



The leap to AI-native software engineering

Rewiring the software development lifecycle in an AI-enabled future using Cognizant Flowsource

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Generative AI enables progressive acceleration of the pace of business change

Software now sits at the heart of every industry, powering engaging customer experiences, effective operations, and innovative new solutions. Better engineering performance directly translates to business outcomes – being first to market, responding with agility to changing dynamics, and delivering services profitably.

Generative AI has revolutionary potential to enhance all aspects of the software development process, across research, design, engineering and quality assurance tasks. AI models today are helpful in understanding, generating and reviewing work products and someday soon we may even see AI-as-engineer agents working with autonomy under the supervision of human product managers. We are only at the beginning of this journey and can expect the technology to continuously improve over the coming years.

The benefits are clear – more output, with better quality, in shorter timescales, translating directly into business agility and effectiveness.

Adapting to this increase in speed requires new ways of working

However, as Generative AI is enabling new solutions to accelerate business, it is also introducing a new set of challenges that need to be managed. We need to think and work differently.

Firstly, we need to overcome the limitations of Generative AI technology. The big drawback with GenAI is that outputs are variable and may contain errors. This limitation can be addressed by pre-defining predictable, consistent, and compliant templates containing GenAI within a known set of guard rails. We can also mitigate Gen AI risks by increasing the level of automated assurance applied to work products, going beyond testing to specification and looking into all dimensions of code quality.



“AI-powered coding doesn’t mean fewer engineers and it doesn’t mean businesses shipping things faster and then waiting around for next year. It means everybody suddenly does much more, and much more frequently.

It requires a new approach to engineering with speed-of-change at the core.”

Milkha Singh,
Vice President, Projects Cognizant

Secondly, we need to adapt teams and ways of working to best exploit these new capabilities. This includes providing better contextual information on code that exists and work that is in flight. It means removing process choke points by implementing automated and self-service provisioning, review, and reporting capabilities. And it means guiding teams through the latest version of a continuously improving development process, using a simple, integrated end-to-end workflow.

To empower that bold vision of the future of software and platform engineering, we built Cognizant Flowsource: a platform for introducing, tuning and scaling Modern Engineering capabilities across the enterprise.

Flowsource creates the foundation for augmented software development

Flowsource enables enterprise engineering teams to perform in today's technology environment by providing the framework, tooling and generative accelerators to construct a powerfully modern developer experience.

Flowsource integrates Cognizant IP, third-party specialized tooling and generative accelerators into a unified, modular and extendable developer experience fit for the future. Uniquely configured for every enterprise and securely integrated into their own technology environment, Flowsource helps to introduce and scale modern engineering smartly. By continuously extending the Flowsource platform to leverage the latest advances in technology, our clients stay abreast of change and continuously integrate new capability to lead in pace of change.



Intelligent engineering augmentation with generative AI assistants, third-party plugins, customizable templates and more.

Integrate the entire development journey into a single, cross-functional developer experience for velocity without distractions and rapid innovation.

Automated tooling and scanning to ensure code quality, Gen AI accuracy, and adherence to best practices, for end-to-end transparency across stakeholder groups.

Thrive in the age of AI

Move faster, build better, and remove distractions. Flowsource focuses developers on feature-development, not hygiene factors.

From standing up a new component with enterprise templates, to real-time code documentation and automated quality assurance, Flowsource grants users the ability to work faster, with more confidence and more flow than ever.

In the stories ahead, we'll showcase our clients' experiences deploying the key components of Flowsource within their environments.





A European carmaker

Transforming the developer experience

In 2019, Cognizant started a DevOps engagement with a European auto manufacturer as part of an agile transformation journey, evangelizing and enabling agile practices across hundreds of software projects.

As part of that effort, Cognizant identified that developers at the organization faced challenges due to a fragmented application ecosystem with disparate tools, platforms and processes across departments.

To address these pain points, Cognizant implemented a lighthouse deployment of a more centralized Internal Developer Portal (IDP) using an important component from Flowsource.

This Flowsource tool -- the developer productivity portal Backstage -- immediately provided a centralized, unified interface for developers to streamline their workflows.

As the Backstage implementation generated buy-in from various teams, Cognizant broadened its rollout, and expanded its scope, utilizing automation, community contribution and a phased rollout approach to build a thriving IDP. Today, Backstage has become a central part of our client's development operations, resulting in significant productivity benefits.



“We understood how developers could face challenges in navigating a complex, fragmented ecosystem. But with Backstage, we also had the potential to streamline their workflows, bring teams together in a more collaborative and efficient way and accelerate innovation across the organization.”

Daniel Habakkuk Christopher, Principal Infra Architect, Cognizant

The journey into Flowsource tooling

Our client, like many large organizations, had grown over time and accumulated a diverse range of software development tools, platforms and processes across departments and teams. By 2019, the automotive leader was on a mission to modernize its software development practices and embrace agility. Cognizant has been involved in a DevOps engagement with the client as part of its agile transformation journey ever since.

Untangling a web of tools

Our initial focus with the client was focused on installing more effective development processes, helping teams adopt agile practices and the SAFe framework. That work expanded in later years to include DevOps enablement, automation, continuous integration and continuous delivery (CI/CD).

