



FEATURE

## Forget fail fast

How a customized and adaptive strategy can drive your digital supply network

Richard Bradley and Meg Alderman

As companies begin to use digital supply networks, they face challenges in scaling pilots to an enterprise level. Moving beyond the mantra of “fail fast” to a more customized approach may be the solution.

**D**IGITAL SUPPLY NETWORKS (DSNs) offer a profound vision: the transformation of linear supply chains into dynamic, interconnected, and open systems. By integrating information from many sources and locations, businesses can attain a holistic view of what’s happening, where and when. In short, a DSN can transform the way organizations make, move, and manage goods and services. To test such new capabilities, organizations often begin with small pilots to prove the business case for a large technological investment. Where they find themselves challenged is scaling those pilots to an enterprise level. To simply pilot is not enough, and failing to scale successful programs leaves significant opportunities untapped.

As they seek to scale DSN capabilities, most business leaders don’t always have to navigate uncharted territory these days. Many DSN applications that were once considered bold leaps of faith have evolved into standard capabilities. Leveraging the

proven business cases of others, who have successfully scaled these capabilities into enterprisewide solutions, can help create a more informed, targeted path for an organization’s own evolution. It can also provide a roadmap to scaling that doesn’t have to involve failure. On the other hand, identifying which innovations have not been *truly* proven may help leaders understand how—and when—to invoke a more traditional approach to piloting, learning, and scaling.

The following sections explore and analyze these criteria that can help organizations scale successfully:

- Understand why the mantra of “fail fast” may no longer be appropriate in many cases;
- Understand potential DSN tactical archetypes;
- Build archetype-appropriate strategies for success at scale; and
- Build a programmatic approach to DSN plans.

## A BRIEF LOOK AT THE DIGITAL SUPPLY NETWORK

In Deloitte’s first publication of this series, *The rise of the digital supply network*, we examined how supply chains traditionally are linear in nature, with a discrete progression of design, plan, source, make, and deliver. Today, however, many supply chains are transforming from a static sequence to a dynamic, interconnected system—the digital supply network—that can more readily incorporate ecosystem partners and evolve to a more optimal state over time. Digital supply networks integrate information from many different sources and locations to drive the physical act of production and distribution.<sup>1</sup>

In figure 1, the interconnected lattice of the new digital supply network model is visible, with digital at the core. There is potential for interactions between each node and every other point of the network, allowing for greater connectivity among areas that previously did not exist. In this model, communications are multidirectional, creating connectivity among traditionally unconnected links in the supply chain.

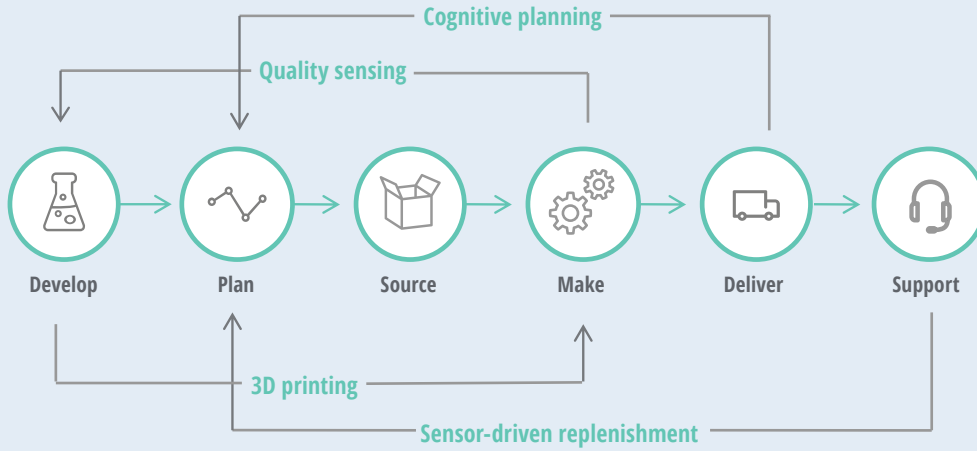
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## A BRIEF LOOK AT THE DIGITAL SUPPLY NETWORK, CONT.

