Persona-Based Design, Data Fabric, and the "Magic" Transforming Utilities

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Few people have witnessed the utility industry's digital transformation as intimately as Gary Hayes. Starting his utility career in 1980 building and handing off paper work orders, and later, nearly a decade as a utility CIO, before joining Cognizant's team in 2020 where he now guides utilities through the very transformations he once led from the inside.

As Chief Solution Enablement Architect at Cognizant, Hayes helps utilities move beyond "transactional, step-by-step" systems toward "intelligent, outcome-centric" operations that fundamentally rethink processes rather than just digitize them. It's a shift from asking "how do we this process faster?" to "how can we prevent an issue before it happens and/or resolve it in real time?"

His "Utilities of the Future" framework—created over a decade ago and periodically revised since—maps this evolution through four stages: from organization-centric to enterprise-centric to outcome-centric to intelligent systems. "The vision remains," he says. What has changed is how much clearer it has become as technologies like artificial intelligence and data fabric have evolved from concept to capability.

ASUG sat down with Hayes to talk about the current state of software implementation in utilities organizations, the role of legacy data, and utilities building trust with AI processes.

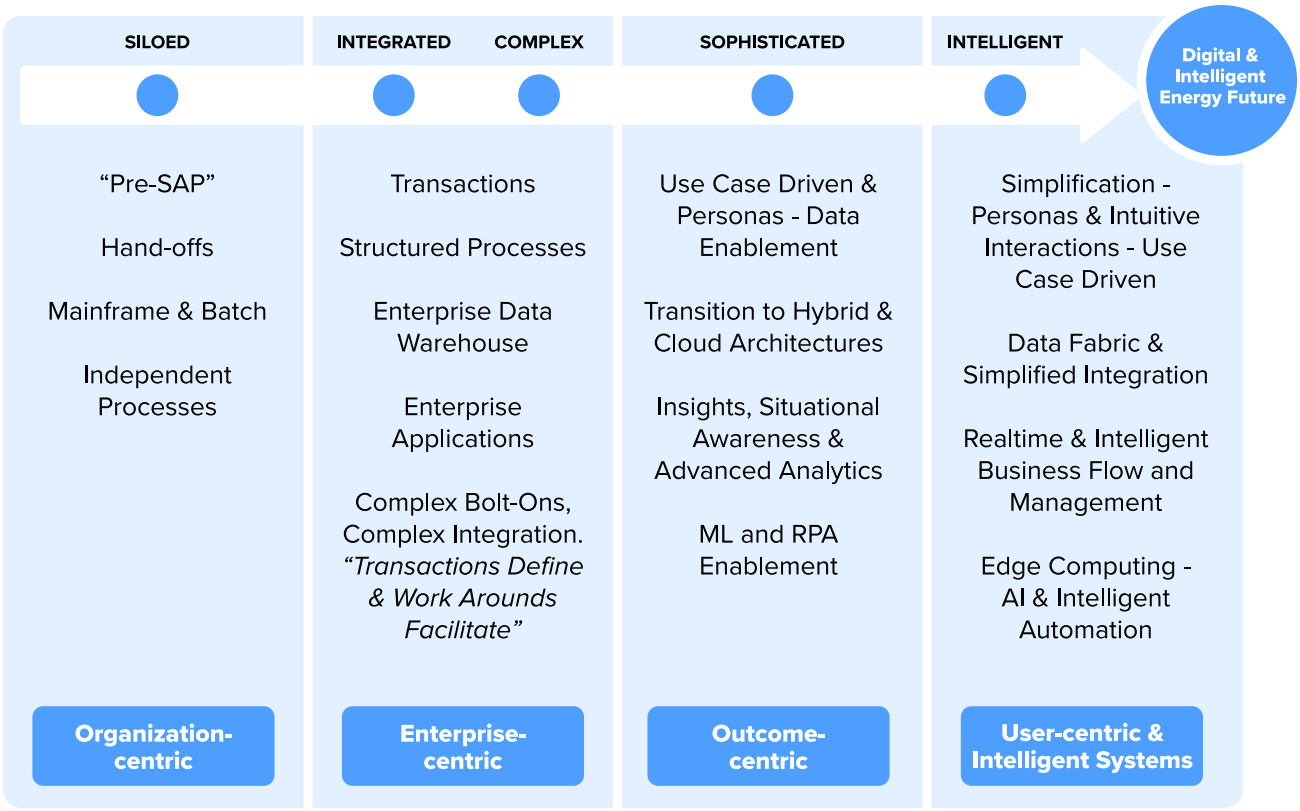
This interview has been edited and condensed for length and clarity.