By late 2022, Cognizant's role at the firm had grown to take a more proactive posture. Our architects and consulting leaders were in search of new opportunities to improve the organization's enterprise software and platform development capabilities. One of the initial areas Cognizant identified for improvement was the need for a more cohesive and streamlined developer experience.

For too long, developers had been hampered by a maze of tooling, platforms and processes. The company could not move as quickly as it desired due to a fragmented application ecosystem where developers struggled to navigate across multiple platforms, resources and processes.

Cognizant's embedded leads at the automaker began to ask themselves what they could do to untangle the web of tools, help developers work more effectively and increase the pace of innovation.

Use-cases in focus

- Streamline developer collaboration
- Enable improved documentation and knowledge sharing
- Accelerate delivery and improve developer experience

Target outcomes

- Faster time to market
- Safer, more effective LLM solutions
- Mature, modern software delivery practices adopted at scale

A unifying idea born from a hackathon

Working together to solve the question, embedded leaders from Cognizant determined that a key piece of developer experience tooling from Flowsource could solve the unification issue.

In many implementations, the developer experience that we build Flowsource on top of is Backstage, an open-source developer portal for managing software development and infrastructure. Backstage serves a central hub for developers, offering a single interface to access tools, services, and documentation from across the organization.

With our client's support during a quarterly hackathon in September of 2023, Cognizant built a skeleton implementation of the IDP; a functional prototype that organized must-have tools and templates into a centralized interface.



Why utilize an IDP?

A Unified Developer Experience

A central interface for end-to-end software development work, reducing the complexity of navigating multiple tools and platforms.

Extensibility and Customization

Modular and extensible architecture allows organizations to tailor the platform.

Fostering Innovation

IDPs reduce the overhead and friction associated with managing multiple tools and processes, allowing developers to focus on what they do best – building innovative software.

A European carmaker: Transforming the developer experience

A phased rollout with organization-wide buzz

With a shared vision for the IDP and a minimum viable product (MVP) in place, Cognizant began to expand the platform across the organization with a phased rollout and adoption strategy. By gradually introducing the IDP to the organization, we gathered valuable feedback which helped refine the implementation and generated organic interest among developers.

As the team onboarded early adopters and continuously enhanced the platform with new features and integrations, word began to spread about the benefits. Developers from other departments started proactively reaching out to the Cognizant team, eager to learn more and get their components and documentation onboarded. This grassroots enthusiasm was a testament to the value that the IDP provided in simplifying developer workflows and fostering collaboration.



Igniting innovation and collaboration

In the year since the team first began developing a skeleton IDP implantation, the platform has delivered remarkable results. Centralizing development operations in Backstage has revolutionized the way our client's developers work and collaborate. With more than 850 components in the software catalog, and more than 700 TechDocs pages integrated, the IDP has become the go-to hub for streamlined access to tools, services, and knowledge. The solution has empowered engineers from across the organization to bring more impactful innovations to market faster than ever before.

A game-changing IDP

For the automaker, the cultural impact has been massive. By providing a centralized platform for managing software development and infrastructure, the IDP has enabled developers to take ownership of their work, share knowledge and accelerate the organization's march towards a more sophisticated digital future.

IDP by the numbers

850+
software components catalogued for a comprehensive view of the software ecosystem

700+
TechDocs pages integrated, enabling easy access to relevant documentation

1000+
total components managed within the IDP, including software, documentation, APIs and more

200+
systems onboarded, fostering collaboration and knowledge sharing across departments

60+
reusable templates created, for automation of systems and processes

3 months
from hackathon to pilot

15 months
to company-wide release



“Before the introduction of the IDP, application developers would spend weeks sorting out the various elements needed for development, such as services, tools, processes, endpoints, documentation, development and deployment platforms, monitoring solutions, support and more. Today, all this essential information is centralized and easily accessible in Backstage, with many manual operations automated, greatly streamlining the entire development journey.”

Mebin Thomas, DevOps Architect, Cognizant

The takeaways

Internal Developer Portals can revolutionize software development by centralizing tools and knowledge, accelerating innovation and enhancing developer experience.

A phased rollout ensures a smooth transition and rapid realization of benefits.

Employees enthusiastically adopt and grow software and platforms that make their jobs faster, easier and more intuitive. An IDP can drastically reshape the way developers work.



A major European financial institution

Building a software engineering hub

In 2022, our client -- a European banking and financial services institution -- tapped Cognizant to help modernize their software development practices and improve the developer experience via a unified developer portal.

Our leaders brought the talent and knowhow to deploy Flowsource tooling, in the form of the open-source developer experience portal Backstage.

The deployment began as a successful proof-of-concept (POC) in Q4 2022, then migrated to AWS

and expanded in 2023. Cognizant's team has since been continuously enhancing the platform's capabilities, implementing custom features and onboarding additional development teams.

As the developer hub evolves, our client envisions the platform to become the central hub for its entire development community, integrating more tools, services and best practices to create a seamless production environment for engineers and developers.



"When we embarked on this journey, our vision was clear: to create a central hub that would revolutionize the way developers work. We knew that if we could successfully implement a thriving developer portal using Backstage, it could serve as the foundation for our developers hub and we would be able to streamline processes, foster collaboration and ultimately redefine what it means to build software for our client."