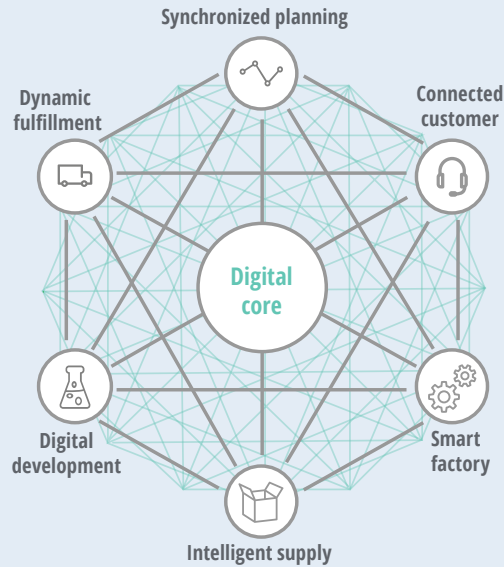
FIGURE 1

### Shift from traditional supply chain to digital supply network

#### Traditional supply chain



#### Digital supply networks



Source: Deloitte analysis.

## Brave new world: Finding a path to DSN success

DSNs allow businesses to create new sources of revenue by providing new and faster access to markets. They can also support the production of smart products, enable more informed decisions, and allow systems to adapt and learn from the world around them, driving more flexible processes. What's more, the interconnected, smart technologies that drive DSNs—a phenomenon known as

## When building DSN capabilities, business leaders often start with a lofty view of innovation, and are encouraged to think big, start small, and scale fast.

Industry 4.0—can lead to changes that could positively affect the broader world, socially and economically. But the path to successfully implementing advanced technologies and scaling DSN capabilities is often considered somewhat nuanced.

In a recent Deloitte global survey of more than 1,600 C-suite executives in 19 countries, only 18 percent said they felt their organizations were highly prepared to address smart and autonomous technologies; only 8 percent felt there was a strong business case for new solutions.<sup>2</sup> Some executives pointed to a lack of internal alignment about which strategies to follow, as well as inadequate collaboration with external partners, “short-termism”, and few plans for how to scale or where in their business to do so. In other words, it seems that many organizations reportedly struggle not only to make the business case for new solutions, but to scale them at an industrial level. In another study, numerous executives reported that their digital transformation initiatives were much more often driven by a desire to improve current processes than a need to seek innovation or new business models.<sup>3</sup>

When building DSN capabilities, business leaders often start with a lofty view of innovation, and are encouraged to think big, start small, and scale fast.<sup>4</sup> *Thinking big* means considering the totality of what might be possible, immersing oneself in innovation and understanding the ecosystem. *Starting small* requires taking that big-picture thinking and applying it to an initial pilot project, starting with one or two transformations and giving the innovators permission to fail as they learn the ropes. *Scaling fast* is perhaps the most challenging, and possibly the most critical aspect: knowing when—and how—to scale those small pilots up to the organizational level, prove success, and market that success. Behind this view is the idea of failing fast, which has long been a mainstay of technology companies and has pervaded the general business consciousness with respect to building new technology capabilities.<sup>5</sup>

## Beyond “fail fast”: Learning from others to move beyond the mainstay

Many organizations pursue an intensive and immersive experience with emerging Industry 4.0 technologies, then identify use cases to pilot and expect them to fail fast. This can set the expectation that a use case can—and should—require minimal investment, with the project ended as soon as the hypothesis has been disproved. Complementing this process is the notion of “failing smarter”: failing fast but learning from the experience as part of a continuous improvement strategy.<sup>6</sup> The individuals testing new business models should have the license to either gain market traction or fail smartly. True innovation can often require such permission to fail; otherwise, innovators may feel the risks of trying something truly new are simply too high.

At a certain point, however, some use cases evolve and should no longer be regarded as innovation with an apt “fail fast, fail smart” mentality.

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Instead, they should be fundamental bases of operations. The rapid rise of 4.0 technologies may seem dizzying, but some DSN use cases have matured; what were once considered unproven innovations—“killer apps” such as predictive maintenance and the digital twin, among others—are now largely proven, or even standard, capabilities for many. Failing to build these tools can mean leaving opportunities untapped.

