



WEBINAR

Empowering Complex Development with Responsible AI



Our Speakers



Katie Hockett

SENIOR PRODUCT MANAGER

Jama Software

Agenda

- Introduction
- The Role of AI in Modern Requirements Management
- Responsible Use of AI
- Partnership with AWS for AI Tools
- AI-Driven Features for Jama Connect®
- Q & A
- Conclusion

Jama Software® | #1 in Requirements Management

INTELLIGENTLY IMPROVE YOUR DEVELOPMENT PROCESS WITH JAMA CONNECT®

Jama Connect helps teams manage requirements with Live Traceability through the systems development process for proven cycle time reduction and quality improvement.

- ✓ Manage Complexity & Scale
- ✓ Intelligently Improve Requirements
- ✓ Bring All Collaboration & Reviews Online
- ✓ Unify Test-Case Management
- ✓ Auto-Detect Risk
- ✓ Maintain Product State Across Tools
- ✓ Measure & Improve Traceability



SPACE, AIRBORNE, & DEFENSE SYSTEMS



AUTOMOTIVE & SEMICONDUCTOR



MEDICAL DEVICES



SOFTWARE DEVELOPMENT



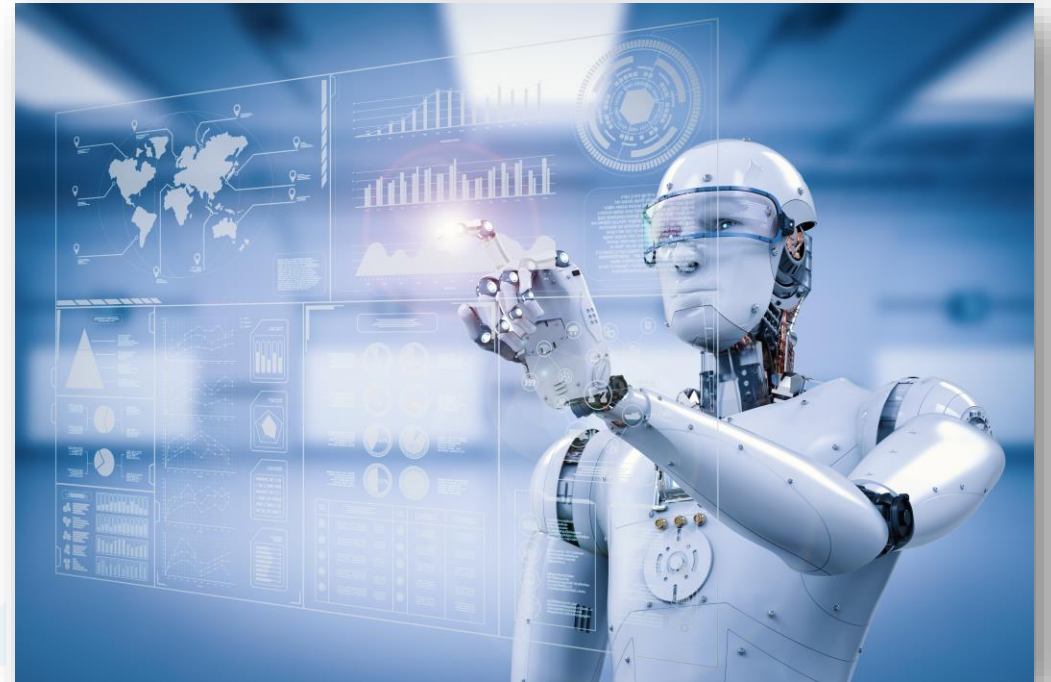
INDUSTRIAL MANUFACTURING

The Role of AI in Modern Requirements Management

The Role of AI in Modern Requirements Management

GROWING COMPLEXITY IN PRODUCT DEVELOPMENT AND MANUFACTURING

- Multi-Disciplinary Product & Software Development
- Regulatory Pressures and Compliance Challenges
- The Push for Faster Development Cycles



