



EBOOK

2023 Industrial and Consumer Electronics Product Development Predictions

Industrial and consumer electronics experts discuss challenges, innovations, evolving regulations, and tips for success in the industry

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Introduction

Introduction

In recent years, unprecedented challenges and changes have ushered in evolving innovations and process changes for teams across industries. For those in the industrial and consumer electronics industry, these changing conditions will present a new landscape and introduce unique challenges, opportunities, and more than likely, many surprises.

In this eBook, we asked **Beau-Colby Thomson**, Associate Account Executive at Jama Software®; **Vlad Tanasescu**, Global Industrial Sales Lead at Jama Software; and **Steven Meadows**, Principal Solutions Lead at Jama Software — to weigh in on the Industrial and Consumer Electronics (ICE) product and systems development trends they're anticipating in 2023.

Meet the Experts



BEAU-COLBY THOMSON
Associate Account Executive,
Jama Software®



VLAD TANASESCU
Global Industrial Sales Lead,
Jama Software



STEVEN MEADOWS
Principal Solutions Lead,
Jama Software



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Top Trends in the Industrial and Consumer Electronics Industry

Top Trends in the Industrial and Consumer Electronics Industry



Beau-Colby Thomson:

Industrial Robotics and Automation Adoption will continue to **grow at a rapid pace** to combat labor shortages and growing product demand.

Industrial Internet of Things (IIoT) + edge computing use cases are growing year over year. This will introduce complex software development to product lines that historically may have been mostly hardware + firmware. The addition of a new discipline into product development organizations may result in disruptions to existing processes.

Energy Storage continues to be an area of focus for the world. As more utility infrastructures fail and the cost of renewable energy decreases, the demand for energy storage systems will grow.

Fusion/Fission/Nuclear is becoming more widely accepted (more so in Europe than in North America). The development of these products takes many years at a time to complete, however the headcount of the engineering organizations for these companies continues to grow now.





Steven Meadows:

The Internet of Things (IoT) continues to become more prevalent across all industries. Everyday consumer electronics like laptops, home appliances, and tablets are manufactured with an increasing number of sensors and inputs that transfer data to different networks and applications. Improved remote monitoring of these systems can also be enabled through IoT helping customers to maintain their products with ease.

Cloud computing also continues to grow across the software industry. Cloud is becoming the golden standard allowing for more flexible, cheaper, and sustainable solutions. Companies increasingly rely on cloud computing for projects and daily activities, without the need for managing system administration, upgrades, and security.

DevOps is constantly evolving with more companies utilizing a unified software development approach, allowing for code to be delivered faster with improved quality. This means there is less time spent on the integration of teams, infrastructure management, and the deployment of code. Product managers continue to push for the implementation of DevOps, finding it critical to deliver their products at a lower cost, and with better quality outcomes.



Vlad Tanasescu:

- **Robotics:** Autonomous factories, warehouse and delivery robots, AgriRobots (agriculture), humanoids.
- **IoT:** Smart homes/cities, connected devices, antennas, remote controlling
- **Digitalization of the railway industry**
- **Smart energy solutions**, especially given the current energy crisis
- **Digitalized heavy machinery**



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The Next Decade: What Will Change and What Will Remain the Same

The Next Decade: What Will Change and What Will Remain the Same



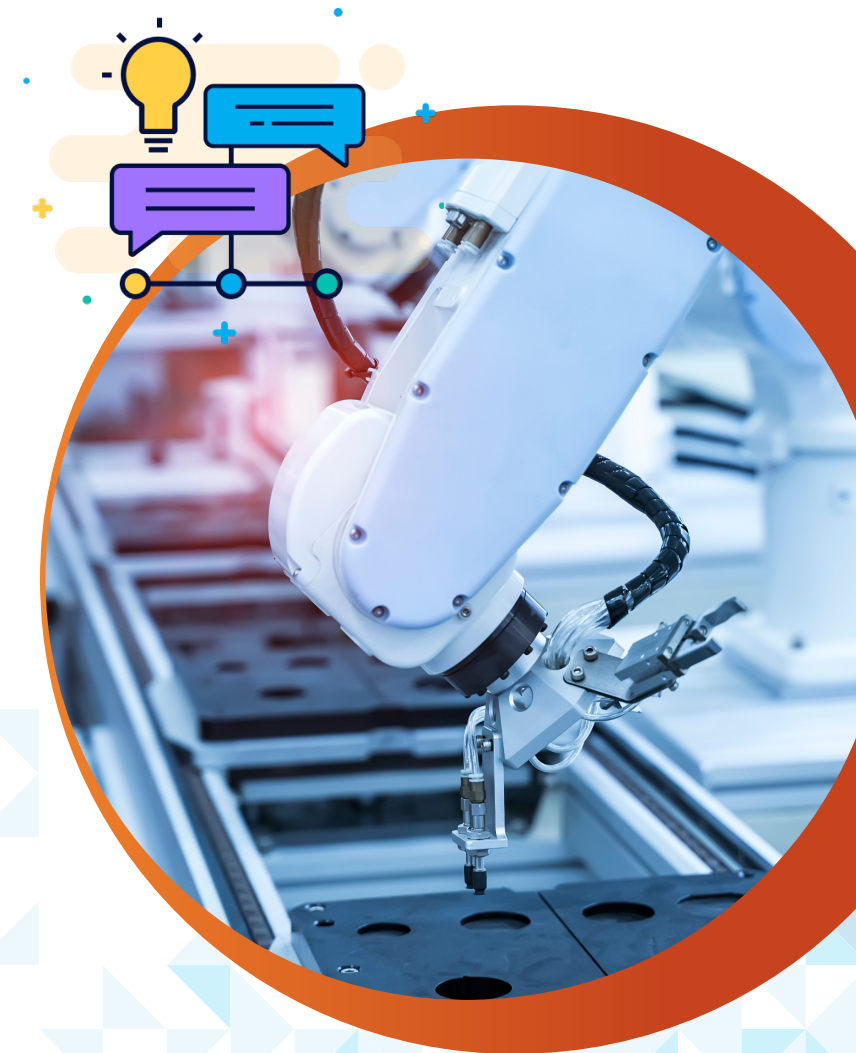
Thomson: The increasing level of connected products will drive more systems development maturity in organizations that fall under Industrial, Consumer Electronics, and Energy (ICE).

