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Horizon architecture: The hidden superpower for adapting to change and winning in the market

Part 2

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Deloitte's Strategy practice helps the most influential organizations around the world generate measurable outcomes by making winning choices on their most significant strategic issues. We build long-term relationships with senior executives and work together to create effective strategies that cover a broad spectrum of issues. From defining corporate and business unit strategy to identifying new growth opportunities, and more, we use cutting-edge approaches embedded with deep industry knowledge to develop and execute integrated, tailored strategies to meet the future with confidence. Learn more.

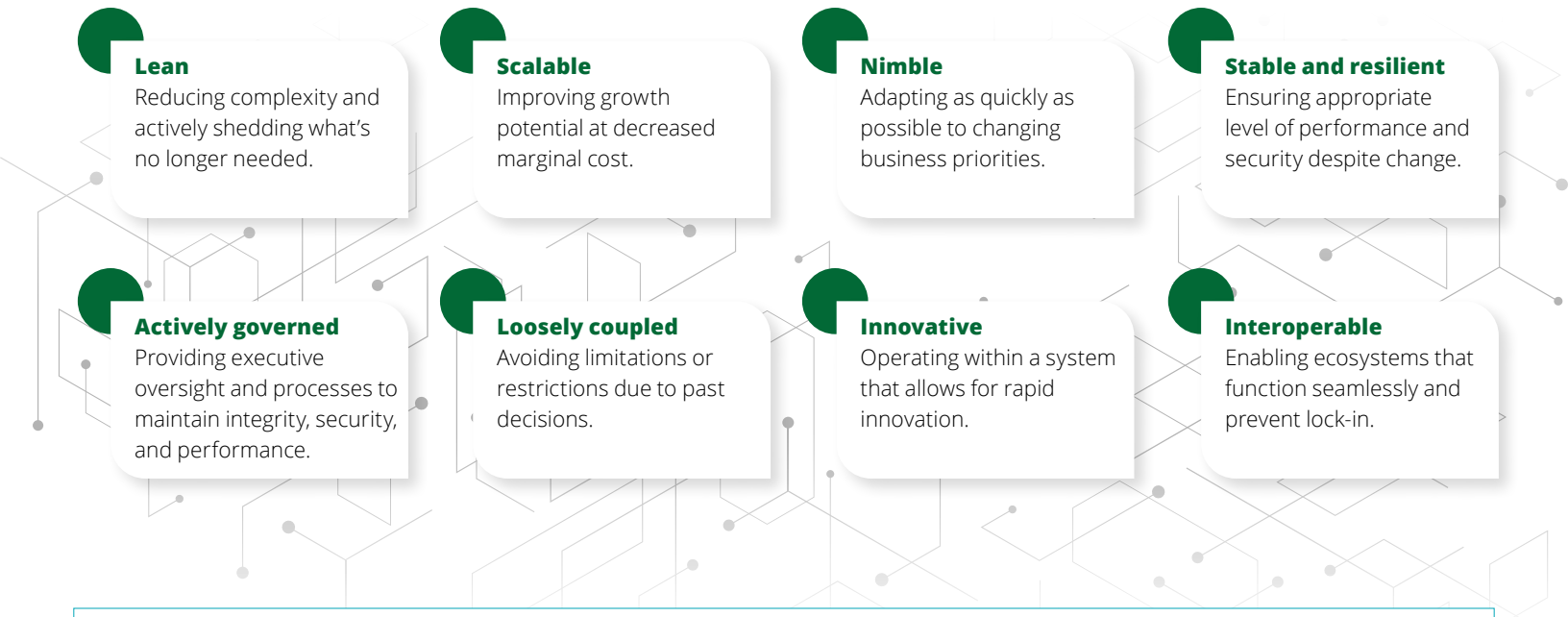
The technology architecture of an enterprise is fundamental to its business and technology strategy—both must work in tandem to drive operational efficiency and growth. In part 1 of our Horizon Architecture (HA) series, we explored how many board and C-suite members are just beginning to shift their attention towards architecture, not fully realizing its critical role in well-crafted enterprise strategies.

As technologies are evolving rapidly and becoming more integral to organizational DNA, the need for strategic conversations on technology architecture and its modernization, design, development, and maintenance also becomes highly important. It is also, surprisingly, one of the least understood forcing functions.

In part 1, we also discussed how companies that have faced significant technology challenges share a few common characteristics: a poorly defined and passively governed architecture function, and insufficient executive and board-level oversight.