Predictive maintenance, for example, can reliably increase uptime and availability in most industries, leading to positive impacts within the first year. Unplanned downtime can decrease and maintenance costs shrink in a matter of months. Reduced labor costs and higher-quality products are additional benefits.<sup>7</sup> In fact, there are very few instances where predictive maintenance *cannot* have a positive return on investment; organizations can choose from many successful, real-world use cases to learn and build a convincing business case for investment, then develop a model for their own efforts.<sup>8</sup>

In another example, blockchain and augmented or virtual reality (AR/VR), among other technologies,<sup>9</sup> are being deployed within supply chains, in various ways and at various levels<sup>10</sup> (see sidebar, “Technology vs. use case”). Their potential benefits have been well documented in many business models and industries—particularly manufacturing, industrial products, and oil and gas exploration. Examining how others have scaled these types of capabilities into enterprisewide solutions can help inform a targeted path for your business’s own evolution.

## Selecting the right strategy: A new model for scaling fast

AS FORMERLY CUTTING-EDGE capabilities could become increasingly proven and fundamental to DSNs, decision-makers can replace the fail-fast model with more customized piloting and scaling, based on two key aspects: the **maturity of the use case** and the **position of the use case** within the organization’s business model. This new approach allows organizations to build a constellation of pilots that can deliver rapid business impact. By changing the lens used to view what your business is piloting, you can put the focus on configuring approach and capabilities to fit strategy and priorities.<sup>11</sup>

### MATURITY OF THE USE CASE

Maturity can be assessed in distinct ways. One way is the extent to which a use case has been deployed industrially and in a production environment—has the capability been used in the real world? A second is the maturity of the quantitative benefits from such a deployment—have we seen measurable results over a long enough period to assess its impact?

In general, a use case can be considered mature if it:

1. Has been deployed industrially and at production scale;
2. Has delivered a positive net return on investment to date; and
3. Is expected to continue that return on investment at scale.

There is one belief that use cases need to have been deployed in a comparable industry for organizations to assess their maturity and apply the results for their own use. However, recent research has shown that you need not limit your organization to analogous peers; looking across industries for use cases is positively linked to more successful innovation.<sup>12</sup> For mature use cases, outcomes and returns on investment can be industry agnostic.

Even if you encounter a lack of deployment in comparable industries, you can build a compelling business case for piloting and scaling DSN capabilities.

#### POSITION OF THE USE CASE: CORE VS. PERIPHERY

Assessing the position of a use case means evaluating where it sits within the business model. The *core* of an organization is where resources are presently deployed: typically, the primary capabilities and main revenue streams. The *periphery* represents the peripheral areas of the organization, where new business models with high growth potential are explored.<sup>13</sup> More simply put, the core of a business is typically focused on internal productivity, whereas the periphery is generally focused on driving revenue from externally focused activities.

## Building the right approach: Assessing both aspects to scale smartly

Combining a use case's maturity and position can determine the approach to scaling DSN capabilities for your business. It's an approach that mimics the adoption curve for Industry 4.0 in general:<sup>14</sup> As organizations begin to scale and monetize use cases, they typically focus first on improving operations and productivity—the same things they have always focused on, but aiming for better and faster results. Only after they have mastered those relatively lower-hanging fruit, and built a strong foundation of proven DSN use cases, do most businesses tend to progress to capabilities that generate new streams of revenue and lead to new business models.<sup>15</sup>

To build a strong DSN foundation on top of proven use cases, decision makers can use four archetypes (figure 2) to help identify the business's current position, and gauge the capabilities and justification needed to pilot and scale more-innovative use cases.