I believe over the next decade the struggle with writing “good” requirements will not change.



Tanasescu: What will remain the same?

- More software (SW) in systems, intelligence, and autonomy in systems
- More autonomy
- Focus on smart / green energy (wind farms, etc.)
- Innovation within robotics and IoT



What will change?

- Functional Safety will become more important for industrial products
- New regulations will be introduced for robots as the technology evolves



Meadows: Product development companies will continue to invest heavily in digital platforms which will help to streamline their processes, improve quality of their products, and improve team collaboration. Excel and Word are antiquated solutions that do not give product teams the necessary capabilities to handle complex development, so requirement solutions and Application Lifecycle Management (ALM) tools will continue to see an uptick in investment going forward.

There will continue to be an emphasis placed on functional safety with the functional safety devices market set to hit \$10 billion by 2030. This means teams will need to prioritize functional safety throughout their development process to ensure that products are safe for industrial or private use. Development companies will continue to invest in the certification of their products, conforming to functional safety standards such as IEC 61508. This gives vendors and customers increased confidence in the overall quality of their manufactured systems.



IEC 61508 Overview: The Complete Guide for Functional Safety in Industrial Manufacturing

[Get the guide »](#)

Changing Regulatory Guidelines



Thomson: We will definitely see more safety regulations imposed as products are introduced to the real world and unforeseen risks occur. I believe these will be both safety and cybersecurity related regulations.

This is mostly for automated technologies and energy products, potentially cybersecurity for connected consumer tech or IIOT applications.



Tanasescu: More dedicated FuSa (functional safety) standards will appear for robots, IoT devices, and autonomous systems as these technologies become more embedded in society.

Requirements engineering, traceability, and risk analysis will become increasingly important.

Major Industry Disruptions



Thomson: The predicted recession may have an impact on consumer spending therefore consumer technology development. Companies may also be reducing funding to innovative R&D or incubation projects.



Tanasescu: I'm not sure about 2023, but I believe that over the next 10 years the robotics sector will grow exponentially.

Over the next years the traditional home appliance manufacturers will need to become IoT companies and focus on connected devices.

Necessary Process Adjustments



Thomson: Standardization and maturity.



Tanasescu: Work as agile as possible, even in regulated fields, while maintaining engineering rigor. Embrace a best-of-breed tooling approach. Enable collaboration across many global stakeholders.

Five Advantages of Cloud Over On-Premises for Your Requirements Management and Traceability Solution

Business is changing and to keep up, teams must be nimble in order to compete. Additionally, in a world where remote work models are growing more common, teams are widely dispersed, and technology services are commonly hosted in the cloud, companies that are still managing requirements and traceability with an on-premises system may find themselves losing that competitive advantage. Keeping that edge could come down to how quickly you can develop a product and get it to market — thus your requirements management system is of paramount importance.

Download this paper to learn:

- The five advantages of cloud over on-premises
- The four key considerations when choosing a cloud-based engineering tool
- The benefits of the Jama Connect® cloud offering

[Download Here »](#)





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The Differences Between Companies Who Will Survive, and Those Who Won't

The Differences Between Companies Who Will Survive, and Those Who Won't



Thomson: The ability to achieve executive initiatives to get products to market quicker while minimizing defects found after launch.