In part 2, we dig deeper into the eight defining characteristics of HA (figure 1) that set the stage for an innovative and interoperable architecture. We also demonstrate ways to select, evaluate, and apply relevant characteristics when undergoing common transformative events such as a mergers and acquisitions (M&A) divestiture and cloud transformation.

Figure 1. Horizon architecture characteristics to measure future-readiness:



8 CHARACTERISTICS OF HORIZON ARCHITECTURE

The ability to score highly on these eight characteristics results in heightened business and technology alignment, but not every characteristic may necessarily apply to every organization.

A practical path forward

Many organizations experience the consequences of suboptimal technology architecture, which hinders their ability to achieve their strategic goals. These four steps can help organizations address those challenges and set a strong foundation for HA:

1. Identify and prioritize the characteristics that matter most to the enterprise.
2. Assess the current-state architecture using our maturity scale that evaluates performance from reactive to guided and, ultimately, an aspirational approach.
3. Explore and plan how to improve pertinent characteristics that still need to be at the highest level of maturity.
4. Collaboratively plan a road map for your HA journey.

In this article, we will focus on the first step: Identify and prioritize the characteristics that matter most to the enterprise.

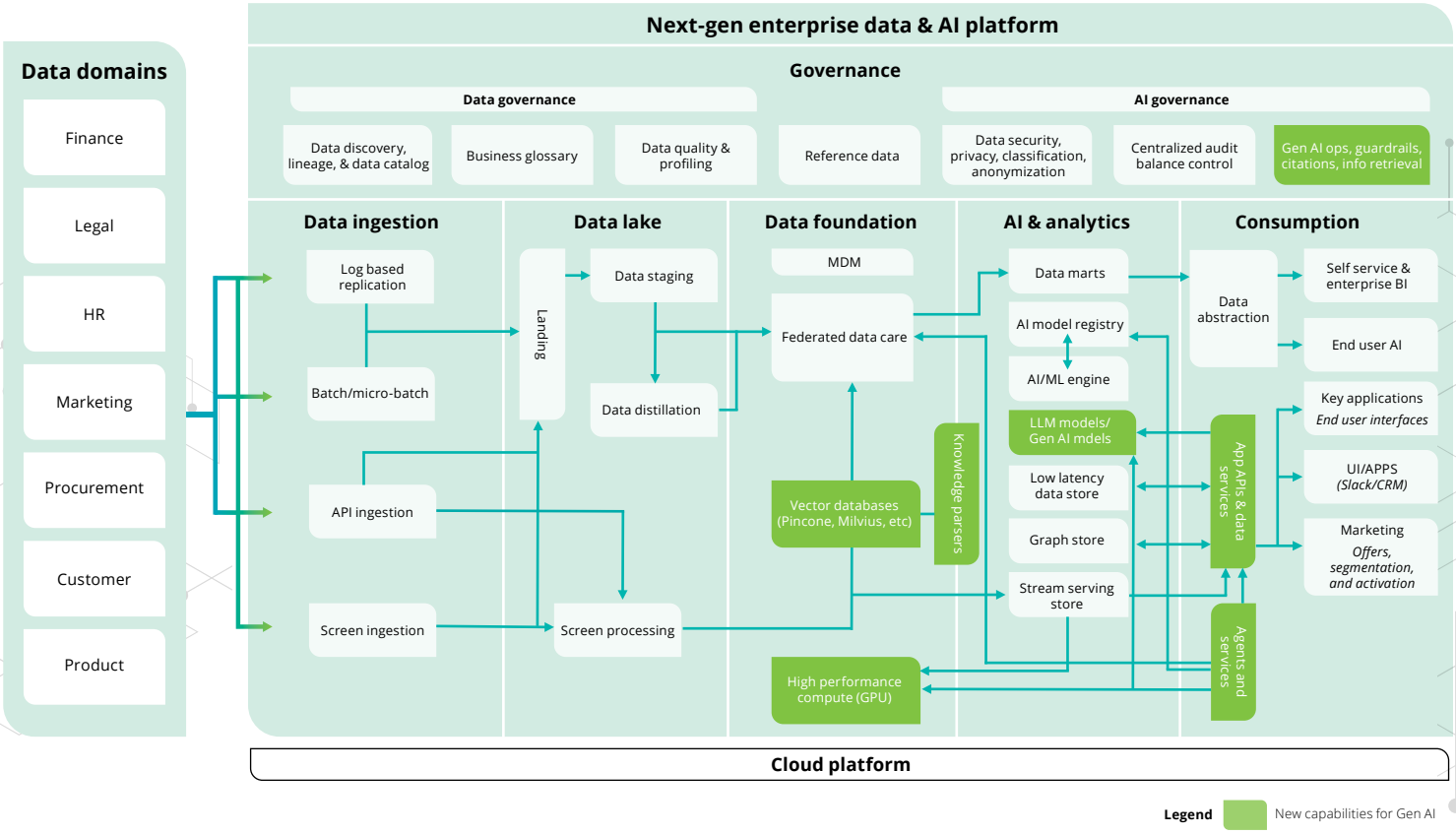
The eight HA characteristics are architecture strategy design options that affect technology performance and business outcomes—whether by directly enabling actions or by removing constraints. To prioritize the characteristics, it is important to understand the focus areas and value delivered by each characteristic.

