NOVOCIRCLE

WHITE PAPER

Intelligent Automation

for Enterprise Architecture

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Intelligent Automation for Enterprise Architecture

Intelligent Automation is fundamentally changing the way information workers will do their jobs. It isn't about replacing people but rather giving them a new and enhanced set of tools to augment the work that they do. The next 18-24 months will see the end of the information economy as we know it, and shepherd in a new era of Intelligent Automation and transformation in the overall business landscape.

As architecture teams seek to meet the goal of doubling their productivity with half the number of human resources, they need to apply intelligent automation across the entire breadth of the job role (not just in one area). Here are four areas where AI agents and other modern technologies can be applied to improve both efficiency and effectiveness.

- Architecture Modeling
- Architecture Governance
- Architecture Analysis
- Stakeholder Engagement

Forrester articulates the future role of the EA well:

> "Architects will map customer and employee experiences within value streams, building knowledge graphs that help connect architectural decisions to measurable business outcomes."
>
> *(Forrester 2025)*

We see a shift in enterprise architecture focus toward stakeholder-centric outcomes. By using AI/automation (e.g. knowledge graphs and agents), architects can better link technology architecture to customer and employee experience outcomes, improving transparency and access to architectural insights.

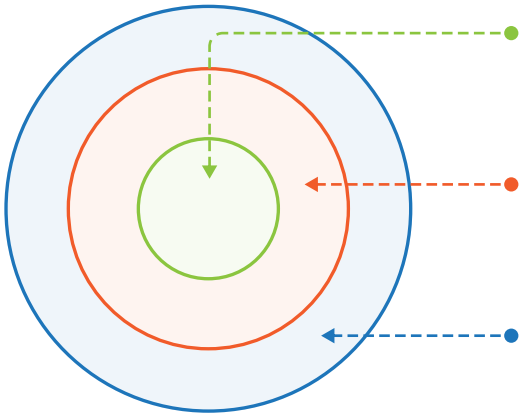
Architecture Modeling

AI agents can automate much of the work traditionally done by enterprise architects when reverse engineering business processes and systems into a formal architecture model. The core idea is to deploy multiple specialized agents, each focused on a different input source, analysis method, and modeling task.

The core of the Enterprise, Business and Solution architecture toolset for the past 30 years has been modeling tools – the CAD type systems that they use to create digital representations of various facets of their organization's ecosystem, record the web of relationships and generate diagrams that depict different views. These models and diagrams are used to show that a situation has been thoroughly and appropriately explored and to serve as a basis of communication with diverse stakeholders.

Architecture Data is Well Suited for Automation

The data that architect's model may be a variety of concepts or be used in different contexts, but most of the data fits within three types of structures and comes from one of two sources. The three basic data structures for architecture are:



1. Lists

Applications, data elements, infrastructure etc.

2. Hierarchies

Org structures, capabilities, products, locations etc.

3. Sequences

Processes, workflows, data flows, etc.

DATA SOURCES:

Unstructured

Text, pictures and recordings.

Structured

Databases, spreadsheets and application APIs.

AI Augmented Modeling

The objects that are compiled are then recorded in the architecture repository as a combination of elements, relationships and diagrams. Here are some examples of how Architects can use Intelligent Automation to support their modeling activities.

- Extracting architecture content from unstructured data using retrieval-based agents grounded on your company documents.
- Deterministic agents connected to source databases and IT systems to query operational data.
- Inference agents to discover hidden relationships within your data.
- Task based agents to generate elements, connectors and diagrams within your architecture repository and to generate diagram views for stakeholders.
- Inference agents generate textual descriptions of diagrams, glossaries and other supporting documents.

Architecture modeling includes both Current State Modeling and Architecture Design. Architecture Design is sometimes greenfield but more often relies on and/or extends the current state models to describe something new that does not yet exist. Architects spend a lot of time transcribing what they see into their architecture modeling platform. This is not an effective use of their skills/experience/ knowledge and an area where Intelligent Automation should be applied.

AI agents represent a fundamental change in how work gets done, by taking on complex tasks previously done manually by people. “Agentic AI isn’t just another wave of automation; it’s a structural shift in enterprise technology… AI agents can reason, collaborate, and coordinate actions, allowing them to accomplish complex, multistep, nondeterministic processes that have so far depended on humans.” (Bain 2025) Intelligent Automation can handle elaborate architecture modeling or analytical tasks (reasoning over complex systems and processes) that used to rely on human architects, thereby augmenting EA work with machine-driven execution.

Architecture Governance

Architecture governance is tasked with ensuring that the models created by architects across the organization are complete, correct and adhere to a set of modeling standards. This function is critical to enabling architecture analysis, traceability and enabling reporting. Governance is typically achieved by defining a set of standards, training modelers on expectations and then performing verification through some sort of review process.