AI-powered requirements management tools
reduce risk, improve compliance, and streamline workflows

The Role of AI in Modern Requirements Management

NEED FOR INTELLIGENT, STREAMLINED WORKFLOWS IN HIGHLY REGULATED ENVIRONMENTS

- The Burden of Manual Processes
- The Need for Better Collaboration & Visibility

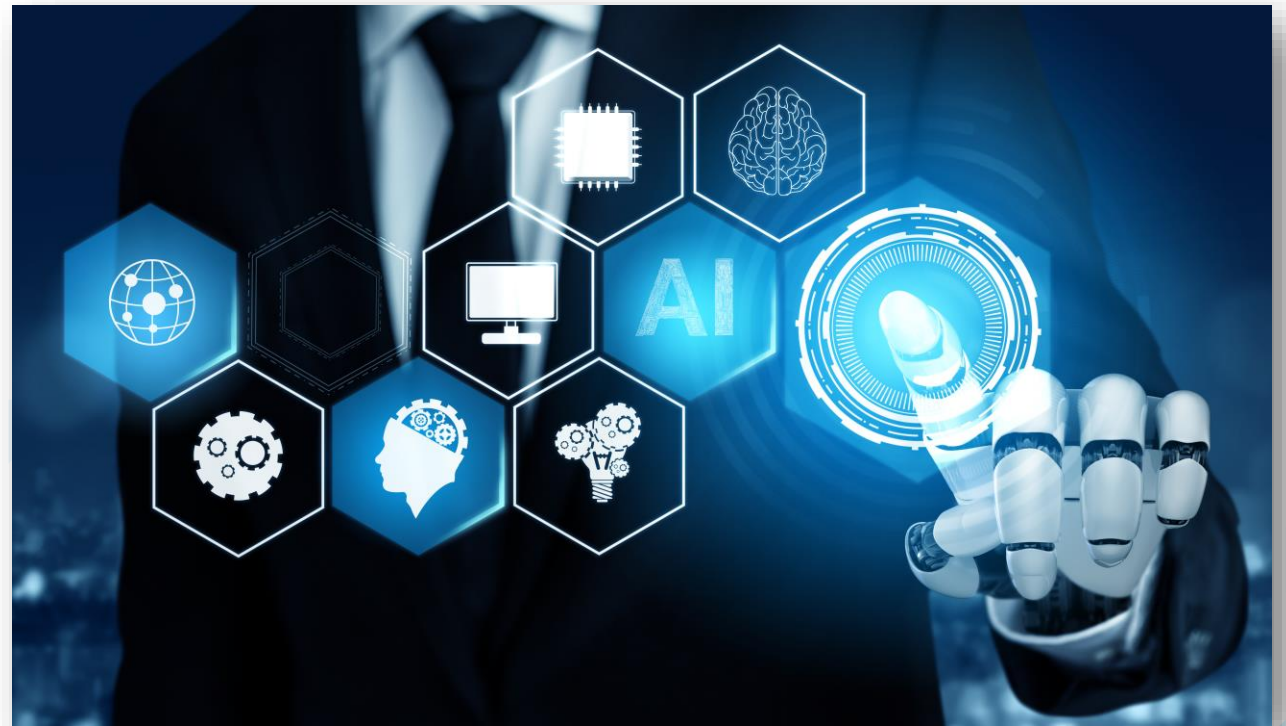


AI-powered requirements management tools
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The Role of AI in Modern Requirements Management

AI'S POTENTIAL IMPACT ON PRODUCT DEVELOPMENT

- How AI Can Automate Repetitive Tasks
- Enhancing Accuracy in Requirements Traceability
- Improving Decision-Making Through Predictive Analytics