	Description	Key focus areas	Value drivers
Lean	Avoiding unnecessary complexity by actively shedding what's no longer needed.	Process optimization, waste reduction, and value delivery.	Speed to market, lower operational risks, and less technology debt within the organization as technology landscapes naturally become more complex over time.
Scalable	Engineered for growth potential with equal or better performance at a lower marginal cost.	Scalable patterns and streamlined technology capabilities.	Seamlessly flex the technology landscape up or down to mirror the organization's growth profile without incurring a cost disadvantage.
Nimble	Able to detect and adapt quickly as business priorities change and as the market for relevant solutions evolves.	Agile methods adoption, enhanced collaboration between business and technology teams, change management.	Respond quickly to technology and vendor changes during planning and implementation stages.
Stable and resilient	Built for higher risk resilience in terms of performance and security.	Infrastructure redundancy, distributed architecture, and continuous performance monitoring.	Significant reduction in risks associated with system failure and protection of organizational brand value.
Actively governed	Oversight by top executives who have purview across the entire organization, supported by appropriate processes to maintain integrity, security, and performance.	End-to-end visibility, institutionalized best practices, compliance with regulatory obligations.	Momentum for the architecture effort and the ability to cut through silos to optimize technology spending and drive impact.
Loosely coupled	Modular design that prevents getting locked in or impeded by past decisions.	Plug-and-play components, service-oriented architecture (SOA).	Greater flexibility and agility to adapt to changes in technology or business processes.
Innovative	Having an operating model and landscape that encourages and enables rapid innovation.	Harmonized view, business and tech innovation councils, and rapid prototyping.	Outsized dividends when paired with appropriate digital principles like failing fast and incubation Centers of Excellence (CoEs).
Interoperable	Enabled by "fit for purpose" ecosystems that work seamlessly with each other and prevent lock-in.	Integration of disparate technologies and reduction of customization.	Seamless integration of technology across the organization and its functions encourages reusability, realizing standardization and savings (wherever applicable).

The AI wave is disrupting Enterprise Architecture

As advancements in artificial intelligence (AI), Generative AI (Gen AI), and large language models (LLMs) continue to evolve, organizations should understand that their ability to scale will be dependent on strong architectural foundations. Technology savvy organizations that implement concise and well-defined architectural principles are better positioned to harness the value of AI than their peers. 80% of business leaders believe Generative AI will increase efficiencies in their business.[1] More than half of technology executives are looking to experiment with use cases and Gen AI models and have dedicated budgets factored into their annual roadmaps.[2] However, as organizations look to scale their Gen AI capabilities, they need to have a high degree of nimbleness and implement the right governance controls. From an execution standpoint, there needs to be balance between technology imagination and realistic expectations from Gen AI. Architecture can help balance and drive the results that technology leaders are aiming for.

New AI reference architecture



This is a conceptual reference architecture for the next-gen enterprise data and AI platform, which helps organizations realize their data and AI strategies and enables them to leverage the power of Generative AI. There are different components: data ingestion, data lake creation, data processing using trained LLMs, and the consumption of results. Data and machine learning (ML) governance are positioned across all these steps to ensure the reliability and integrity of data throughout.