Meenakshi Sundaram, Engagement Delivery Lead, Cognizant

A longstanding financial technology leader

Our client has earned its place near the forefront of digital transformation in the financial sector. The Dutch multinational financial services company has shared a strategic technology partnership with Cognizant for more than a decade. Together, our teams have produced successful executions across multiple digital transformation initiatives, building a technology ecosystem on Java, Kotlin and microservices.

A POC requiring a very specific set of skills

While our client boasts a modern and sophisticated estate, they also remains committed to a culture of continuous improvement. When bank technology leaders determined that an improved developer portal -- such as the Flowsource tool Backstage -- could centralize software engineering operations, they jumped at the chance to test it out.

There was just one problem: implementing the platform in their environment, even as a POC, would require a development team with a specific combination of skills, including expertise in Backstage itself, Node.js and React.js.

The bank asked their strategic partners at Cognizant if we had the right talent to support an exploratory developer portal implementation.

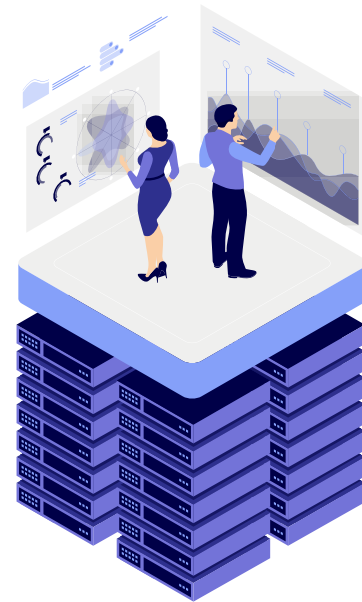
A software engineering hub is born

To meet the challenge, Cognizant conducted a thorough search within our talent pool and the market to identify developers with a blend of Backstage, Node.js and React.js skills.

Our consultants determined that Cognizant's Romania-based studio offered the developers to deploy a developer portal POC. Cognizant would provide the platform architects, while our client supplied a product owner, scrum master and business analysts for the project.

Together, our teams defined a path from concept to product, showcasing the power of Flowsource itself: that a successful Backstage implementation today could also serve as the foundation for a company-wide unified developer hub tomorrow.

The software engineering hub would, once fully realized, provide a centralized location for developers to manage software development and infrastructure; a single interface to access tools, services, and documentation from a wide array of internal systems and applications.



Use-cases in focus

- Centralize developer resources/tools
- Enhance onboarding experience for new hires
- Establish a foundation for scalable, standardized development practices

Target outcomes

- Improve developer productivity and efficiency
- Enhance software quality and reliability
- Foster innovation and experimentation

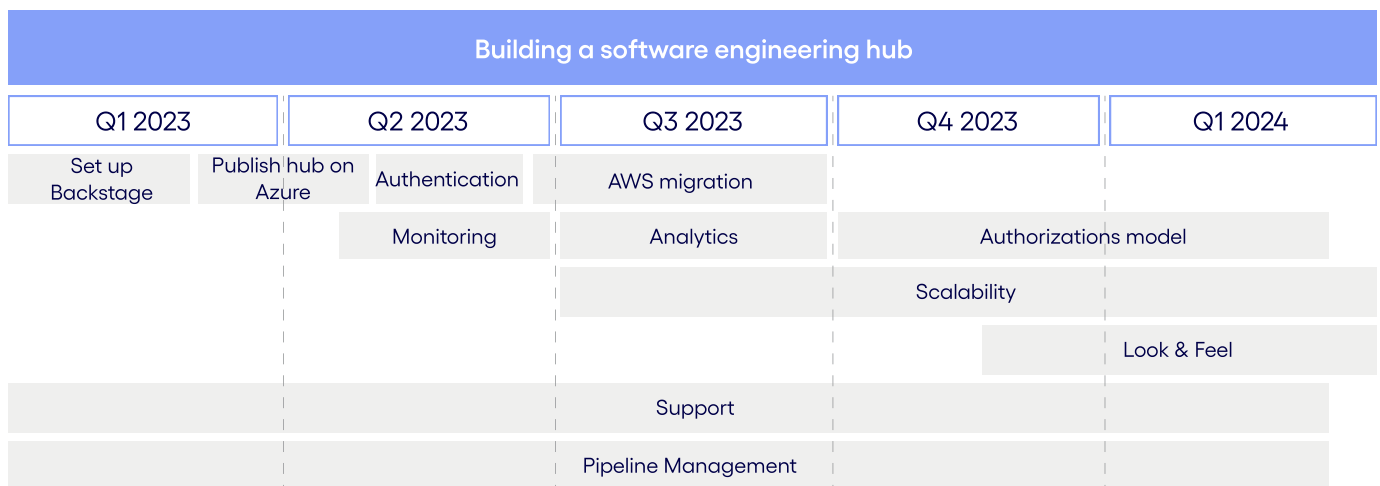


A major European financial institution: Building a software engineering hub

The implementation began in Q4 2022, involving a team of four Cognizant engineers specializing in Node.js, React.js and DevOps. We first deployed the basic infrastructure and demonstrated the feasibility of the developer portal within our client's environment. Following the success of the POC, we migrated the Backstage platform to AWS to better align with our client's existing technology stack and to provide enhanced scalability.