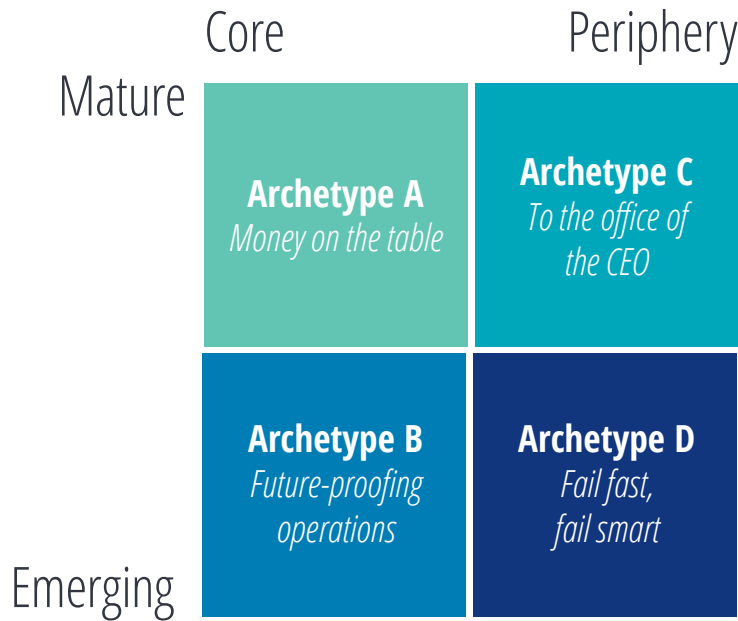
#### TECHNOLOGY VS. USE CASE

In the past 18 months, blockchain has been widely discussed and seems to have sparked significant enthusiasm as an important technology. It has not been uncommon for many organizations to gravitate to blockchain's market potential and embrace pilots that feature the use case as a secondary consideration to the technology itself. The challenge to adjust these priorities appears all too real: In the rush to build a proof-of-concept for an exciting new technology, the original challenge—and the use case or capability that may help solve it—can be quickly obfuscated by the technology itself. The effects are also significant; applying immature technology to a mature use case could be detrimental, with technology that could be applied to other, critical use cases disregarded as unable to live up to its promise.<sup>16</sup>

The problem could lie in confusing the steps at the pilot planning stage. It is rarely good practice to pick a technology, and then pick a use case. Instead, consider starting by absorbing a deep understanding of the issue you are trying to solve or the opportunity you are trying to harness, which is of primary importance; the choice of technologies that can enable solutions would follow. In other words, before implementing a new, specific technology, take a step back and think strategically about what is needed and why.

FIGURE 2

**Tactical archetypes of DSN use cases, categorized by maturity and position**



	Archetype A	Archetype B	Archetype C	Archetype D
<b>Typical P&amp;L impact</b>	Operations and productivity	Operations, productivity, and revenue	Revenue	Revenue and new business models
<b>Typical examples</b>	<ul style="list-style-type: none"> <li>• Predictive maintenance</li> <li>• Demand-sensing</li> <li>• Control towers</li> <li>• Quality-sensing and prediction</li> </ul>	<ul style="list-style-type: none"> <li>• Autonomous trucks and delivery optimization</li> <li>• Automated sales forecasting and replenishment</li> <li>• AR/VR</li> <li>• Dynamic load-balancing and replenishment</li> <li>• Model-based design and manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>• Data as product or service</li> <li>• Ultra-delayed differentiation</li> <li>• Predictive after-market maintenance and service</li> </ul>	<ul style="list-style-type: none"> <li>• Make-to-use with 3D printing</li> <li>• Direct-to-consumer drone delivery</li> <li>• AR-enabled customer support</li> </ul>
<b>Internal sponsor/s</b>	Supply chain and operations	Supply chain and operations	CEO and operations	CEO and operations
<b>Key criteria for success at scale</b>	<ul style="list-style-type: none"> <li>• Focus on vendor selection and technical maturity</li> <li>• Clear statement of intended value of use cases</li> <li>• Trusted integrator partner with clear experience</li> <li>• Clear focus on skills and talent development</li> </ul>	<ul style="list-style-type: none"> <li>• Focus on the use case, not the technology</li> <li>• Strong links to innovation</li> <li>• Forward-thinking supply chain and operations leaders</li> </ul>	<ul style="list-style-type: none"> <li>• Early market traction in new business model</li> <li>• Supply-chain organization with influence</li> <li>• Clear C-suite sponsorship</li> <li>• Focus on skills and talent development, especially cross-functional skills transfer</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to fail fast with embedded culture of continuous improvement</li> <li>• Clear C-suite sponsorship</li> <li>• Strong internal stakeholder alignment and links to startup environment</li> </ul>

Source: Deloitte analysis.

