ASCENDION

Ascendion Uses AI to Enhance Software Engineers

10 questions about real-world application of advanced AI at Ascendion

Ascendion is already engineering and deploying advanced AI systems. And we've been doing it for a few years already. The Ascendion AVA (A.AVA) engineering platform uses advanced AI to shape how we practice software engineering and the impact we deliver to clients. We see AI as enhancing the enterprise, boosting productivity, and embracing innovation in a way that fits business. In the near term, where business happens, we are getting loads of questions about what AI means to the business of software engineering. This is where the fun is, and it's where we work every day.

1. How is Ascendion using generative AI tools to develop better software?

As a company configured for our post-pandemic digital economy, our strategy is tightly coupled with the use of new tools to improve engineer productivity, security, client transparency, and software quality.

Our enabling platform for software product engineering is something we call Ascendion AVA (A.AVA for short; see: https://ascendion.com/how-we-deliver/ascendion-ava/).

A.AVA offers Radical Transparency to serve clients and the engineering ecosystem. It can be deployed across integrated teams (including clients, our own Ascenders, and other ecosystem partners serving clients)

This helps build trust, solve problems early, and elevate engineering quality.

We have already created a highly-pixelated view of our engineering processes and embedded this into our A.AVA platform. Artificial Intelligence was then built into our enabling engineering platform to improve how we deliver Experience Engineering, Platform Engineering and Operations, Data Engineering, and Quality Engineering.

Our strategy, simply, is to continue to ride the growing wave of transformational change offered by our next generation of ML-based platforms and tools that "enhance" the productivity of our engineers.

We have found that A.AVA – our "system of intelligence" for software engineering – delivers 50% to 60% higher program efficiency and dramatically improved transparency along the journey. And we are just getting started.

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With A.AVA as our foundation, we are exploring and experimenting to find where next-generation systems (e.g., ChatGPT, Bard, and others) can be injected to improve productivity, security, quality, and transparency at the specific engineering task level.

2. **What does Ascendion AVA actually do? How does it help make better software? How can it deliver business outcomes?**

The Ascendion AVA platform is comprised of multiple models that are already in use. Here are some of the primary elements.

   a. **Ascendion AVA-OneView®** ensures Engineering Excellence through Best Practices (100+) driven Software Delivery and benchmarking for continuous improvement in engineering solutions (encoded as roughly 600 KPIs). OneView delivers near real-time performance information on all stages of software delivery. We aggregate data from existing SDLC, STLC tools to offer features like Best Practices Driven Software Delivery, Benchmarking for Continuous Improvement, Visibility & Benchmarking for Leaders, Role-based Visibility, and multiple Dashboards.

   b. **Intelligent Test Automation (ITA)** supports Ascendion's Quality Engineering solutions through Requirement analysis, Test Design, Test planning, and Test execution. We apply natural language processing, ML algorithms, and process orchestration to automate testing across the end-to-end engineering process.

   c. **Intelligent accessibility framework (IAF)** is our auto-remediation system that improves content access for software users with disabilities. IAF uses AI and ML to help improve user experiences, help businesses meet legislative requirements and standards (WCAG 2.1 (A, AA) and ADA), and receive compliance certification in our Experiences Engineering solutions.

   d. **MLOps** streamlines Machine Learning Operations (MLOps) and governance processes to shorten development cycles. This capability helps implement an automated MLOps framework for on premise, Cloud, hybrid model, and ML projects.

   e. **DataSwitch** is an insight driven intelligent engineering platform that accelerates the pace of Data Modernization through no-code/low-code data engineering to improve our data modernization and management solutions.

   f. **Intelligent Cloud Economics (ICE)** is an intelligent digital engineering platform that maximized cloud-related value as we accelerate the pace of change across business, IT, and operations. ICE uses data and intelligence to provide a single-point dashboard of cloud economics with real-time views of cloud spend visibility, recommendations, and optimization. ICE uses AI to generate Recommendations, Anomaly Detection, Compliance, Cost and Utilization Visibility, Unit Economics, Governance and Controls, Cloud Cost Optimization (Usage and Rates), and more.