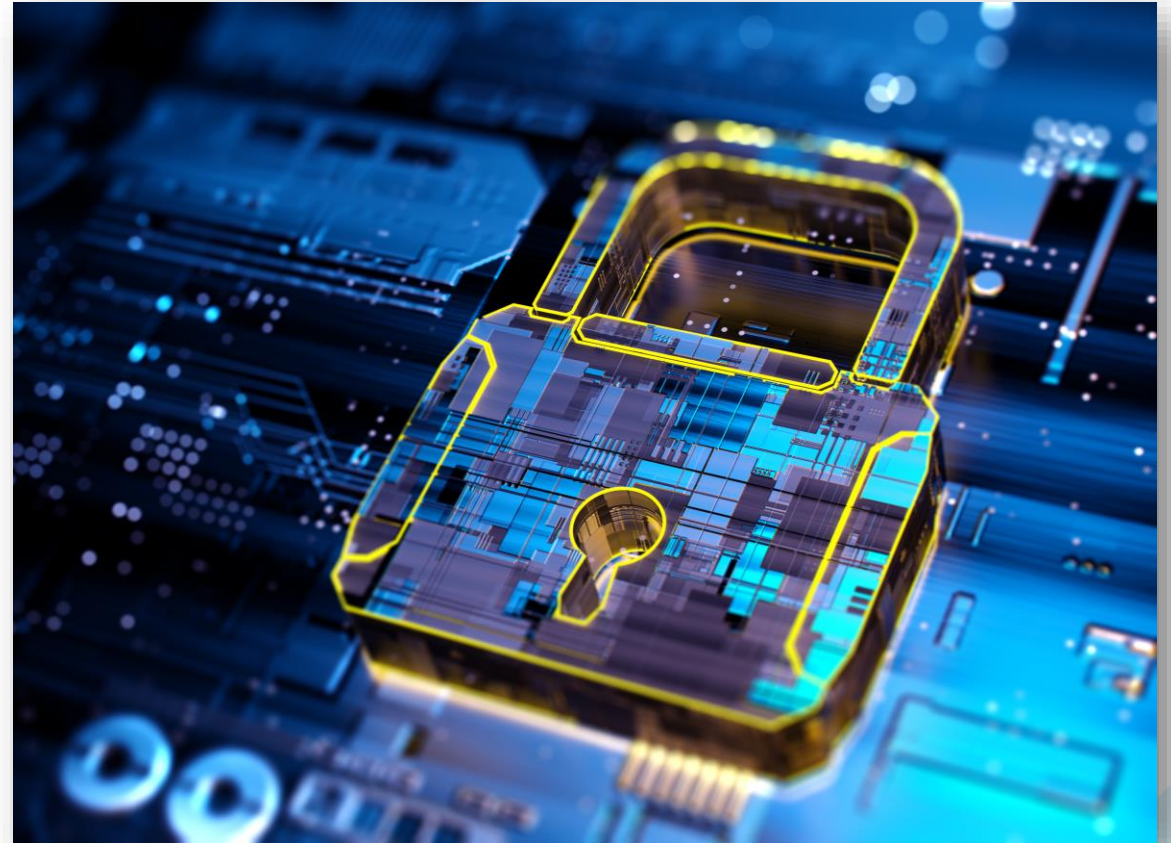
Responsible Use of AI

Ethical Considerations

DEFINING RESPONSIBLE AI

Responsible AI encompasses the following core principals:

- Fairness
- Transparency
- Accountability
- Privacy & Security



Ethical Considerations

ETHICAL AI PRACTICES IN SENSITIVE INDUSTRIES

AI is used in mission-critical applications, such as:

- Aerospace & Defense: Autonomous drones and AI-assisted surveillance.
- Automotive: AI-powered Advanced Driver Assistance Systems (ADAS).
- Medical Devices: AI-driven diagnostics and robotic surgery.