## ARCHETYPE A: MONEY ON THE TABLE

Archetype A denotes mature, proven use cases at the core of a business: the low-hanging fruit of an organization's DSN. Because the use cases often focus on improving current processes, they typically have an almost immediate impact on an organization's bottom line—specifically, a reduction in the cost of goods sold through manufacturing or supply-chain efficiencies.

A broad range of use cases can fall into this group, including predictive maintenance, demand sensing, control towers, and quality sensing and prediction, all of which have already shown business benefits at scale across industries.<sup>17</sup> Many automotive companies, for example, are using tools such as predictive quality analytics at scale to identify warranty issues before they turn into major recalls; predictive maintenance use cases can also be considered compelling and are used by many organizations to reduce downtime and lost production.<sup>18</sup>

Given the multitude of proven initiatives, use cases in this category can be considered “money on the table,” and should be a core component of a DSN strategy. By studying the successes of others who have built and scaled these capabilities, organizations can be well-positioned to achieve success without the need to first “fail fast.” To scale effectively, select vendors with proven technical maturity and partners with clear, documented experience; align leaders on a clear direction and statement of intent about why they are pursuing a use case; and develop the skills and talent to implement and use the capabilities successfully.

## ARCHETYPE B: FUTURE-PROOFING OPERATIONS

Archetype B consists of use cases being developed or driven by parallel advances in technology, and affecting the core of a business, specifically operations. This can mean a blurred line between technology and use case, particularly as organizations may still be trying to decide the most relevant areas for a technology. In this way, use cases of this type are somewhat less proven, but still driven by increasingly accepted, and even standard, technologies.

Artificial intelligence (AI) is an example of a technology that is fostering DSN use cases, particularly in planning. Statistical forecasting has long been

a mature use case, typically enabled by a range of supply-chain planning technologies, but developments in AI and cognitive computing have begun to drive more predictive and intelligent planning capabilities.<sup>19</sup> Such technology is also being used to power driverless trucks in warehousing and logistics strategies.

Although the use case of intelligent, automated sales forecasting and replenishment is not yet fully mature, it offers a potentially significant opportunity for scaling because it drives the core business of an organization. This could be particularly relevant as more organizations connect their systems to develop DSNs, thereby harnessing a broad scale and scope of data over time and geography, to enable intelligent forecasting. In addition, some mature use cases in this category do make convincing business cases for such scaling; for example, one organization realized a 40 percent improvement in the quality of its sales forecasts across 600,000 SKUs.<sup>20</sup>

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AR/VR is another example. NASA has been researching virtual reality since the mid-1990s, to train astronauts in spacewalking, but you don't have to be part of NASA to realize the potential business benefits.<sup>21</sup> Proven AR/VR use cases are proliferating: for quality control and to help workers spot defects;<sup>22</sup> in logistics, inventory management, and order picking;<sup>23</sup> for maintenance; in training;<sup>24</sup> and for end-to-end visibility throughout the DSN.<sup>25</sup> Airbus used AR/VR to reduce the inspection time for 60,000 to 80,000 brackets in the fuselage of one of its jetliners, to three days from three weeks.<sup>26</sup> Within the automotive industry, some major brands are using virtual reality to assess prototype builds, and applying it in sales: Customers can now try out different features of cars before buying.<sup>27</sup>

For organizations that seek to scale use cases to “future-proof” core DSN operations, consider focusing on the use case, not the technology, to ensure you are steering toward applications that can propel the business forward. Then begin to move toward an incubator-like approach, as seen in the fail-fast model, emphasizing innovative, startup-driven uses of technology that can power capabilities that are core to the business.

#### ARCHETYPE C: TO THE OFFICE OF THE CEO

Archetype C focuses on applying tested, proven use cases to *new* business models: pursuing new forms of revenue at the periphery of the organization, rather than streamlining operations and productivity at the core. In this archetype, the focus on new revenue models elevates the DSN beyond the supply chain to decisions made by the chief operating officer (COO) and the CEO. Success in this archetype requires significant collaboration across an enterprise, whereby the chief supply chain officer brings operations expertise to support the company's growth into new product segments and markets. In this way, decision-making and business processes could change, and an organization could move closer to the connectivity and end-to-end visibility, which are the hallmarks of a fully realized DSN.