Throughout 2023, Cognizant continuously improved and expanded the platform's capabilities. We implemented a permission framework integrated with our client's authentication system and a monitoring system that aggregates data from various sources like Splunk and Azure DevOps. The system was built with scalability in mind, to accommodate the anticipated growth in the number of development teams and services that would soon utilize the platform.

Today, Cognizant is responsible for managing and maintaining the core platform, including the infrastructure, authentication, authorization, monitoring, and other foundational aspects. Meanwhile, various development teams from across the client organization are today building and contributing their own plugins, modules, and features for the platform.



Ensuring a robust foundation for the software engineering hub

Cloud platform

Ongoing support of platform in AWS

Authentication

Integrated client's custom authentication system into engineer's hub allowing developers to use their existing credentials and maintain a seamless experience

Authorization

Custom permission framework enables fine-grained access control

Monitoring

Splunk and Azure DevOps integrations provide a centralized view of application performance and health

Scalability

Optimizing infrastructure, implementing efficient data management strategies

Analytics

Insights into platform usage, user behavior and performance metrics for data-driven decision-making

Look and Feel

Personalized and intuitive developer experience

CI/CD

Seamless and automated software delivery

Support

Onboarding, troubleshooting issues, best practices and platform updates

Notifications

Real-time updates and alerts for developers

The start of a smarter development pipeline

While deployment of the software engineering hub is still in its early stages, our client is optimistic about the potential benefits it offers their development community. The streamlined onboarding process for new hires, the establishment of standardized practices and the promotion of code reuse and collaboration are all seen as positive steps towards improving the overall efficiency and quality of their software development efforts.

A significant step forward

The hub is poised to serve as a foundational tool in our client's digital transformation journey. The bank envisions a future where the hub will serve as an AI-supercharged home for the entire development community. As more teams migrate development operations to the platform, it will continue to evolve and integrate more tools, services and plugins, creating an increasingly seamless production environment for the global engineering team.

Small footprint, broad impact

4

Cognizant engineers to deliver the POC

3

months from concept to POC

100+

development teams anticipated onboard in 2024 and beyond

4

external development teams currently integrating tools and services

5

internal feature teams currently integrating tools and services

1,000

weekly visitors



“Although we’re still in the early stages of this implementation, the potential benefits are already clear. The way our developer portal centralizes resources, integrates with our existing tools and empowers our developers to contribute their own plugins and modules is truly game-changing.”

Bogdan Bucevschi, Senior Project Manager, Cognizant

The takeaways

Developer portals require a strong partnership between the organization and the implementation team and buy-in from the broader development organization.

The right developer portal allows companies to tailor the platform to their specific needs. In the case of a portal like Backstage, specialized skills may be required to fully integrate.

While the benefits of a centralized developer portal may not be immediately apparent, the long-term potential for improved efficiency, collaboration and innovation is substantial.



U.S. technology leader

Revolutionizing QA with code companion

As a long-standing partner of one of the world's leading technology companies, Cognizant provides Quality Assurance (QA) services for the brand's marketing leading cloud-powered productivity platform.

As the complexity of the platform grew and the demand for faster release cycles increased, Cognizant's QA team faced challenges such as lengthy regression testing cycles, difficult-to-maintain automation test suites, time-consuming debugging, and cumbersome manual test data generation.

To address these challenges, Cognizant proposed integrating an AI-powered code companion from Flowsource into the QA workflow.

With our client's existing enterprise license for GitHub Copilot, the implementation process was completed within just three weeks.

By leveraging the companion's AI-powered code completion capabilities, Cognizant rapidly improved efficiency, reduced manual effort and enhanced code quality. The integration of a code companion into the QA process has yielded significant benefits, including simplified automation scripting, an improved existing codebase, streamlined debugging and expanded test capabilities.



"The Flowsource code companion has revolutionized our QA process, making our team faster, smarter, and more efficient. It's like having an AI-powered assistant that helps us write better code, catch issues earlier and deliver high-quality software more rapidly than ever before."

Venkata Kappagantula, Engagement Delivery Lead, Cognizant

A partnership built on trust and technology

Our technology client is a longstanding client of Cognizant, with a partnership spanning across many years and project types. Within our broad scope of work, Cognizant provides Quality Assurance (QA) services for the company's market leading cloud-based productivity platform, ensuring the reliability and performance of the software.

Increasing challenges in regression testing

As the complexity of the platform grew over time, and the demands for faster release cycles increased, Cognizant's QA team found themselves facing lengthy regression testing cycles that took more than eight hours to complete.

The automation test suite, written in Playwright and TypeScript, had accumulated a significant amount of code, making it difficult to maintain and optimize. Debugging legacy code was time-consuming, and generating large volumes of test data manually was tedious.

Our leaders began to look for ways to streamline the process.

QA Testing with Flowsource companions

In February 2023, Cognizant approached our client with the proposal to integrate GitHub Copilot into our QA workflow. Our proposal suggested that with Flowsource's code companions on board, we could address lengthy regression testing cycles, simplify difficult-to-maintain automation test suites, and reduce the time spent debugging and manually building test data.

By leveraging AI-powered code completion capabilities, Cognizant could improve efficiency, reduce manual effort, enhance code quality and ultimately deliver higher-quality quality software.