Regulatory & Compliance Challenges

NAVIGATING REGULATIONS IN AEROSPACE, AUTOMOTIVE, AND MEDICAL DEVICES

Regulations governing AI vary by industry:

- Aerospace & Defense:
 - AI in avionics and defense systems must comply with DO-178C, MIL-STD-882E (safety), and ISO 15288 (systems engineering).
- Medical Devices:
 - The FDA's Good Machine Learning Practices (GMLP) sets guidelines for AI-driven medical software.
- Automotive:
 - AI in autonomous vehicles must meet ISO 21448 (Safety of the Intended Functionality, SOTIF) and ISO 26262 (Functional Safety).



Regulatory & Compliance Challenges

ENSURING DATA PRIVACY AND SECURITY IN AI-DRIVEN SYSTEMS

Organizations must ensure compliance with:

- **GDPR (General Data Protection Regulation)** – Protects EU citizens' data from misuse.
- **HIPAA (Health Insurance Portability and Accountability Act)** – Governs healthcare AI solutions in the U.S.
- **CCPA (California Consumer Privacy Act)** – Regulates AI handling consumer data.



Best Practices & Governance

FRAMEWORKS FOR IMPLEMENTING RESPONSIBLE AI

Organizations should implement structured AI governance frameworks such as:

- **NIST AI Risk Management Framework (AI RMF)** – Provides a structured approach for assessing AI risks.
- **ISO/IEC 42001 (AI Management Systems Standard)** – Establishes best practices for AI governance.
- **IEEE Ethically Aligned Design** – Focuses on human-centric AI development.



Best Practices & Governance

INCORPORATING STAKEHOLDER FEEDBACK & CONTINUOUS MONITORING

Organizations must:

- Continuously monitor AI performance for bias and drift.
- Gather feedback from domain experts, users, and regulatory bodies.
- Implement AI auditing mechanisms to detect unintended outcomes.



Real-World Examples

CASE STUDIES OF SUCCESSFUL AI ADOPTION



**Improved early cancer
detection by 30%**



Reduced downtime by 25%

Real-World Examples

CAUTIONARY TALES IN AI ADOPTION



Perform bias audits and fairness checks



Require continuous real-world testing & human oversight

Real-World Examples

BUILDING TRUSTWORTHY AI IN REGULATED INDUSTRIES

To responsibly implement AI in complex regulated industries, organizations must:

- Follow ethical AI principles (fairness, transparency, accountability, privacy).
- Ensure compliance with industry-specific regulations.
- Implement robust governance frameworks to monitor AI risks.
- Incorporate stakeholder feedback and continuously test AI performance.



Partnership with AWS

Partnership with AWS for AI Tools

KEY AI/ML SERVICES FROM AWS

- Tooling to build and scale generative AI applications
- Customer AI models
- Natural Language Processing (NLP)
- Bias detection and explainability tools
- Document processing to extract text, structured data and scanned documents



Partnership with AWS for AI Tools

BENEFITS OF AWS AI/ML OFFERINGS

- Scalability and performance
- Security and compliance
- Responsible AI frameworks



Product Roadmap

Requirements Quality Intelligence and Metrics

RELEASED & NEAR-TERM ROADMAP

- Analyze requirement text with NLP to detect errors and violations
- Provide INCOSE and EARS compliance scores to assess requirement quality
- Offer AI-driven suggestions to reinforce best practices and ensure clarity
- Continuously learn from user modifications to improve accuracy over time

The screenshot displays the 'System Requirements' interface for 'SYS_SOL-SET-166'. It lists several requirements, with 'Injection' (SYS_SOL-SS-30) highlighted in a red box. The 'Injection' requirement includes a description, supporting data, and a table of compliance scores. A red arrow points from the 'Injection' requirement to the 'Jama Connect Advisor' analysis panel on the right.