Applying the HA lens across these different components will help architects make sound decisions when enabling them. For example:

- Organizations are becoming increasingly aware of the data that they are generating and want to capture and process this data, to generate insights. To enable this, the ingestion mechanism must be **lean** and **scalable**. This will aid in training the LLMs using advanced techniques like Retrieval Augmented Generation (RAG).
- While setting up the data lake, **interoperability** of any variety, velocity, or volume of source data should be enabled by a **nimble** and **loosely coupled** architecture design.
- Data foundations should be **stable and resilient**, capable of identifying and managing critical data elements as well as addressing the harmonization and integrity of enterprise data.
- Gen AI LLMs and analytics layers help extract insights and predict future outcomes based on historical data. Proactive **governance** will ensure standardization of data elements, business data stewardship, and alignment on analytics capabilities across the entire organization.

Case study

A leading global cybersecurity company

Company profile: A growth-oriented company that is data-driven, forward-thinking, and places importance on effective collaboration with both the board and business stakeholders for successful architecture and technology-driven business transformation.

The company embarked on a transformation journey to elevate its foundational technology services, business applications, and data assets by ensuring the architecture met the highest level of maturity for **actively governed**, **resilient**, and **interoperable** characteristics. To facilitate this transformation, a board adviser was appointed, and the CIO proactively engaged with board members, ensuring they were well-informed and involved in key technology decisions throughout the transformation.

"It is very important to get executive buy-in and support from the board to lay out an architecture strategy. Board members and executives need to be tech savvy and realize the implications of technology choices. To make correct decisions, executives need to identify the right KPIs that will guide them in the process. Once the technology is identified and a roadmap is laid out, it is important to engage with the right mix of business and technology leaders in the transformation journey. Working as a unified force means less risk and a more confident approach to making the right technology decisions."
—CIO, global cybersecurity provider

Why should CXOs be aware of the eight HA characteristics?

According to the 2023 Deloitte CEO survey, 67% of leaders have prioritized core business transformation for their organization, and about 52% plan to heavily invest in AI and other advanced technologies.

A **lean**, **scalable**, and **nimble** architecture ensures efficient processes and lower operational risks, which improves overall cost-effectiveness and competitiveness by responding faster to market changes—goals that are very important to the chief operating officer (COO), chief financial officer (CFO), and chief marketing officer (CMO) of any organization. **Stability** and **resilience**, along with an **actively governed** approach, mitigate security and performance risks, which are key metrics for the chief information security officer (CISO). Additionally, these characteristics provide organization alignment and momentum to optimize technology spending and align technology decisions with business objectives, key goals for the chief information officer (CIO) and chief data officer (CDO). Furthermore, the **loosely coupled** and **interoperable** design elements are essential for promoting flexibility, agility, and seamless integration, preventing technology lock-ins, and fostering innovation. These are key metrics for the CIO and chief technology officer (CTO), as they are responsible for technology strategy and ensuring adaptable and innovative solutions.

The eight horizon architecture characteristics become crucial for the C-suite or board as they shape their enterprise strategy and plan for investments. Architectures built in consideration of these characteristics will foster a unified vision for the organization's technology landscape. When the C-suite aligns decision-making with these characteristics, they collaboratively design a comprehensive technology-driven business strategy that promotes growth, drives innovation, and enhances operational efficiency and risk resilience.

The board's awareness of these characteristics goes beyond mere strategizing—it empowers the board to make informed decisions that enable seamless execution of the architecture strategy. With a clear understanding of how these characteristics impact the organization's agility, scalability, and competitive advantage, the board can provide the necessary support and resources to ensure successful execution, leading to the organization's sustainable growth and success in an ever-evolving business landscape.

Here are few examples of HA profiles to illustrate how different organizations select characteristics that align with their business and technology strategy.

Exelon, the nation's largest utility company, adopted **stable, resilient**, and **actively governed** as priority characteristics to adapt to the rapidly changing industry.

"At Exelon, we are focused on delivering reliable and affordable energy to our customers, and one of our big strategic priorities for the next year is to deliver value at speed. In that context, actively governed and stable and resilient are our priority characteristics. We are focused on continuously enhancing and optimizing our governance processes to keep our IT investments focused on and consistent with our business strategy."
—Timothy Webster, Director of Architecture, Exelon

A highly innovative identity and access management company honed the **loosely coupled** and **innovative** characteristics of its architecture to provide greater flexibility and the ability to adapt to business changes quickly with minimal disruption.

"We eliminated the chances of being locked in by past decisions by choosing a modular approach. It allows us to swap technologies, when necessary, in a relatively short time frame, which, in turn, facilitates rapid innovation."
—SVP of Enterprise Engineering

Prioritize and align key HA characteristics with business need and climate

Organizations can make informed decisions on which characteristics to prioritize by reviewing their technology landscape and considering transformative events that might be on the horizon. To further illustrate how organizations can apply different characteristics, we'll examine two transformative events that require mindful prioritization of HA characteristics.