3. How does Ascendion employ AI tools within the technology ecosystem?

We've engineered these modules while leveraging an entire ecosystem of available tools we commonly deploy to manage different engineering work processes in line with metrics and best practices.
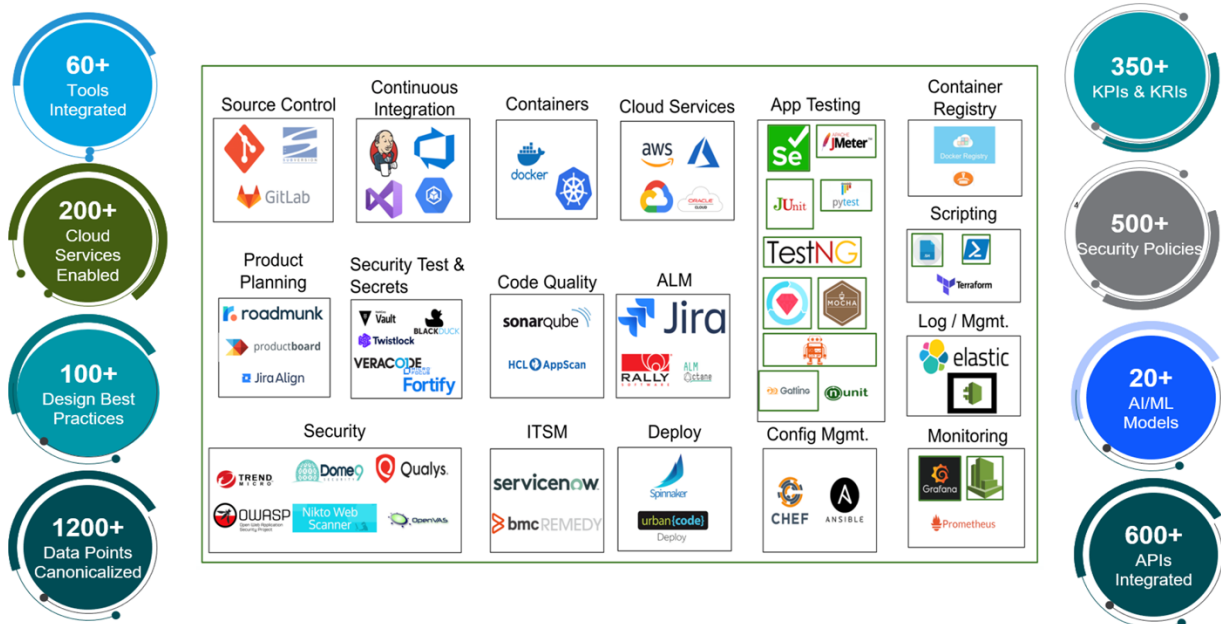
As AGI-based tools continue to develop rapidly, we are continuing to test new tools (e.g., GitHub Copilot) the find specific ways that can enhance our engineers. This is, of course, a rapidly developing opportunity in which we are engaged actively (and daily!).

4. Is this just another example of jumping on the AI band wagon?

We measure … *everything* (currently around 600 available KPIs) and have embedded the logic of 300 best practices into A.AVA to ensure engineering quality, transparency, security, and productivity across the software development life cycle.

## 5. Are there specific examples showing that Ascendion AVA actually helps?

A.AVA helped deliver outcomes to clients while improving engineer efficiency with data modernization.

Ascendion AVA DataSwitch

Our no-code platform helps secure and accelerate data migration and modernization

A.AVA DataSwitch
- Re-design future-state data schemes
- Convert legacy ETL processes
- Migrate data

Data Modernization Advisory
- Data architecture consulting
- Data modernization assessment and migration strategy
- Specialized modernization services