Where other engagements for less technologically mature organizations might require a longer lead time to deploy new tech or a sophisticated modernization project to ready the ecosystem for advanced AI use cases, this client remains uniquely prepared to deploy emerging technology in new ways.

In fact, the client even had an enterprise license for GitHub Copilot that Cognizant QA team members could utilize to make the implementation process even faster.



Use-cases in focus

- Optimize regression testing suite to reduce execution time
- Generate automation scripts from manual test cases
- Create large volumes of test data for comprehensive testing

Target outcomes

- Increased efficiency in QA processes
- Improved maintainability of automation test suites
- Faster debugging and issue resolution

The power of Flowsource code companions in Quality Assurance:

- Enhances developer productivity with context-aware code completion
- Streamlines code generation identifying where code can improve
- Accelerates QA processes by generating automation scripts for manual test cases

Rapid deployment via seamless plugin integration

Once Cognizant was granted access to the GitHub Copilot license, our engineers began an implementation process that lasted just three weeks from inception to completion, connecting the code companion to both Playwright and Typescript in March 2023.

In an era where many AI deployments push heavy tooling into complex ecosystems, in a process requiring in-depth planning and technical expertise, our team rapidly reshaped the QA process in the client environment effectively overnight.

With code companion tooling in place, Cognizant QA began to leverage AI-powered automation to reduce regression testing cycle time, improving the maintainability of our automation test suite and automating the test data creation process.

Accelerated work with test suite integration

By connecting our code companion directly into the existing automation test suite built in Playwright and Typescript, the team now harnesses the power of AI code support without having to revisit the development environment itself.

Simplified automation scripting

One of the key advantages of using code companions for quality assurance is the ability to generate automation scripts from manual test cases. The QA team now provides the manual test steps as an input to the code companion, which generates the corresponding automation scripts for Playwright and TypeScript.

Improved Existing Codebase

A challenge unique to this client is the amount of legacy code already in Playwright. The code companion helps Cognizant to analyze and optimize the existing automation test suite, identifying and suggesting improvements to the codebase.

Streamlined Code Debugging

The code companion allows QA engineers to understand legacy code written by other team members. It explains the logic and functionality of code snippets step-by-step, making it easier for QA engineers resolve issues faster.

Expanded Test Data Capabilities

QA engineers today leverage the code companion for more diverse and realistic test data. Where engineers once had to manually create large datasets (email addresses, postal codes, user credentials and more), today the companion generates this data tailored to specified patterns or constraints in a matter of seconds.



“Once Cognizant was granted access to our client’s GitHub Copilot license, our engineers began an implementation process that lasted just three weeks from inception to completion. Our engineers configured the code and added the companion to the existing development environment. The resulting speed and accuracy we achieved was effectively immediate.”

Venkata Kappagantula, Engagement Delivery Lead, Cognizant

A proven winner

In short, the code companions within the our client's QA processes have been a fast acting and resounding success. With multiple points of impact throughout the QA process, code companions yield increased efficiency, improved code quality and faster delivery of high-quality software, enhancing the overall development lifecycle.

A blueprint for education providers in the era of Generative AI disruption

Cognizant's rapidly successful implementation of code companions highlights the transformative potential of Flowsource in the quality engineering and assurance landscape. The tools that improve the ways engineers and developers work also lead to significant improvements in efficiency, code quality, and time-to-market. At Cognizant, our expertise leveraging the latest innovations in technology to solve complex and longstanding technology challenges to drive innovation is why the worlds leading companies look to us to support continuous improvement and more efficient ways of attacking software and platform development.

The takeaways

Flowsource's suite of AI-powered tools, including code companions, revolutionize QA processes and boost efficiency.

The seamless integration of advanced tooling within an existing IDE can accelerate adoption and results.

Code companions greatly streamline the manual efforts associated with code optimization, test case generation, and debugging efforts.

AI code companion by the numbers

13.8% reduction

in regression testing cycle time,
from 8.35 hours to 7.20 hours

100% speed increase

building test cases, from one test
case daily to two

30% speed increase

in script development





A fintech leader

Accelerating development for a leading tax preparation platform, with AI-powered code companion

In August of 2023, Cognizant partnered with our longstanding client -- a leading U.S.-based financial technology company -- to pilot an AI-powered code assistant and improve engineering productivity and development velocity for their flagship products.

Starting with just two licenses for the code companion GitHub Copilot, Cognizant conducted a proof-of-concept focused on code review and refactoring. In October, the client scaled to 20 licenses after seeing the benefits.

With early successes proven, and a growing user base, Cognizant expanded the code companion to unit test generation, code documentation, and L3/

L4 support summarizing lengthy technical support tickets.

In six months, the code companion drove significant productivity gains by infusing developer and engineer coding capabilities with generative AI tools.

By March 2024, the companion was expanded across projects, with the client investing the time savings into further GenAI solutions. Today, with 70 FTEs on the client's internal data exchange project alone, Cognizant is well-positioned to scale the impact of generative AI across the organization.

"We enable clients to harness the power of generative AI assistants like Copilot to transform developer productivity, even in highly regulated industries. Our phased approach allows companies to rapidly pilot and scale this technology while also ensuring security and compliance."