Given the focus on revenue growth, use cases in this category tend to focus on the customer, whether via new products and services or aftermarket support. Two examples are data from connected systems offered as a product/service unto itself, and ultra-delayed differentiation.<sup>28</sup>

To succeed at scale with use cases in this category, consider the importance of the first-mover advantage. Gain early market traction in new business models, empower the supply chain to engage in technology investment discussions,<sup>29</sup> ensure C-suite buy-in for scaling new initiatives, and focus on developing skills and talent to manage new capabilities—specifically, cross-functional skills, given the broader need for collaboration in this archetype.

#### ARCHETYPE D: FAIL FAST, FAIL SMART

Archetype D brings emerging use cases together with peripheral business models, representing typically the riskiest, most innovative components of a DSN. In these cases, a return to the “fail fast, fail smart” mentality is recommended, using small-scale pilots to build a business case. In 2017, Iceland's leading e-commerce platform, AHA, partnered with Israeli company Flytrex to pilot direct-to-consumer drone delivery.<sup>30</sup> Although the use case for drones is relatively mature, its expansion to direct-to-consumer deliveries is far from proven, not least due to the evolving nature of regulations. Another example in this category can be found in make-to-use applications of additive manufacturing (AM), extending beyond proven AM use cases of prototyping and specific production runs. AR-enabled customer support also qualifies as an Archetype D use case.

Given that use cases in this category are often completely new, and rely on relatively unproven applications of new technologies, both the CEO and COO will likely be involved in decisions to invest. To nurture success, foster a culture of continuous improvement, allow teams to fail and learn, and encourage a startup mindset and environment. Clear C-suite sponsorship can be critical here, as well as strong stakeholder alignment on the goals for each endeavor.

## Select a winning constellation to scale successfully

It is important to approach each initiative individually, gauging its respective maturity and position within the organization. However, to deliver a truly connected, “always on” DSN frequently requires multiple initiatives. In other words, businesses may have use cases in multiple archetype categories simultaneously, based on their needs, risk appetites, and internal and external factors. Each typically needs a comprehensive and connected strategy for scaling. Consider taking advantage of the following methods to help build a balanced portfolio of scalable results:

1. Use the DSN strategic choice cascade, as described in Deloitte’s *The rise of the digital supply network*,<sup>31</sup> to decide where to differentiate: speed, agility, service, cost, quality, or innovation.
2. Identify relevant areas of focus for supply-chain transformation and configuration that could support the selected differentiation areas.

Consider the archetype model to segregate and prioritize use cases to develop accordingly, for maximum success.

3. Build a balanced portfolio of DSN tactics that support those transformation/configuration areas. These tactics would depend on many factors, both internal (e.g., current performance metrics and risk appetite) and external (e.g., competitive pressure and the current regulatory landscape).

An organization in an industry characterized by wafer-thin margins may choose to adopt a tactic portfolio predominantly comprising Archetype A use cases, with a few resources dedicated to Archetype B. Similarly, an organization whose supply chain is not a core part of the business may wholly focus on Archetype A. A business with strong efficiencies, substantial existing investments in its DSN, and supply chain and operations representation at the C-suite level may focus on Archetype C, taking its proven use cases internally and developing new business models. Archetype D adoption



may be best suited to innovative organizations that are open to embracing risk. Whatever the specific needs of your business's stakeholders, consider tailoring your constellation of initiatives to them, laying the foundation for scalable results.

## Conclusion

In the aforementioned Deloitte global survey of C-suite executives, 87 percent said they believed Industry 4.0 will lead to more social and economic equality and stability. They regard technology as an equalizer, providing more access to education, jobs, and financing across geographies and social groups.<sup>32</sup> DSNs can provide an effective way to harness these technologies to bring about more connected organizations.

Organizations seeking to build DSNs should adopt a customized strategy that builds upon the lessons of others' successes—not just in analogous industries but further afield. Rather than using a blanket approach to starting small and cycling through failures, tailor DSN tactics by archetype, based on the maturity of the use case and its position within the organization's business model. This focus on archetypes means that the right lens is trained on success from the start, by matching strategies to specific needs. First and foremost, you should become intimately familiar with the issue you are trying to solve, or the opportunity you are trying to harness; from there you can choose from the myriad of technologies that can bring about real and lasting improvements.



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