Q: Your Utilities of the Future diagram (see next page) outlines the shift from organization-centric transactional systems to intelligent, outcome-centric operations. How do you define what it means for a utility to be truly intelligent today, and what distinguishes that from simply being digital?

I started my career in 1980 at an Oklahoma utility. I remember after a tornado or significant storm, it would require a lot of time, effort, and paperwork, plus input into a variety of different paper files or computer systems to understand the cost. I was on the project team that implemented core SAP in 1995. After our first major storm following the SAP go-live, I was able to query the information daily in SAP and get reports on the impact of the storm right after the event — no paperwork!

But what if a utility could leverage AI to plan, manage, and dynamically report throughout these events? If AI and other insights provide a historical view back in time to data and information, we should expect AI to leverage historical and real-time information during the event, providing insights on actions that will reduce the recovery time. Resources can be managed more effectively and efficiently through data-driven visualizations and recommendations to the operational recovery center, digitally enabling the process to assist in storm recovery. We've seen components of these solutions at utilities being used in severe weather and wildfire prediction/prevention. AI solutions are beginning, and will continue, to permeate day-to-day utility business processes — operational, customer, financial, and others.

POV: Utility of the Future — The Journey



To me, this transformation has been ongoing, from the paper-based/mainframe systems we were using when I started, to the opportunities we have today. While we knew technological innovations were coming, the level of sophistication and the scale of possibilities are still impressive. We now have intelligent and responsive capabilities that can act on real-time and historical information to advise, assist, and/or perform day-to-day work, helping utilities achieve both increased efficiency and customer satisfaction at a critical time of change in the industry. This recent cycle of transformation, coupled with the continuing expansion of the benefits of other investments — such as smart grids — is accelerating us to the "Digital and Intelligent Utility of the Future."

Q: Some organizations are still transitioning between that integrated and intelligent place. Where do most utilities sit on that maturity curve right now, and what typically holds them back from progressing further?

You always see pioneering leaders. Leaders are the ones who have introduced enterprise-wide digital operational management tools, advanced analytics driving innovative asset management and system enrichments, innovative customer programs. The list goes on. And, it doesn't have to be a big company; small companies are often leading in these areas. We also see the focus, speed, and innovation commitments to transform the complete footprint of the utility from operations to corporate functions. "Integrated, intelligent, and innovative" becomes the target. The challenges: Is this the right time? What are the moving factors — regulators, investors, customers, technology? But we do see increasing momentum in realizing the potential of accelerating these capabilities. I do not want to infer that everyone is at the starting line, but I would probably say many are.

At Cognizant, we committed a $1B investment in the development of AI solutions to address challenges and opportunities across the footprint of many

industries. And anyone watching us since we made this commitment in 2023 has seen how we pursue and deliver AI solutions for impact; not just for technology's sake, but to transform the way people, organizations, and technology can shape the future.

We are actively developing and delivering AI prototypes and solutions, both for our internal utility reference and accelerator frameworks, as well as for select utilities and energy companies. Our collaboration with SAP is driving transitions through S/4HANA native integration, data fabric, and BTP solutions.

While the next wave of transformation will not happen with a magic wand, cloud-based platforms, data fabric, and AI capabilities form the essential "magic" foundations of the "Utility of the Future." The combination of technologies has already positioned us at the forefront of the AI digital workmate era.

At the same time, the next generation of employees is entering the workforce with the expectation of intuitive, insightful systems. Without them, organizations risk struggling to attract and retain top talent.