Geetha Sundaram, Engagement Delivery Partner, Cognizant

An invitation to innovate

As a technology leader always eager to experiment with the latest tools, our client (a world leader in tax preparation software and other financial services) offered the embedded Cognizant team access to a tool already well known to Cognizant, the code companion GitHub Copilot. The invitation came not from a spirit of need or urgency, but rather of innovation. Their question was simple and open-ended: what could we do with it?

The importance of security

Before Cognizant technology teams could begin implementing any generative AI tools, we had to consider the implications of security and compliance, given the highly sensitive financial data and personally identifiable information handled by our client's products.

Cognizant leaders recognized the importance of safeguarding customer data throughout the process. To mitigate these concerns, developers underwent extensive security training and assessments, completing mandatory courses and passing exit tests before gaining access to our code companion and other AI tools.

Only after demonstrating a deep understanding of the security implications and necessary safeguards did we proceed with the implementation, ensuring that the project adhered to the highest standards of data protection and regulatory compliance. This approach allowed us to leverage the power of generative AI while maintaining the trust and confidentiality that are cornerstones of our client's business.

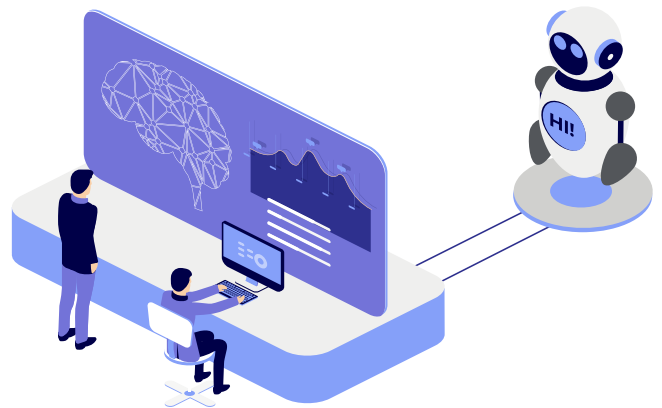
Generative AI for internal data exchange

In August of 2023, when the company what we could do with a generative code companion, we jumped at the chance to proactively explore potential use cases that would optimize and accelerate our work.

Our team immediately understood one place where a code companion could add value: the company's internal data exchange (IDX) platform.

The IDX connects with a customer's banking websites and retrieves data from them to populate our client's tax, personal finance and business accounting software platforms. It is the tool that enables imported tax forms, account balances and transactions from a user's linked bank accounts, and the software capability that makes our client's user experience impossibly fast and intuitive.

By connecting the Cognizant team that manages the IDX with the code companion, we could accelerate our support and infuse key portions of quality assurance with automation.



Use-cases in focus

- Accelerate screen scraping and data integration
- Streamline code review and refactoring
- Automate unit test generation and code documentation

Target outcomes

- Accelerate development velocity
- Enhance code quality and performance
- Reduce manual effort in testing and documentation

The velocity of code companions:

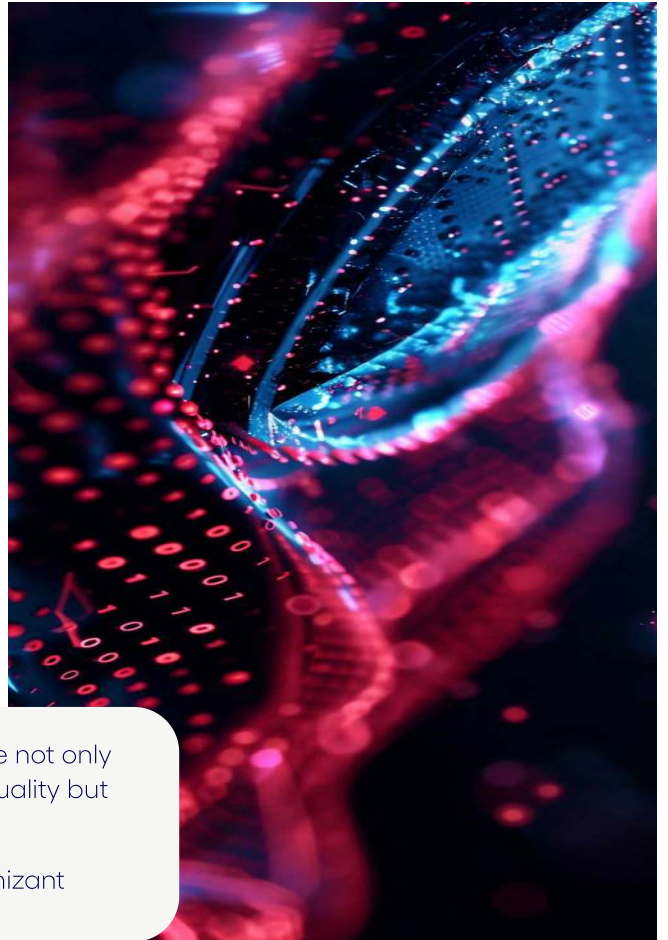
- **Intelligent code suggestions and auto-completion** to speed up development and reduce errors
- **Contextual understanding of code** to provide relevant, real-time guidance and best practices
- **Continuous learning** from vast open-source codebases to offer state-of-the-art solutions and patterns

A FinTech leader: Accelerating development with code companion

Rapid deployment via seamless plugin integration

Once Cognizant gained access to our client's GitHub Copilot license, our developers began working on a proof-of-concept focused on code review and refactoring, to provide improved enhance code quality and improve performance without introducing security risks or compromising sensitive financial data.