Faster Delivery

50% faster time to market

with extreme automation, courtesy of A.AVA

Cost Advantage Improves Return-on-Data

Up to 60% savings

from the A.AVA platform automation, reducing manual effort

Improve Engineering Productivity

The A.AVA no-code platform improves

Tech Engineer Productivity

with built-in best practices and guidelines to help optimize performance

In the quality engineering space, A.AVA drives significant automation along the QE lifecycle.
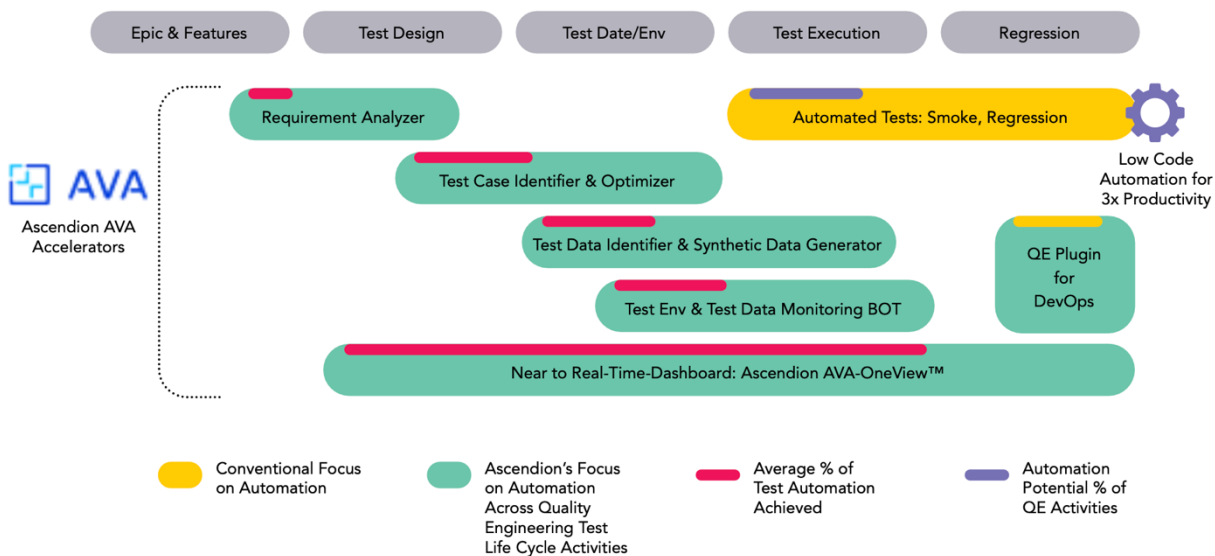
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6. How is Ascendion using newer AI tools?

Our Ascendion AVA platform is already deploying certain generative AI/ML capabilities to enhance developer productivity and improve their overall practice and experience. For example, we are leveraging Curie from the GPT Codex for our coding standard validator. We are actively (daily) exploring ideal use cases specifically for ChatGPT in our engineering work (including digital talent orchestration). We are leveraging ChatGPT and Generative AI overall for the following amongst several others:

- Creating stories from epics
- Documentation from code
- Code conversion (from one language to another)
- Code creation from scratch
- Testing
- Test data generation
- Knowledge Management

7. Some of these AI tools are fresh from the foundry, and are still being figured out. Aren't clients concerned about security, privacy, and compliance?

We are seeing significant interest from clients in how we leverage applied intelligence in our Ascendion AVA platform. Enterprise technology leaders, quite naturally, have concerns about every emerging technology, including generative AI system. This is actually a good sign, and we welcome the scrutiny needed to keep enterprise clients running smoothly.

Client concerns are unsurprisingly related to data privacy and security. In the near-term, we anticipate a period of pilots and exploration as we – together with clients – explore the optimal use cases for specific AGI systems like those provided by OpenAI. Ascendion is committed to ensuring that safe computing practices regarding security, privacy, and compliance are firmly maintained regardless of the enabling systems being deployed. We also fully expect rapid development driven by tool providers – e.g., OpenAI, Microsoft, etc. – who have a keen interest in ensuring that their enabling systems meet enterprise requirements.

We fully expect to do the disrupting over the next five years and applied AI systems will be a critical element of our ability to do this.

8. Are you proactively investing in training and coaching your developers on these new enhancing systems?

Yes! We are deploying a talent model that we call Circles. An Ascendion Circle is a formalized well-organized group of members with similar interests in becoming masters of an engineering craft (e.g., Cloud, Data, Quality Engineering, AI, etc.). Circles are designed to:

- Enable learning, share knowledge, support each other and expand capabilities and careers of its members

- Create mastery of craft with mentorship, IP development, events, experiential practice, celebration, and more