Q: How are utilities, and specifically SAP customers, using elements like data fabric and S/4HANA to move beyond traditional ERP and enable real-time, insight-driven decision-making?

The first moves were significantly around data. It's been within the last five to 10 years where you see a significant jump in the way that utilities leverage information in real time — not just with SAP, but with meter management systems, grid systems, distribution management systems, and more heavily data-driven technologies. This was also enabled by the evolution of cloud and other technologies supporting increased capabilities to "leverage and learn" from the data gathered. You must make sure your organization has, or is ready to, embrace and exploit these rapidly advancing solutions. Technology will continue to transform, and our talent/skills must also transform to meet the possibilities.

Utilities are positioning to achieve this next transformational step, and some are well on their way. But the catch is, while we can make more data and information available, there's also the challenge of how you consume the volume of information. How can we accomplish tasks utilitizing SAP's and other partners' digital and AI applications? What does this mean? If your job today is on the asset side, the customer side, or the finance side, you can't go to three, four, five, or more different screens to do your work in the future and be effective or efficient. This is where SAP's digital capability assists users in quickly visualizing, comprehending, and receiving insights to accept the recommended AI action, to acknowledge the actions taken for closure, or awareness that the issue was cleared by AI. This is the continual challenge and AI goal: to improve the users' ability to exploit the benefits of this business transformation journey.

As utilities adopt these digital technologies, there's still going to be a learning curve. Cognizant has accelerated supporting and assisting users in this new digital experience. We are leveraging enablers like SAP WalkMe, the "sherpa" that can guide users through digital learning pathways, so users are not only ready for the transformation, but they can also deliver results as they learn. This is how digital solutions help solve problems much differently than in the past.

At Cognizant, we have also prepared, and we're ready to lead our customers in their digital transformations. Through our AI investments, SAP certifications, and transformation of our workforce and strategic partnerships, we're well positioned to help companies navigate and be successful through this journey.

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Q: What does an effective data fabric architecture look like in a utility context, and how does it reconcile legacy SAP and non-SAP environments?

It's not that there will only be one data fabric. You're going to have SAP's data fabric as well as other external source data gathered in SAP's data fabric. For enterprise business solutions, SAP will be your core data fabric integrating data from others. It could also be a source supporting other business or operational data fabrics, whether in AWS, GCP, or Azure supporting other systems and/or services. The approach is generally dependent on the organization's architecture and strategic/operational objectives.

In terms of utilities, many leverage the SAP operational, customer, business, employee, and other functionality with the other technologies supporting system control, metering, advanced telemetry, mobility, the list go on. These solutions will also continue to evolve, providing accessibility to necessary process data via traditional data integration layers and/or fabric architectures to solutions.

The goal of providing user personas with a digital experience is that it allows them to work more effectively and efficiently. This also includes the ability to leverage AI-enabled solutions. The bottom line is that data fabrics are the sources to enable all these capabilities.

Q: How does designing around personas change the way organizations build and govern SAP processes, especially when field, plant, and back-office users have such different needs?

The reality is, utilities deal with this today, but they're dealing with a very defined and confined ruleset, and via a standard or customized transaction and/or reports. There are other options that improved the presentation layer, such as Workzone and Fiori, which improve user experiences by bringing additional relevant information based on the "user processing responsibility." As an example, a Customer Billing Specialist. Initially, this involved learning and knowing how to look across the SAP I-SU and other modules to reconcile a difficult billing issue. The specialist had to traverse the data through transaction. But now with Workzone and Fiori, the necessary information is brought to the specialist. This may also have recommended actions incorporated into Workzone/Fiori and automation.

The persona question is: what do you need to do your work? And are you authorized to access the transaction and underlying data? If yes, then a series of transactions, a presentation layer, and/or a report would also be made available to you. As mentioned, Fiori offered a welcome user improvement. But sometimes you may have to call a friend to provide you with additional insights to reconcile your or the customer's question. Many of those questions end up in some kind of custom integration, additional functionality, or data fabric/database integration.