System Requirements
Set • View details
11 items

1 Wifi-Enabled
SYS_SOL-SS-1 • Version 7
DESCRIPTION ▶ 96% 0
The system shall include wifi functionality to enable remote control of the thermostat.
SUPPORTING DATA
No information entered
Show related items ▶

2 Injection
SYS_SOL-SS-30 • Version 2
DESCRIPTION ▼ Hide scores
LATEST SCORE: INCOSE 83% EARS 1 2025/03/10 03:04:02 PM
INITIAL SCORE: INCOSE 57% EARS 1 2025/03/10 02:57:50 PM
Where possible I want to inject a drug, complete an injection and lift the device up while flow rate stays at about 1 mL/min into a sub cu depth when pushing down on the unit on the firm skin tissue.
SUPPORTING DATA
No information entered
Show related items ▶

3 Rotating Base
SYS_SOL-SS-2 • Version 4
DESCRIPTION ▶ 87% 1
The system shall be built on top of a rotating base to allow for adjustment of temperature by turning clockwise (increase in temp) and counter-clockwise (decrease in temp).
SUPPORTING DATA
No information entered
Show related items ▶

4 Flow Rate
SYS_SOL-SS-31 • Version 1
DESCRIPTION ▶ 78% 3
When the pump is on and administering IP (injectable product), the flow rate should be in the acceptable range and should not be signaled.
SUPPORTING DATA
No information entered

Jama Connect Advisor™
SYS_SOL-SS-30: Injection
Analysis from 2025/03/10 03:02:10 pm
Generate report

ITEM:
SYS_SOL-SS-30: Injection

FIELD:
Description

ANALYZED TEXT:
Where possible I want to inject a drug, complete an injection and lift the device up while flow rate stays at about 1 mL/min into a sub cu depth when pushing down on the unit on the firm skin tissue.

INCOSE RULES ANALYSIS: Score: 83%

Requirement issue	Issue details	Identifier	INCOSE rule
Avoid Vague Terms	Avoid the use of vague terms.	about	r7
No Escape Clauses	Avoid escape clauses.	Where possible	r8
Logical Condition	Use a defined convention to express logical expressions.	and	r15
Avoid Pronouns	Avoid the use of pronouns and indefinite pronouns.	I	r24

EARS ANALYSIS: Errors found: 1

Errors
No shall Cannot find 'shall'

Lexicon

NEAR-TERM ROADMAP

- Automatically extract key terms
- Find the most relevant definitions
- Track term usage
- Ensure standardized terminology

The screenshot illustrates a workflow for term extraction. It starts with a text description: "The hearing aid shall provide amplification of incoming sound signals across a frequency range of 250 Hz to 6 kHz, with a maximum gain of up to 80 dB." A "Generate terms" button is shown. Below this, a "NEW TERMS 4" section displays a table of extracted terms and their suggested definitions. A "View lexicon" button is also present. An "Add terms to lexicon" button is shown below the table. Finally, the original text is shown with the terms "amplification", "250 Hz", and "6 kHz" highlighted in purple, and a tooltip for "amplification" is displayed.

DESCRIPTION [Generate terms](#)

The hearing aid shall provide amplification of incoming sound signals across a frequency range of 250 Hz to 6 kHz, with a maximum gain of up to 80 dB.

NEW TERMS 4 [View lexicon](#)

<input checked="" type="checkbox"/>	Term	Suggested definition
<input checked="" type="checkbox"/>	Amplification	The process of increasing the strength of sound.
<input checked="" type="checkbox"/>	dB	A unit of measurement used to express the intensity or level of sound.
<input checked="" type="checkbox"/>	Hz	The unit of frequency representing the number of cycles per second of a periodic signal.
<input checked="" type="checkbox"/>	kHz	A unit of frequency equal to 1,000 hertz (Hz).

[Add terms to lexicon](#)

DESCRIPTION

The process of increasing the strength of sound.

The hearing aid shall provide amplification of incoming sound signals across a frequency range of 250 Hz to 6 kHz, with a maximum gain of up to 80 dB.

