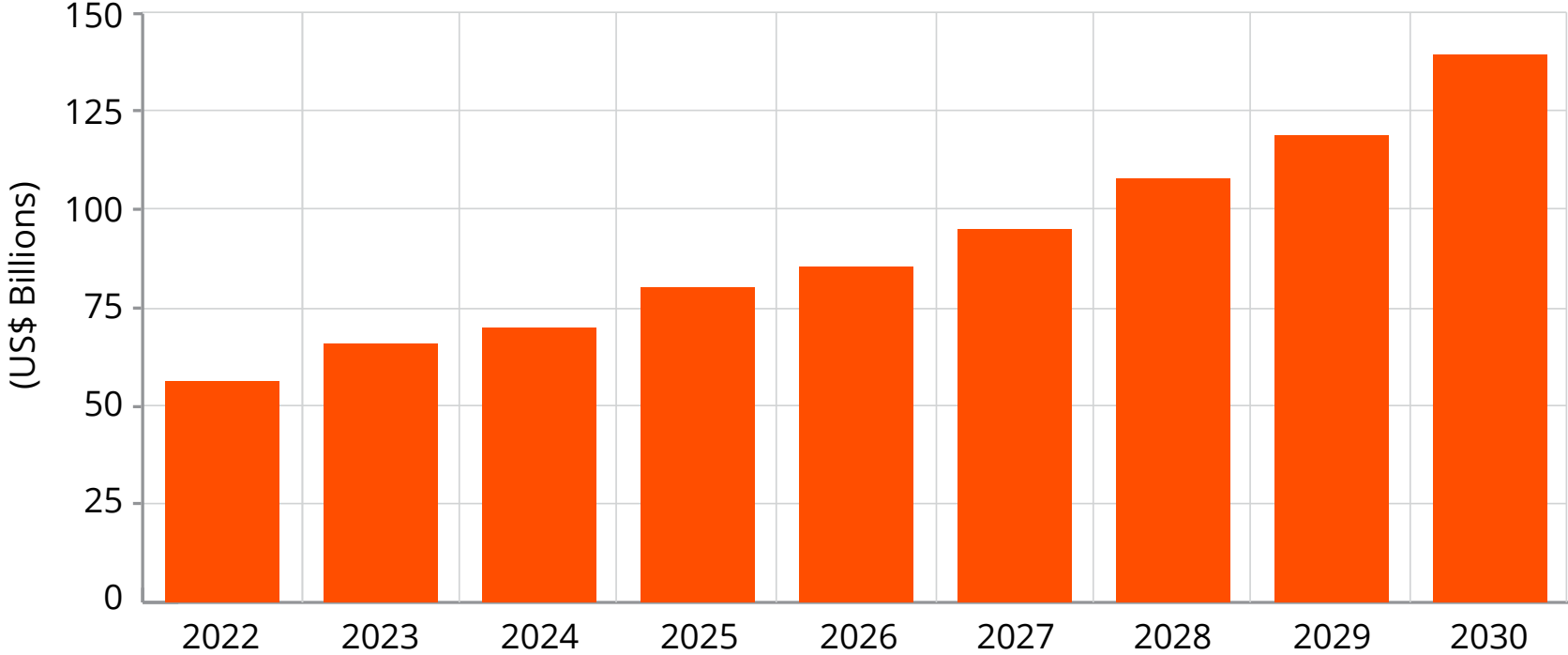


We all want the latest electronic gadgets in our pockets, homes, and, more recently, vehicles. Manufacturers of electronic goods must produce items in the millions to increasingly exacting standards. Automation has a growing role to play, as the sophistication required is moving beyond the capabilities of humans on the production line, and automation manufacturers must invest in Machine Learning (ML) to maintain quality levels.

Furthermore, semiconductor manufacturers have largely removed humans from the entire production process and exemplify the concept of lights-out manufacturing. The location of such facilities will be hotly contested, as many firms seek to diversify their production away from the Asia-Pacific region. Spending on digital technologies in the sector is forecast to surpass US\$130 billion in 2030, up from US\$95 billion this year.



Semiconductor Digitalization Spend in the Electronics Industry



(Source: ABI Research)

Key Trends & Challenges:

- Investments in the increasingly sophisticated robotics solutions, so that facilities can accelerate production volumes to meet increasing demand for semiconductor chips.
- Machine Learning (ML) solutions able to provide quality assurance, even as automation speeds ramp up.
- Suppliers increasingly incorporating the specific requirements of Printed Circuit Boards (PCBs) into their solutions supporting design teams.