Future persona-based capabilities must still ensure the rules related to accessibility to this information. Leveraging your persona's accessible AI functions will allow you to ask AI the questions that are within your authorization, and it will provide you with the appropriate and compliant response, thus enabling you to be more efficient and effective in your work. This is the value opportunity for AI: to interrogate that data and provide options or a recommendation. You're gathering insights that can be correlated

through experiences and AI models that will tell you, "Here are your options," or "Here's the action you need to take," or "Actions resolved via AI" that are within your persona's responsibility awareness and tracking.

As an example, Cognizant offers an enterprise AI solution, Case Management, that resolves utility billing errors at scale. We all understand the impact and implications of billing errors. This is typically managed by a billing specialist and/or manager. AI reviews and identifies the billing errors, then initiates appropriate automation to successfully process the required action. It will also provide guided, data-driven recommendations for teams to resolve the exceptions, if needed. This AI-driven solution will soon be available on the SAP Store. It was developed from our team's deep experience delivering billing solutions in utilities, combined with our Cognizant internal AI initiative.

The solution secured a top-two rating among 21 partners in the SAP global Hack2Build event. And in August 2025, the Case Management AI Agent for SAP officially earned the Business AI Certificate.

This demonstrates our commitment to SAP's standards for security, compliance, and data privacy. In addition, the certification reflects Cognizant's alignment with SAP's AI Responsibility Principles, ensuring that our solution is not only innovative but also ethical, transparent, and trustworthy in its application of AI.

Q: Utilities have been apprehensive about AI because of accuracy, security, and privacy. Are attitudes changing?

I think it's just a natural change and acceptance curve. When utilities first moved from paper to SAP, trust was still in that paper. When you implement technology systems, how do you know the system has it if you can't see it? You gain confidence over time because you use, improve, and continuously gain new learnings that increase reliability and confidence. This builds trust. AI will also follow this curve.

Let me share an interesting story about the solution I mentioned earlier, Cognizant's Case Management AI Agent for SAP solution. The Cognizant team developing this solution had cutting-edge AI technical team members to address those to build the solution, but more importantly we had a veteran utility billing expert who is one of the leading recognized SAP billing experts in the industry. Even she had her doubts about whether AI could deliver! Now she is the biggest advocate for the AI solution, knowing how this would have simplified her utility job in the past. She also has incredible confidence in this solution because security and privacy were also addressed and confirmed in the development process and testing.

So, yes, attitudes are changing. Successes like Case Management highlight why it's the right time to embrace the benefits of AI across end-to-end workflows. Start with quick wins, then build momentum toward tackling more complex digital transformation opportunities. Trust is earned one success at a time.

Q: Which AI or automation use cases are proving most impactful right now in utilities?

Combining AI and automation is proving the most impactful right now. AI-driven automation use cases are the most prevalent because they are fit for purpose. They have targeted actions to take, given specific parameters. AI is increasingly supporting complex, fit-for-purpose needs. Areas in engineering, grid operations, customer services, and financials are other examples.

The following are some other notable areas/examples: AI and automation solutions target customer and employee services (AI-powered chatbots), grid management and operations (AI capabilities augmenting engineering and system operations), cybersecurity (AI capabilities monitoring and

protecting), financial and regulatory (AI capabilities supporting major investment decisions and/or regulatory workload management). As noted, these are very targeted solutions addressing complex, but specific, needs.

We have been discussing several specific use cases that are Agentic AI. Agentic AI can break down the silos and make the data available across the enterprise, which will fundamentally shift the way the processes are defined and operated today. The Case Management solution is Agentic AI. It differs from traditional AI because it can independently leverage enterprise solutions, interpret data, and adapt strategies/approaches to achieve targeted objectives.

Q: With decades of bolt-ons, workarounds, and custom code, how do you approach simplified integration, and what role does AI play in rationalizing that complexity?

We are continuing to see organizations targeting a Brownfield migration with specific improvement outcomes and deliver clean-core solutions within the scope. Also, many of those outcomes are focused on targeted SAP improvements and aligning legacy integration to support the transformed S/4HANA environment.