Typically, the most senior architects in an organization are chartered with the architecture governance responsibilities which unfortunately reduces the amount of time that they have available to spend working on your most important business challenges. Architecture review boards often have a group of senior architects, and the opportunity cost of their review sessions is quite high.

EA Teams as Coordinators

55%

Percentage of EA teams acting as coordinators of autonomous governance by 2028.

Review Efficiency

High

Moving validation upstream reduces opportunity cost for senior resources.

Governance Shift

2028

The timeline predicted by Gartner for machine-led governance adoption.

The role of architecture governance is changing. According to Gartner, " 55% of EA teams will act as coordinators of autonomous governance automation by 2028, shifting from direct oversight to model curation, agent simulations, and machine-led governance." (Gartner 2025)

Completeness vs. Correctness

Intelligent Automation can be used to streamline the architecture governance process by confirming the completeness of architecture models and adherence to modeling standards. What automation should NOT be used for is to validate whether a model or diagram is correct. Human judgement and the discussions that take place during architecture reviews are still both necessary and highly valuable in the architecture process.

There are three ways intelligent automation can be used in support of Architecture governance.

1. Automated Modeling of content and diagrams to ensure models are complete at the time of creation and adhere to modeling standards.

2. Model validation against a pre-defined set of rules and standards to check for compliance.

3. Generating documentation to support architecture reviews including summaries of current/target state and identification of proposed changes.

Moving Validation Upstream

The benefits of applying Intelligent Automation to Architecture Governance is that it saves effort for both the modelers and the reviewers by encouraging modelers to self-check their work as they go along instead of waiting for an architecture review. In doing this, the review discussions can focus on the content and rationale behind the models instead of modeling mechanics. This will either reduce the amount of time spent on architecture review discussions or enhance the value from the time being spent.

Architecture Analysis

The Architecture Analysis function is primarily concerned with explaining how the various facets of an organization, system or ecosystem relate to each other and assessing the impact of proposed changes on different components. Business and IT leaders look for architects to help in this area because of their skills in breaking complexities into simple chunks that can be understood by others. Terms that are often used are “masters of complexity” and “translators between the business and IT.”

Increasing Scale and Speed

Manual Analysis	AI-Enhanced Analysis
Limited systems (3–5 facets)	Enterprise-wide data coverage
Weeks or months	Minutes
Constrained by human capacity	Easily scalable with AI agents

Considering most architects spend over half their time performing analysis (bringing data in from other systems to their modeling tool, mapping relationships and inferring meaning), this is an area where Intelligent Automation could have a big impact both on efficiency as well as effectiveness. Architects are also often constrained to analyzing 3-5 facets of an ecosystem at a time and using manual modeling methods, many analysis tasks can take weeks or months to perform.

Intelligent Automation and AI agents are better suited to perform data analysis than even the most skilled architect. Why is this? Deterministic and retrieval-based agents can process exponentially larger and more complex datasets than a human can analyze. This could conceptually be all the data within the enterprise (we aren’t there yet due to cost constraints but it’s coming soon). AI also can re-evaluate data and quickly find changes and trends. An analysis task that takes humans weeks can be performed by AI agents in minutes.

According to Gartner, the transition is already well underway “Forty percent of enterprise applications will be integrated with task-specific AI agents by the end of 2026, up from less than 5% in mid-2025… As organizations accelerate digital transformation, agentic AI in enterprise applications will move beyond individual productivity, setting new standards for teamwork and workflow through smarter human-agent interactions.” (Gartner 2025) This supports what we’re seeing that EA practices are evolving from manual efforts to AI-augmented workflows, enabling greater automation of tasks and collaboration between human and AI agents in organizational processes.

More time for Human Interaction

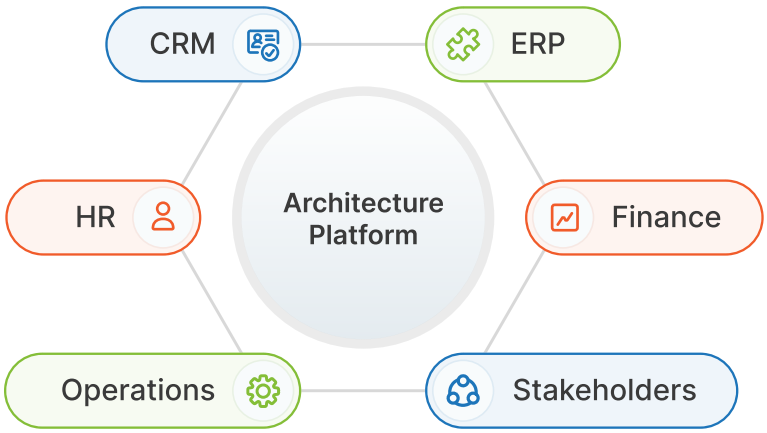
The piece of Architecture Analysis that Intelligent Automation is not well suited for is being the translators between business and IT. Generative AI agents can certainly support the architect in interacting with stakeholders, but it is not a substitute for interactive brainstorming, collaborative discussions and review discussions where the architect confirms their understanding and elicits feedback on their work. This human-to-human interaction is where the real value of architecture comes from.