Example event 1: Divestiture

Scenario: An organization prepares to strategically restructure by divesting a business unit

Technology landscape overview:

- Non-standardized processes and redundant technology solutions
- Infrastructure redundancy and need for regulatory compliance
- High technology and business operational debt
- End-to-end architecture for carved-out entity

Prioritized HA characteristics: Lean, stable and resilient, actively governed

Rationale: Maturing these HA characteristics helps unlock strategic flexibility to rebuild the organization's road map for critical paths while driving governance and compliance. Given the enhanced legal and federal scrutiny that a divestiture event requires, the highest focus should be on **active governance**. Architecture needs to be **stable and resilient** during a divestiture to ensure that services are not disrupted. Most importantly, resilient architectures support the rate of change that the new spin-off organization expects and needs. Having a resilient architecture allows the new entity to respond to changes, thus mitigating high risks that could have an impact on financials and brand value. It is also equally important that the carved-out entity architecture is **lean** to ensure complexity is not carried over from the parent entity.

A second priority would be to support **scalable**, **innovative**, and **interoperable** systems. This includes standardizing processes, maturing technology standards, and streamlining technology architecture to reduce customization. Finally, performing in a **nimble** and **loosely coupled** way can happen more organically at a lower priority.

Maturity of horizon architecture characteristics to succeed during a divestiture

HA characteristics	What does it mean?
Lean Stable & resilient Actively governed	• Unlocking strategic flexibility to rebuild a roadmap for critical paths • Driving governance and compliance • Streamlining tech estate for less redundancy and technical debt • Ensuring security operations can withstand disruption

Example event 2: Cloud transformation

Scenario: A company transitions from on-premises legacy applications to cloud

Technology landscape overview:

- Legacy applications that are on old technologies such as mainframe and need to be migrated to cloud
- Large on-premise/data center presence with significantly high technology debt and limited service-oriented architecture design
- Collaboration across business and technology teams to migrate prioritized workloads

Prioritized HA characteristics: Scalable, nimble, and loosely coupled

Rationale: Based on a need for a faster go-to-market and rapid deployment of digital products, an organization undergoing cloud adoption must have a high degree of interoperability in its technology landscape. This means creating **scalable** designs that leverage cloud-native services and embrace an API-first approach, rather than relying on legacy applications. Services designed in the cloud also point to **loosely coupled** and **nimble** characteristics: disruption to one service minimally impacts other services, enabling a quick response to change and operating consistency. Next, to become **leaner** and more **interoperable**, the organization should streamline existing processes where there is scope for automation and reduce customizations. It might implement DevSecOps practices to foster **innovation** through rapid prototyping. And lastly, as the company evolves, it must design, measure, and manage business processes that are **stable and resilient** as well as **actively governed**.

Maturity of horizon architecture characteristics to succeed in digital transformation

HA characteristics	What does it mean?
Scalable Nimble Innovative Loosely coupled	• Designing for scalability by leveraging cloud-native services • Embracing an API-first approach • Implementing DevOps practices to foster innovation via rapid prototyping

Build a foundation for the future

As evidenced above, it is not practical and cost-effective for an organization to be performing extremely well against every HA characteristic. For example, it's possible to be highly nimble but still be nascent in scalability efforts. Plus, adopting each characteristic requires substantial effort and investment. It's critical to analyze which characteristics your organization should focus on in the near term to build a strong foundation for future improvements.

Curious where to go from here? Please stay tuned for the next part of our series on horizon architecture, where we will dive into second, third, and fourth steps:

- Assess the current-state architecture using our maturity scale that evaluates performance from reactive to guided and, ultimately, to an aspirational approach.
- Explore and plan how to improve pertinent characteristics that still need to be at the highest level of maturity.
- Collaboratively plan a road map for your HA journey.

References:

[1] https://www2.deloitte.com/xe/en/insights/focus/tech-trends/2024/tech-trends-future-of-generative-ai-technology-and-llm-for-businesses.html

[2] https://www2.deloitte.com/us/en/pages/chief-executive-officer/articles/ceo-survey.html

Share your journey with us

To learn more about how Deloitte collaborates with our clients on their horizon architecture journeys, or to share your insights with our horizon architecture leaders, please visit our website or contact our Technology Architecture and Platforms leadership team:

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