As the project progressed, Cognizant carefully navigated the security and compliance implications and gradually expanded Copilot's usage across various projects, targeting enhanced code quality, automated testing, and streamlined issue resolution. Throughout this journey, Cognizant demonstrated a commitment to harnessing the power of generative AI while prioritizing data protection and regulatory compliance.



“By harnessing the power of AI code companions, we've not only accelerated development cycles and improved code quality but also unlocked new possibilities for innovation.”

Geetha Sundaram, Engagement Delivery Partner, Cognizant

2023 August	Our client provided Cognizant with access to GitHub Copilot licenses, extending our partnership and offering our team a chance to innovate on their behalf.
2023 September	<p>The Cognizant team began exploring proactive use cases and their potential benefits. We ultimately settled on a proof-of-concept using just two licenses and focused on focusing on code review and refactoring, to test the tooling in the client environment while ensuring security and compliance with the sensitive financial data handled by our client's products.</p> <p>Cognizant leveraged Copilot to optimize screen scraping processes within the IDX platform, enhancing data extraction from banking websites.</p>
2023 October	After a successful proof-of-concept, our team scaled up to 20 licenses, expanding the use cases to include unit test generation and code documentation.
2023 November	Cognizant initiated discussions with legal teams to add liability clauses, ensuring the proper handling of data security and compliance. We also expanded code companion usage to summarize lengthy L3/L4 support tickets, streamlining issue resolution.
2024 March	Cognizant began a phased expansion of the code companion across multiple projects within the client account, aiming to maximize the benefits of generative AI and transform developer productivity across the board.

Engineering, redefined

Our client's journey began with a proof-of-concept in the IDX platform and rapidly expanded across the development organization to revolutionize the way software engineering teams work in a matter of months. Today, our client leverages AI across code review, refactoring, unit test generation and code documentation, with significant improvements in developer productivity, code quality and maintainability.

The future of intuitive financial software begins with AI dev tools

As our client continues to scale the code companion across their organization, they are showcasing the transformative potential for generative AI at the cutting edge, even against the backdrop of strict financial security requirements. The success of the project has validated early adoption of the technology in a space that might otherwise move more slowly into emerging technology and has strengthened our client's partnership with Cognizant. Above all else, the collaborative journey has demonstrated the importance of proactive experimentation, thoughtful scaling and continuous learning when implementing generative AI across the software development lifecycle.

The takeaways

Implementing code companions can significantly boost developer productivity, code quality, and maintainability, enabling teams to focus on high-value work and accelerate innovation.

It's possible through proactive experimentation to successfully adopt AI even in an environment that prioritizes data security and regulatory compliance, via thoughtful planning, gradual scaling and continuous learning.

Code companions and the AI-powered tools within Flowsource offer a comprehensive solution for financial services organizations to rapidly modernize software development processes, integrate seamlessly with existing systems and achieve unprecedented engineering velocity.

Turbocharged IDX performance

40% improvement
in the average number of engineering tasks completed

20% reduction
code documentation time

30% increase
in bugs identified

20% reduction
in code review time

10x
code companion license expansion

8 months
from concept to phased expansion





An education technology leader

Accelerating AI with DevOps and Flowsource plugins

In early 2023, Cognizant began a partnership with an education technology leader to deliver a tailored AI solution, enterprise-grade generative AI platform to enhance their learning experiences.

The rise of ChatGPT had intensified market pressure for AI-driven educational offerings, and our client understood that to remain at the forefront of education, they would need to provide students access to tailored generative AI tools in support of learning and studies.

Cognizant partnered with our client to deliver a tailored AI solution that could be deployed in various ways across the organization. To achieve that vision, Cognizant first modernized portions of our client's development model, with a dual focus on bolstering DevOps and new tooling for accelerated AI solution development.

By deploying AgentFramework, a Cognizant Flowsource plugin within their existing developer experience, our client has moved rapidly from prototypes to production solutions, launching AI tools into the learning experience, HR, research, tutoring and other key functions.



“Our focus was to transform development processes for our client to enable faster, more secure solution development. Using our latest Flowsource plugin, AgentFramework, we were able to deploy tailored AI solutions for our clients with unprecedented speed and precision. This agentic approach unlocks new ways of problem-solving capabilities and innovation.”

Manuel Esquivel Lopez, Director, Consulting at Cognizant

ChatGPT created a massive and immediate demand for AI

Prior to 2022, our client had made initial forays into developing AI capabilities. However, these initiatives remained limited in scope. The sudden mainstream adoption of ChatGPT in late 2022 disrupted the education sector, creating an urgent need for our client to create more sophisticated, AI-driven learning experiences.

Initial challenges in AI development

Our client understood from their earlier experimentation with AI that a successful deployment would face several challenges, most notably around integration with proprietary content, security, compliance and governance. The organization also risked losing market share to freely available LLM models if they didn't act quickly to productize their own AI capabilities.

In early 2023, they asked Cognizant how we could help redefine their approach to meet the EdTech demands of the present and future.

The Cognizant Solution: Accelerate AI transformation with AgentFramework, a Flowsource plugin

In early 2023, Cognizant began working with our client to assess their AI capabilities and determine the key work areas required to achieve their objectives. Cognizant examined the client's AI to understand its current state, architecture and limitations. We identified technical gaps that needed to be addressed to mature the model, such as integrating with educational content to provide contextual, accurate responses.