Document/PDF parsing and IP reuse

NEAR-TERM ROADMAP

- Automatically parse complex regulatory documents and RFPs
- Use AI-powered search and recommendation systems to match extracted requirements with existing ones
- Enable seamless IP reuse by identifying and recommending validated requirements from past projects
- Speed up response time for RFPs or Audits

The screenshot displays a software interface for RFP processing. On the left, a tree view titled "RFP Requirement Specifications" lists the following structure:

- 1 Technical Volume
 - 1.0 Technical Approach
 - 1.1 Vertical Lift Aeromechanics Modeling and Analysis
 - 1.1.1 Aeromechanics Simulation Model Development
 - 1.1.2 Simulation Services to Support Wind Tunnel, Flight, and Simulator Testing
 - 1.1.3 Integration of Aeromechanics Simulation Models
 - 1.2 Simulation Facility Hardware
 - 1.3 Aircraft Performance, Handling Qualities, Cockpit Displays
 - 1.4 Operations Effectiveness Analysis

On the right, a progress bar labeled "RFP uploading..." shows 75% completion. Below the progress bar, a notification box with a magnifying glass icon states "Requirement scan complete" and "Existing components and requirements found that match the specifications of your RFP." This notification lists "1.1.2 Simulation Facility Hardware" with three sub-items: "Component One", "Component Two", and "Component Three", each preceded by a yellow folder icon. A "Build project" button is located at the bottom right of the notification area.

Test Case Generation

NEAR-TERM ROADMAP

- Automate the generation of test cases and test steps
- Enhance efficiency, consistency, and regulatory alignment in verification & validation
- Test Case Standardization

The screenshot displays the Jama software interface. On the left, a project tree shows a hierarchy: Project > 5.1 Complex item > 5.2 Complex item > Epics (selected) > User Story. A context menu is open over the 'Epics' folder, listing options: 'Generate test cases' (highlighted with a purple dashed line), 'Edit', 'Add', and 'Add baseline'. On the right, a 'Test case 1 of 4' card is shown. The title is 'Lane Detection in Clear Conditions'. The description reads: 'The vehicle is driving at 60 km/h on a straight, well-marked road with clear weather conditions and minimal traffic.' Below the description is a button labeled 'Relate to requirement'. A second card below shows the same test case with a version dropdown set to 'V1', a 'Test Case' icon, and the text 'Authored by Advisor'. The 'DESCRIPTION:' section is repeated, and the 'REVIEW STATUS:' is shown as 'Pending review' with a grey circle icon.

Intelligent Reviews

LONG-TERM ROADMAP

- Summarizes key feedback from Reviewers
- Providing AI-driven next steps based on review comments
- Uses sentiment analysis to identify rework-heavy comments
- Detect recurring issues and prioritizing high-risk requirements

Sentiment analysis of 118 comments

The conversations on this review have been analyzed to identify requirements that need attention.



59 comments suggest additional rework [View comments](#)

25 comments are neutral

34 comments are approving

[Summary](#) [Comment analysis](#) [Unanswered](#) 14

This is the second round of review for the LCD Controller component. The suggested rework from the first review has been addressed, but Jason and Robin of the Product group have additional concerns, specifically on the newly added Block Requirements items. Changes have been requested and a new review will be required.

Next steps

1. Moderators need to review unanswered questions.
2. Robin plans to confirm the Design Descriptions for the LCD Controller with the Architecture group.
3. Josh and Jennifer will pull their teams together and work through the suggested edits.
4. Send a new review with corrections; include related items to understand downstream impact of changes.

Q&A

Summary

JAMA CONNECT ADVISOR™

- **Automated Intelligence & Efficiency – AWS**
AI tools automate **requirement extraction, test case generation, and formal review analysis**, reducing manual effort, improving traceability, and accelerating time to market.
- **Improved Decision-Making & Compliance –**
AI-powered **summarization, sentiment analysis, and compliance validation** help teams identify risks, ensure regulatory alignment, and enhance verification/validation coverage.
- **Enhanced Collaboration & Reusability –** AI-driven **requirement matching, test case reuse, and review tracking** improve consistency, eliminate redundant work, and help teams leverage historical knowledge for higher-quality requirements.



Thank You!