

Digital Innovation value: The whole being greater than the sum of the parts

Rapid, often disruptive, successful innovation are defining characteristics of today's industrial landscape; and its rate of change is increasing. More complexity in product and process, new discoveries, technology evolutions and morphing business models all act to disrupt historical innovation methods. Those who aspire to differentiate, achieving more from their innovation processes must now find new ways to achieve better performance and get more return from their innovation assets.

Digital transformation is fundamental to delivering a new, fit-for-today and tomorrow's innovation paradigm. In this transformation, oft-disconnected workflows and technologies of old have (little or) no place. Gains must come from efficiencies across all areas; from earliest product requirement through design, manufacturing, in-use operation, service and disposal; within the company, between its partners and through design and supply chains. In addition, objectives for transformational 'Digital Innovation' aren't just focused on the needs of large and mid-sized enterprises, they must also fit to smaller companies; those looking to box above their weight.

The ability of a company to transform itself into a truly Digital Enterprise* is defined by their effective use of technology. As an important part of this strategy, the prospects of Digital Innovation, have moved on apace; beyond oft-disjointed operational and engineering acronyms such as Product

**Digital Enterprise is a term that describes an organization and its application of digital technology for business advantage across internal and external operations.*

Lifecycle Management (PLM), Asset Lifecycle Management (ALM), Manufacturing Executions Systems (MES) and Service Lifecycle Management (SLM). Digital Innovation now aspires to be a unified technological ecosystem; where each acronym plays an important role, but in concert and in harmony.

Moving the company's innovation vision to a more effective digital underpinning requires constructive change. Achieving this change in practical timescales, mindful of budget, resource and operational constraints, companies will want to consider more open, flexible and performant foundations to their Digital Innovation

infrastructure; one whose proposition makes the whole of much greater value than the sum of its parts.

Strategies and tactics

Technology for technology's sake has no value. However, technology aligned with sound management, business objectives, strategies, tactics and metrics are defining characteristics of the most highly valued companies in the industrial sector. This observation is also true with regards to innovation. Delivered in context of business objectives, successful innovation means better business outcomes, more satisfied customers and more motivated employees.

Transformational innovation strategies are necessarily company-specific—at the intersection of technology, process and culture. No matter how good strategies may be initially, the opportunity to improve and evolve is ever present, especially given changing market conditions and technology breakthroughs. Because of this evolution, companies might consider first thoughts on:

Leaders have a clear innovation strategy
The leading innovators in our study understand the importance of having a coherent innovation strategy:
79% of the top innovators tell us they have a well-defined innovation strategy compared with only 47% of the least innovative companies. They recognise the need for a clear innovation strategy as the foundation for successful execution.

Source: [PWC Breakthrough innovation and growth](#)

- Embedding and enabling creative **leadership** and active (executive) management.
- Aligning strategies and the technology roadmap with business **objectives**, and making these SMART (Strategic, Measurable, Achievable, Relevant and Targeted)
- Updating and formulating **methods** and best practices focused on improving innovation efficiencies and optimizing costs.
- Developing a technology **ecosystem** allows digital assets to flow between previously siloed functions, with a focus on practical results.

The solution is one greater than the sum of the digital parts

A company's digital enterprise vision should aspire to a goal of digital cohesion, not fracture, and deliver insights and facts, not presumptions. This can only be achieved when innovation assets are more than just a series of applications and data. They should, in fact, be parties to a platform, a Digital Innovation Platform.

In its most simple form, a Digital Innovation Platform is an open technology framework and operational business structure that allows companies to benefit from, create and integrate digital assets that deliver to their innovation objectives. This Digital Innovation Platform reinforces the impetus of the company's overall Digital Enterprise proposition; its goal being to enhance business outcomes, deliver more satisfied customers and motivated employees by simplifying and standardizing interactions across disconnected technologies and business processes in the innovation pipeline. For example:

- Using standards-based, open-framework technologies to underpin the Digital Innovation Platform, means companies can more effectively integrate critical digital assets across the innovation lifecycle; immersing people, software, data sets and equipment. For example, closed-loop integration of digital assets created in design and development, with people making use of these in manufacturing, perhaps on machine tools, and in quality and service departments. Negating complexities of proprietary connections, and ensuring interaction across historic domain boundaries, for instance those across electrical, mechanical and software development ecosystems, means that companies can save costs and time.
- Valuable insights can be made from intersects between people, data and workflows; be they internal or external, across time, location or domain. What may once have been singular insights and processes can now be turned into much more valuable assets for a broader audience in the company. Analytics, and the likes of AI (Artificial Intelligence) and Machine Learning can be used by people to more rapidly evaluate and gain unique companywide understandings from often

latent, perhaps previously disconnected data sets and situations, and actioned appropriately. Data is a practical source of new business opportunities for the company, and created, managed, understood and connected it forms the foundation of the digital thread, with immense lifecycle and business value to products, operations and customers.

- Make it more valuable to innovate and collaborate among multiple teams, in different departments and through distributed geographic situations; by lowering barriers that might have existed between people, departments, processes, customer, supplier and partner ecosystems. These barriers cause negative effects on the business through lost time, money, quality and poor customer satisfaction, often because of misunderstandings, lack of common, perhaps disconnected business workflows.

From vision to reality

In the industrial sector, the sophistication of today's smart products and their associated manufacturing processes, places business demands on companies to harness the complexities of multi-domain systems and products. This requires us to create, share and move through increasing levels of fidelity of digital twin at each stage of the products' life; all are key attributes in the transformation to the digital enterprise.

Demanding customers, rapidly morphing products and business models, corresponding design, manufacturing, and service workflows continue to provide valuable opportunity for innovation, possibly even re-invention. It forces consideration of new strategies, both business and technological. The prospect of a Digital Innovation Platform underpinning those strategies; one that delivers more than the sum of its constituent parts might, to some, be aspirational; but as can be seen from current technologies, it's much more a present-day possibility.