Oil & Gas

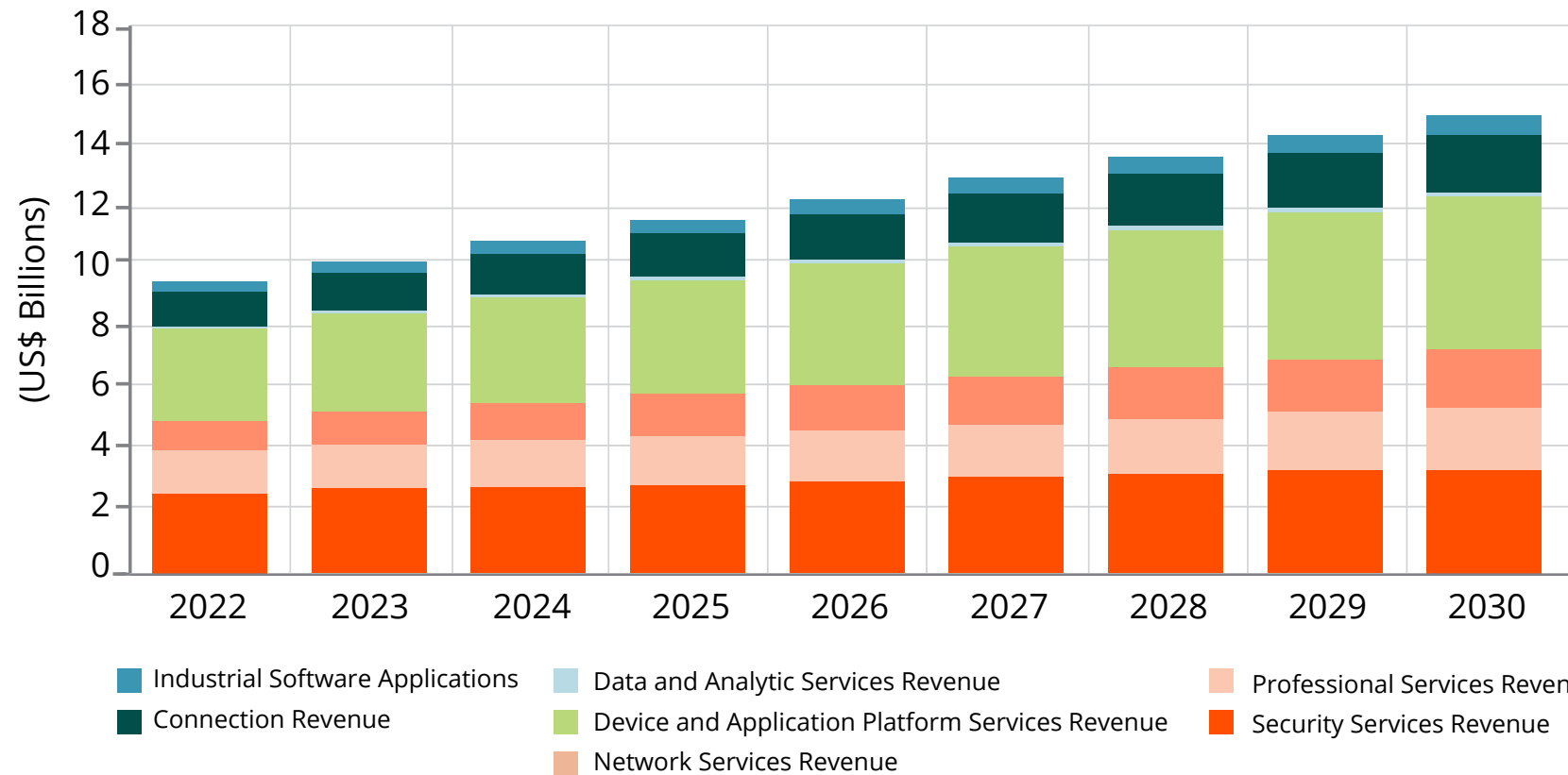


The oil & gas industry remains volatile with prices fluctuating due to economic conditions around the world. Producers use digital technologies to monitor their operations to ensure they get the maximum yield from each location. However, the industry is something of a pariah, so it must invest in technologies to monitor emissions and conditions in the local area.

All parts of the value chain are prioritizing investments in cybersecurity following the cyberattack on the Colonial Pipeline. The challenges mean that suppliers must increase their spending on digital technology by a Compound Annual Growth Rate (CAGR) of 5.8% (2022 to 2030), reaching US\$15.4 billion in 2030.



Digitalization Spend by Oil & Gas Firms



(Source: ABI Research)

Key Trends & Challenges:

- Investments in software that can enable operators to simulate production flows or an entire facility.
- In addition to predictive maintenance, operators will look to data analytics to help them optimize production in line with price fluctuations.
- Fewer staff required on oil rigs, as more processes can be automated and monitored from afar.