To deploy new methodologies quickly and effectively, Cognizant determined that the expansion of AI should leverage AgentFramework, our proprietary, cutting-edge AI development accelerator. AgentFramework provides a composable architecture stack that enables rapid prototyping and deployment of AI solutions, empowering developers to create development-ready environments with ease. By leveraging Flowsource's rich ecosystem and AgentFramework's innovative features, developers could accelerate the AI development process and foster collaboration across teams.



Use-cases in focus

- Accelerate AI solution delivery model
- Improve DevSecOps practice adoption
- Implement tooling fit for Gen AI model governance and tuning

Target outcomes

- Faster time to market
- Safer, more effective gen AI solutions
- Mature, modern software delivery practices adopted at scale

A phased approach to enterprise AI

To drive the success of the project, Cognizant assembled a cross-functional team that embraced an agile, iterative approach to AI development.

Our team deployed an agile delivery model centered around Lighthouse projects for proof-of-concept engineering. In Lighthouse development, we identify an initial project, utilize the project to demonstrate the delivery model, rapidly deliver against defined goals and then validate the value of the approach with an expanded plan.

By focusing on rapid prototyping, low-estimation, and time-boxed work, the team was able to quickly validate ideas, gather feedback, and refine their solutions in close collaboration with client stakeholders.

Structured Hierarchical Retrieval Augmented Generation

Our client's journey into AI powered education began by using retrieval augmented generation techniques, enabling the AI to access and contextually utilize the company's proprietary data.

More specifically, one of the key innovations in AgentFramework is its implementation of Structured Hierarchical Retrieval Augmented Generation (SH-RAG). SH-RAG is a powerful technique that enhances the way AI agents search for and retrieve information from large datasets. Unlike traditional methods that rely on simple keyword matching, SH-RAG enables AI agents to understand the hierarchical structure and context of the data, allowing for more intelligent and targeted information retrieval.

By leveraging SH-RAG, AI agents can navigate through enterprise data in a way that mimics human-like reasoning and understanding. This enables the development of AI solutions that can provide highly personalized and adaptive experiences, tailored to the specific needs of each user. For organizations, this translates to improved operational efficiency, better decision-making, and the potential to unlock new sources of business value by harnessing the full power of their data assets.



We began introducing SH-RAG in iterations as a lighthouse solution built on Flowsource's AgentFramework. These trial projects validated the effectiveness of the new tools and processes within the ecosystem. Building on this success, we began to drive AI adoption across more business use cases, even supporting our client in launching a dedicated AI center of excellence to drive continued innovation. Through this phased approach, our client rapidly matured from initial experimentation to production ready, enterprise-wide AI capabilities.

AgentFramework is the blueprint to ignite and expedite your AI endeavors:

1. Structured and secure foundation for prototyping
2. Adherence to best practices and incorporation of robust security measures
3. AI agents deployed into the developer experience for more rapid development

Central to our approach was a phased timeline that allowed the team to build momentum and continuously deliver value.



“AgentFramework enables our clients to embrace AI-Native engineering, seamlessly merging traditional programming with the power of dynamic cognition. Our modular, composable stack empowers developers to create cutting-edge AI solutions that transform our clients into innovative pioneers, positioning them at the forefront of their industries.”

Kyle Tobin, Director of AI Products, Cognizant

Dawn of a new era

In April 2024, our client officially launched its multiple branded AI agents, marking a significant milestone not only for the company but for the broader business landscape. The success of AgentFramework and the AI-native engineering approach pioneered by Cognizant serve as a blueprint for enterprises across industries to harness the power of AI and transform their operations.

For our client, the launch of the AI platform marks a profound shift in the organizations approach to tailored enterprise tooling. Beyond its initial focus on education, the AI has demonstrated versatility in driving operational efficiency across business functions.

The platform was deployed as a document chatbot, as content management tool and in HR, where the annual labor hours for a specific task were reduced from 1,000 hours to just 200 using AI-driven processes. That efficiency gain allowed our client to eliminate a \$40,000 per-year vendor relationship.

Perhaps the most important impact of all for our client is that the project has armed the organization with the AI tools and processes to rapidly create more AI innovations in the future, and with them to deliver more dynamic, adaptive learning experiences and industry leading education technology.

The takeaways

The agent-focused tooling and processes within Flowsource accelerate development for a wide set of AI use cases and can fundamentally transform the way solutions are built.

Lighthouse projects are an effective way to test and expand solution development approaches.

Retrieval Augmented Generation is a powerful technique wherever AI responses require organizational data.

DevOps processes must be mature and well governed in a high-output engineering environment.

Cognizant AI by the numbers

#1
fastest software
delivery in client
history

4
rapid deployments
of client AI

80%
reduction in HR
labor hours via AI-
driven processes,
while simultaneously
eliminating
significant vendor
cost

6 months
from onboarding
to MVP





Cognizant (Nasdaq-100: CTSI) engineers modern businesses. We help our clients modernize technology, reimagine processes and transform experiences so they can stay ahead in our fast-changing world. Together, we're improving everyday life. See how at www.cognizant.com or @cognizant.

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