- Inject new engineering practices, such as the use of enhancing AI systems, into our engineering practice
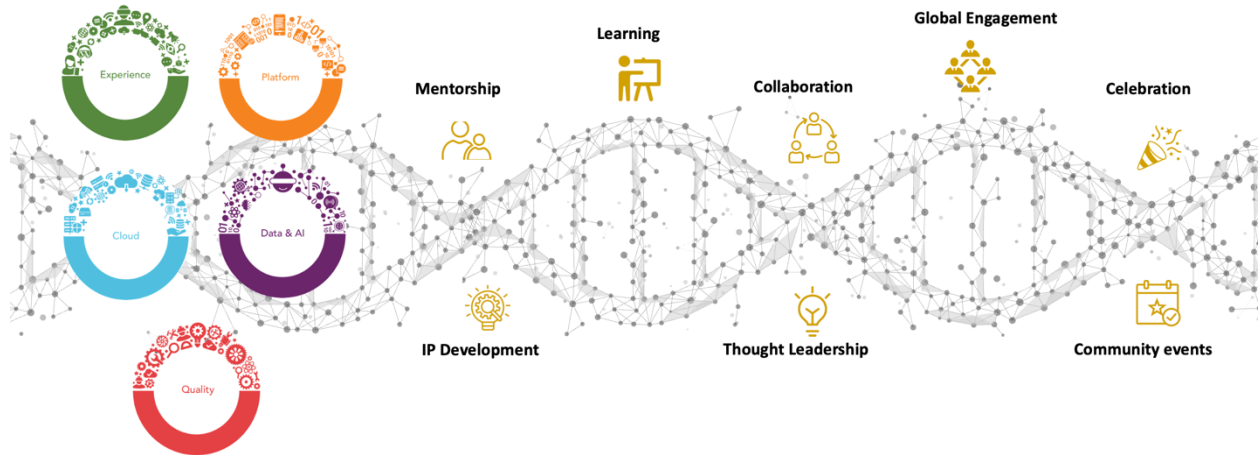
In addition to these communities of practice, we are offering instructor-led training interventions. In fact, we are offering training (this week!) to everyone in Ascendion on how we can all leverage these kinds of systems to do our jobs more productively.

In the near future, we will continue on our trajectory related to hiring engineers, and we will deliver training and mentorship to ensure they can **use software to build better software**. For us, this is a continuation of what we started years ago.

9. Are these AI–fueled enhancing tools improving developer productivity or not? What data demonstrates productivity gains?

We are in early days of adoption of our AI ML based toolsets. We are leveraging these for coding, documentation, testing amongst other areas of software engineering. Based on early insights, we are currently seeing a 10-15% improvement in coding productivity overall. We will continue to use these tools across engagements and would have comprehensive data in a couple of quarters.

10. The truth is, AI is a relatively new technology. Isn't using these systems really risky? What about bias? Couldn't they just make terrible software faster?

Code quality, IP protection, encoded biases are absolutely challenges to be managed related to AI/ML coding assistants. What we are keeping in mind is that these challenges are the same for human-only generated code and for enhanced-human generated code. It is true that coding assistants can introduce risk, but, as we are finding, they can also *decrease* risk if properly and wisely deployed and managed.

For example, A.AVA OneView helps us understand, at a very granular level, code quality and engineer productivity. DataSwitch helps ensure effective data migration, also lowering business risk.

That said, the material *added risk* related to the new "bots" is risk generally related to unintended bias. We know the bots can, for example, inadvertently and unpredictably introduce – at a rapid rate – biases in text and imagery. Here again, our model of enhancement, vs. pure automation, is a risk-mitigation strategy. Our delivery model includes a "human in the loop," to ensure we are decreasing risks related to unintended consequences.

Anyone asserting they've figured out how to mitigate all risks related to deploying AI/ML coding assistants is perhaps a bit exuberant. Our belief is that by focusing on the generally "known" risks related to engineering great software – quality, security, IP protection, etc. – with conventional risk management tools and tactics, coupled with keeping a human in the loop to decrease negative unintended consequences, we can ensure the optimal software and business impact.

About the Authors

Prakash Balasubramanian is Executive Vice President and Global Head of Ascendion Engineering. In his current role, Prakash is responsible for leading all aspects of Ascendion's engineering solution. Has been an industry leader across multiple industries, and he has over 20 years of experience driving complex program in Digital Transformation, Customer Experience Transformation, Omni-Channel Retail, Supply Chain Management, and Store Operations. He has extensive client experience across North America, UK, Middle East and APAC. He is regularly featured in leading media globally, and he has contributed to many publications. Prakash and his family currently reside in Chennai.

Paul Roehrig is the Chief Strategy and Marketing Officer for Ascendion. He is a co-author of multiple award-winning and best-selling books and a sought-after presenter at public, academic, and industry events. He is regularly featured in major publications all over the world. Paul holds a PhD from Syracuse University and was formerly a professional musician. He lives in the Washington, DC, area with his family.

About Ascendion

At Ascendion, we make and manage software platforms and products that power growth and deliver captivating experiences. By embracing the future of work, we bring creativity and execution excellence together to make digital innovation valuable (and even fun). Our engineering, cloud, data, experience design, and talent orchestration capabilities accelerate transformation for Global 2000 clients. In addition to our remote/hybrid workforce, we have 20 offices across the U.S. (including our New Jersey headquarters), India, and Mexico. We are committed to building technology that elevates life with an inclusive workforce, service to our communities, and a vibrant culture. For more information, please go to www.ascendion.com.