Stakeholder Engagement

Architects have a reputation of “working in an ivory tower” and not sharing their knowledge with others. This belief may be true, but it is likely not intentional but instead the absence of a straightforward way for business and IT stakeholders to access and use the models that architects create.

Over the past few years, the makers of architecture modeling tools have developed web-based interfaces that enable the sharing of diagrams, the creation of dashboards and even some discussion features targeted to non-modeler users. These capabilities have struggled to gain adoption because they still require stakeholders to step into the architecture world to access information. AI and intelligent automation offer the opportunity to change that.

Connecting Operations to Designs



Operational systems (such as your CRM, ERP, Finance and HR tools) are the systems of record for most of your organization’s operational data. Your architecture modeling platform is the place where architects record and maintain the connective tissue that spans your other systems. There was no straightforward way for general information workers to access the Architecture platform and use it to answer business questions.

By connecting the architecture platform into your organization’s AI ecosystem, you can now make both the architecture reference data as well as the metadata connecting your operational systems available to everyone within your organization. This isn’t going to replace the interactions between architects and their stakeholders. What it will do is enable information workers to see what information is available, answer many simple questions on their own, and focus the time they spend with architects on more compelling business problems.

Where to focus first?

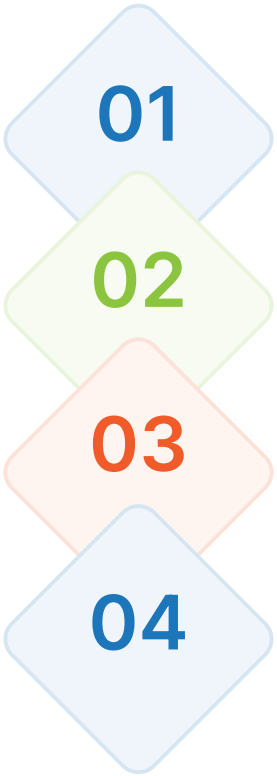
Most architecture practices are resource constrained and are not likely to be able to address all four of these use cases at the same time. The two use cases with the most immediate opportunity for impact are Architecture Modeling as it relates to current state systems/environments and Architecture Analysis. These have the biggest impact potential because they are areas where the greatest number of architects spend most of their time performing manual tasks.

High Impact: Modeling

Addressing the area where the greatest number of architects spend time performing manual tasks.

Value: Governance

Impacts the most valuable resources; automate validation upstream after modeling is stable.



High Impact: Analysis

Immediate opportunity to improve scale and speed by automating data-heavy analytical tasks.

Eventual: Engagement

Best to wait until after governance is automated to ensure high data quality for stakeholders.

Applying Intelligent Automation to Architecture Governance would have an impact on your most valuable resources, but in most organizations, this is not where the scale challenges are encountered. Stakeholder engagement and exposing your architecture platform to enterprise AI tools has the potential for eventual benefit but in the short-term will expose any data quality issues you may have. It's best to wait until after you automate your governance activities.

To learn more...

If AI augmented architecture is the goal or target state, Intelligent Automation is the means for getting there. Intelligent Automation is the application of AI, RPA and other tools to automate repetitive and/or time-consuming tasks, leveraging the reasoning power of AI where appropriate but also keeping the human in the loop to provide guidance, resolve ambiguity, and to make business critical interpretations.

> *More details on this topic can be found in the Intelligent Automation White Paper.*

About NovoCircle:
Enabling a Culture of Continuous Innovation

At NovoCircle, we believe that the future belongs to organizations that foster a culture of continuous innovation. As a consulting firm, NovoCircle partners with clients to help them navigate technological change, develop new ideas, and implement modern methods. We guide organizations in building environments where emerging technologies are not feared, but embraced as the fuel for business success.

Our mission is to empower leaders and teams to turn disruption into opportunity—cultivating resilience, adaptability, and a mindset where innovation is a daily practice. With NovoCircle, your organization can confidently shape the future, leveraging new tools and approaches to achieve lasting competitive advantage.

To learn more about how we can help you prepare for the future, visit www.novocircle.com or contact us at sales@novocircle.com

THANK YOU.