Another essential component of your "magic" foundation for your "Utility of the Future" is a clean core. When you simplify your architecture and operations, you can be more agile and efficient. Really, regardless of where you are on the scale from Brownfield to Greenfield, your objective is to achieve a clean core with your final SAP S/4HANA solution. It's important to be aware that even with a Greenfield starting point, you will likely find challenges related to the legacy integration layers perhaps holding you hostage to your history of customization.

This is why your initial transformation analysis and planning, typically referred to as Phase 0, are critically important. Regardless of where you are on the spectrum from Brownfield to Greenfield, what is your planned sequence of delivery overtime? As we discussed, we have seen most transformation projects, at this point, result in a Brownfield approach that addresses critical processes now and benefiting the organization by moving to the S/4HANA footprint — the foundation for future improvements. A variation from this is Brownfield with changes to move to new SAP features and solutions, such as Sales and Service Cloud V2 or Field Service Management. These variations identified in Phase 0 drive approaches around the integration between these solutions and other operational or customer systems. The required objective remains the same: stay true to the clean-core principles. This sequence of transitional transformations must be planful. In other words, plan the pathway and stepping stones to your end-state objectives. The key word is "planful" because this early design planning establishes the foundation for the clean core, and the future stepping stones are the clean path for the subsequent transformations.

Cognizant and its SAP transformation partners, such as Natuvion, have developed AI solutions to address the complexities of remediation as well as the preparation and transformation of the data. Development of code could leverage AI and automation to facilitate shorter development times and testing. Leveraging tools like SAP WalkMe provides not only a platform for learning, but a platform for persona interaction (employee or customer) driven by AI to meet the needs of the persona. Agentic AI solutions, such as Cognizant's Case Management, are incorporated into the processes to facilitate increased productivity and customer satisfaction.

Q: From a change management perspective, have strategies evolved, or are they largely the same ideas applied to a new realm?

Strategies have and will continue to evolve as each generation of user communities emerges. Each generation of digital natives will have expectations

or acceptance related to AI, and more importantly an expectation that it is there to assist them in the performance of their work. The need for new strategies and approaches is greater today. That move from paper to technology was a giant step. Just think about these next steps.

We are also in this world where there's stronger external motivation coming from customers, suppliers, and new regulators around this digital footprint. It's an expectation. And from that standpoint, the next-generation workforce will make the decision whether they're going to work for you or not.

When you engage and leverage change management, you create expectations. If you oversell, you're going to under-deliver almost immediately. Make sure people understand why you're making the changes, how the changes will impact the company and them personally, and then enable them through technology, education, and ownership. As mentioned before, digital enablers like WalkMe are great examples. If they don't know how to accomplish something using the new technology, they can get the answer. They don't have to wait. I think expectation management is going to be a greater challenge in this transformation. The time, speed, and desire to deliver the capabilities we have discussed will also have change-management implications.

Q: How can organizations balance AI-driven innovation with the cybersecurity and regulatory rigor that critical infrastructure demands?

As a utility, you may not typically be an expert in all competencies. You are, however, an expert in your space. You put a lot of trust and reliance on your partners. SAP, by design, protects the SAP system from external threats. You will leverage SAP and other cybersecurity protection solutions much as you do today. Many of these cybersecurity solutions are on a parallel path to AI innovation. The development of internal AI capabilities will progressively mature. What utilities should focus on first is bringing the knowledge and rigor of translating regulatory, critical infrastructure, and other utility-relevant cybersecurity and critical infrastructure requirements to the forefront of these emerging solutions.

Early, you're relying on your providers. You are and must be involved with SAP as the transformation continues. You need to be participating in organizations, like ASUG, having dialogue about innovating while implementing and/or maintaining improvements to protect data, security, and system integrity.

In closing, Cognizant can help. We are working with several utilities right now to implement AI solutions for a variety of value-based use cases, from the back office to customer service to field operations and others that support the transformational demands they face.

As utilities plan for and implement these next-generation digital and intelligent systems, as well as the digital transformational changes that go along with them, they can be confident that the journey is worthwhile and achievable. And with a little "magic" they'll become that utility of the future.

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