Fast-Moving Consumer Goods



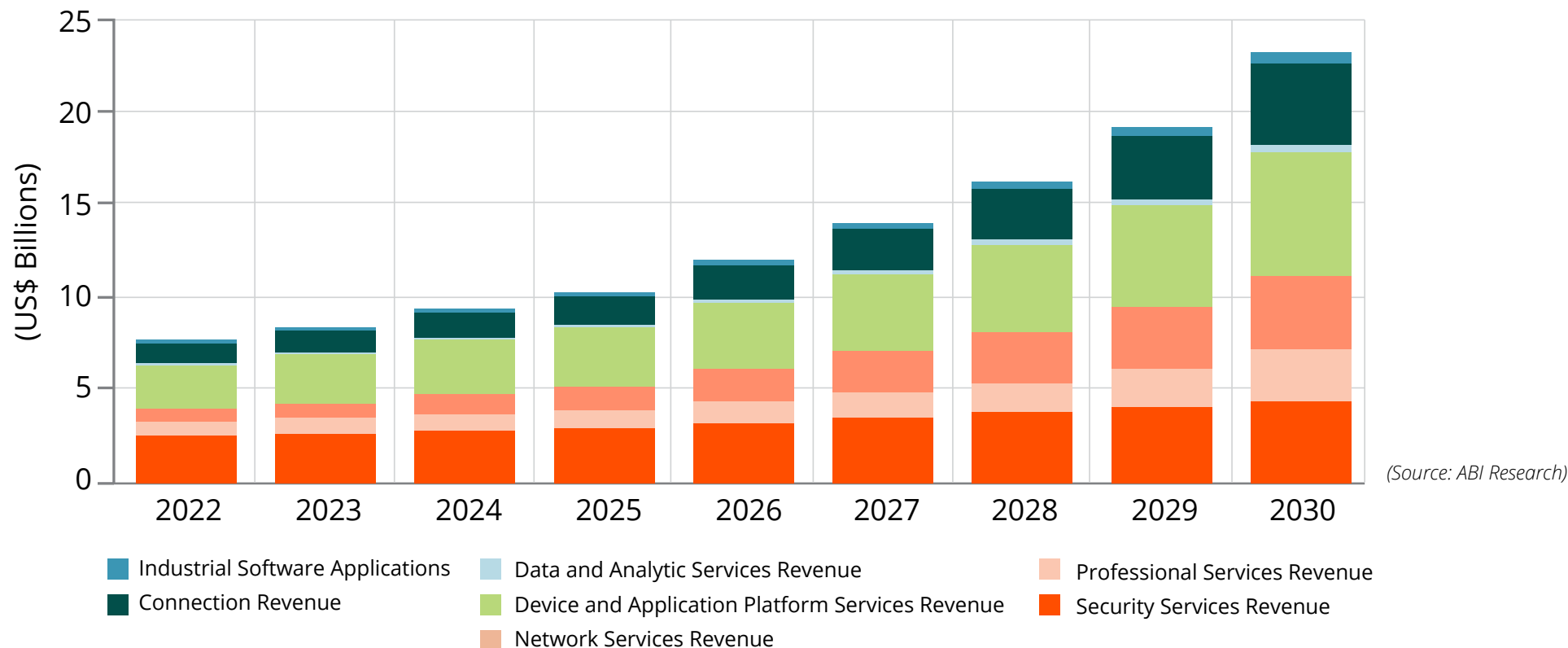
Manufacturers of FMCG products are under pressure from many different perspectives. The cost of raw materials and ingredients continues to rise, but retailers often refuse to accept price increases; that assumes the FMCG producer has a supply chain that delivers all the ingredients when required. In addition, firms are under pressure from an Environmental, Social, and Governance (ESG) perspective to adjust their packaging and use less water in their operations.

Technology has a role to play in meeting these challenges, be that supply chain visibility and forecasting or re-designing the packaging. But manufacturers are especially concerned that their recipes do not fall into the wrong hands and, similar to oil & gas firms, continue to prioritize spending on cybersecurity.

With the above in mind, Total spending on digitalization is forecast to reach US\$23.8 billion in 2030 (a 15% CAGR).



Digitalization Spend in Fast-Moving Consumer Goods



Key Trends & Challenges:

- Manufacturers looking to have a digital thread to provide visibility on both the availability of raw materials and the potential demand from consumers.
- Manufacturers looking to technology suppliers to enable them to be more sustainable by using less water in their facilities and wasting fewer resources in their operations.
- Technology suppliers not only improving the sustainability of their packaging, but also ensuring they can be accommodated on the production lines.



Get The Intelligence. **Get Ahead.**

If you are a technology supplier focused on a specific market, a corporate strategy professional looking to define best practice, or simply trying to optimize your Go-To-Market Strategy, ABI Research can help.

Our Industrial & Manufacturing Markets Research:

- Measures digital maturity within and across industries
- Identifies best practices, investment priorities, drivers, and inhibitors
- Industrial market maturity and competitive assessments

The best way to get an introduction to the service – and for us to get to know you – is to schedule a Vendor Briefing.

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516.624.2500
www.abiresearch.com

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