Tanasescu: Investment in engineering. Understanding the value of structure and measurable product definition. Understanding of the future trends and the importance of software driven and connected devices, autonomous systems, and digitalization.



Meadows: Development companies need to embrace a proactive approach to safety and quality when developing their systems. By incorporating functional safety throughout the product lifecycle, companies are much more likely to release safe and market leading products. These companies, and their customers, will experience greater long-term benefits than those companies that manage their safety and quality processes reactively.

By educating development teams on how to define requirements from the stakeholder level down to component, companies will have a better chance of building exactly what they intend to. By **incorporating AI to help with requirements definition**, teams can gain a competitive edge and author requirements in a concise and meaningful way.



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Advice for New Companies

Advice for New Companies



Thomson: Build your house on bricks, not sticks. Leverage as much outside expertise/tools and focus your engineers' efforts on innovation.



Tanasescu: Start with a structured, process driven approach when it comes to the use of development tools and traceability processes early on to best enable scale across the development programs, as the business will grow.



Meadows: When entering the industrial and consumers electronics industry, there are a lot of areas to consider when it comes to product development. Primarily, new companies should educate themselves on applicable standards and product development best practices. They should also consider certification in different areas including functional safety to make their products more marketable across a broader range of geographies and customer profiles.





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Topics That Need More Attention

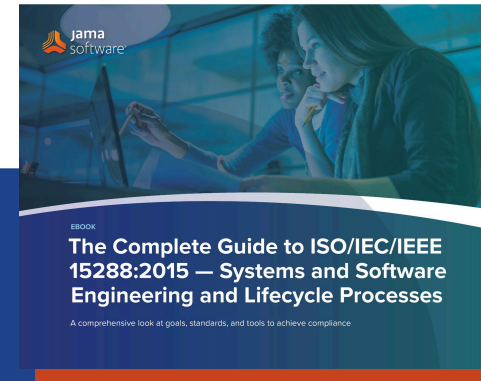
Topics That Need More Attention



Thomson: It would be ideal if companies analyzed their engineering deficiencies and understood the amount of capital that gets wasted money in product development.



Tanasescu: Engineering predictability. Advantages of using a best-of-breed toolchain.



The Complete Guide to ISO/IEC/IEEE 15288:2015 — Systems and Software Engineering and Lifecycle Processes

[Get the guide »](#)



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How Jama Software[®] Can Help

How Jama Software Can Help



Thomson: Jama Software is an integral part of the best-of-breed landscape. The biggest expectation we can point our customers towards is our ability to measure project health through traceability and requirement scores.




Tanasescu: Jama Software will continue accelerating the time to market efforts of ICE companies, make development more predictable and measure product development efficiency. Jama Connect® will keep enabling ICE innovators to succeed globally. I see Jama Connect as an expert in complex requirements engineering, traceability in systems engineering which serves its customers as a trusted innovation partner.

Our customers can expect continuous investment in and commitment to our product and ICE industry solutions.



Meadows: As systems become more complex with increased connectivity between interfaces and networks, the need for a best-in-breed product development platform that enables **Live Traceability™** is critical. Gone are the days when teams could get by documenting requirements, tests, and risks in Excel and Word.



“Especially this last year, in an increasingly remote work environment, Jama Connect has enabled us to do things that we wouldn’t have been able to do before and have a clear single source of truth for those teams.”

CRAIG GROCOTT,
HEAD OF SYSTEMS ENGINEERING,
TELEDYNE E2V

To speed time to market, produce better and safer products, teams need to adopt digital solutions, giving them a competitive advantage. Jama Software continues to invest heavily in its core platform, Jama Connect. We have been incorporating AI capabilities to improve requirements authoring, enhancing integration options with other best in breed applications and always bringing out new capabilities to support the development of some of the most complex devices on the market today.

Accelerate Your Industrial and Consumer Electronics Product Development

Jama Connect® for Industrial Manufacturing provides a single platform for development teams to manage requirements, test, and functional safety throughout the product development cycle and helps enable compliant, integrated product development across hardware and software teams.

The license model is fully scalable, ensuring rapid deployment and easy adoption of the solution across your product development team.



Learn specifically about our Jama Connect® for Robotics solution by downloading the datasheet.

[Download the datasheet »](#)



Jama Software® is focused on maximizing innovation success in multidisciplinary engineering organizations. Numerous firsts for humanity in fields such as fuel cells, electrification, space, software-defined vehicles, surgical robotics, and more all rely on Jama Connect® requirements management software to minimize the risk of defects, rework, cost overruns, and recalls. Using Jama Connect, engineering organizations can now intelligently manage the development process by leveraging Live Traceability™ across best-of-breed tools to measurably improve outcomes. Our rapidly growing customer base spans the automotive, medical device, life sciences, semiconductor, aerospace & defense, industrial manufacturing, consumer electronics, financial services, and insurance industries. To learn more, please visit us at jamasoftware.com.