A Framework to Speed Manufacturing’s Digital Business Transformation

Manufacturers must fully embrace social, mobile, analytics and cloud technologies to achieve the operational excellence, agility, innovation and customer centricity required to remain relevant with customers, business partners and the entire manufacturing ecosystem.
Executive Summary

Businesses across the globe are changing fast, driven by emerging digital technologies. Some are leading this revolution and defining trends, while others are taking a wait-and-watch approach. In either case, the undoubted winner is the customer. With unprecedented information availability, product choices and channel options, customers can call the shots. The race to identify and deliver on ever-changing customer needs is gaining momentum as new players with novel business models challenge the establishment.

This white paper highlights the challenges and opportunities that manufacturers face as a result of this changing business landscape. We cite several industry examples to illustrate how digital leaders in the manufacturing space, such as Mercedes-AMG and Dow Chemical, are defining new boundaries for performance and efficiency.

The paper also elaborates on four interconnected mandates that manufacturers must embrace through emerging digital technologies:

- **Operational excellence**: Productivity and efficiency across processes and functions.
- **Agility**: Response to internal and external changes.
- **Innovation**: Initiatives leading to cost reductions and new revenue opportunities.
- **Customer centricity**: Meeting customer expectations.
Manufacturers can determine their level of maturity for each area by assessing three critical organizational attributes: leadership support, execution mechanisms and performance management through KPI tracking and management accountability. This paper can help organizations rate their digital capabilities and benchmark themselves against competitors, using our recommended reference framework and scoring mechanism.

Finally, we present an approach for developing a transformation roadmap and implementation approach built on our digital maturity framework. Throughout the paper, we draw on insights from some of our large transformational engagements across various manufacturing organizations and geographies, as well as primary research, such as our informed manufacturing CxO study (see our white paper “Informed Manufacturing: Reaching for New Horizons”).
Understanding Global Manufacturing Trends and Digital Imperatives

Manufacturers today face a changing business paradigm, in which emerging technologies are forever changing how products are made, service is delivered and business is conducted. Embedded technologies are enabling manufactured products to be more “informed;” new stakeholders with innovative products and services are entering the ecosystem; traditional supply chains are being disrupted through new channel options; and, above all, customers are demanding an ever-increasing level of customization, not just in products and services, but also across the entire procurement and product usage experience.

These trends have not changed traditional business fundamentals of profitably delivering products and services that meet customer needs. Manufacturers continue to be laser-focused on customer centricity, and are committed to achieving operational excellence to attain cost and quality leadership. They are also pursuing agility and flexibility to adapt to changes in the external and internal environments, as well as delivering innovative products, processes and business models to meet sustainability objectives.

What is new, however, are the technological developments of the last decade. Advances across the so-called SMAC Stack (aka, social, mobile, analytics and cloud) and the Internet of Things (IoT) have enabled a wide range of applications that were previously unimaginable. Today, the objective is to use modern technology to do the same things in a dramatically more efficient and effective way.

Our experience working with multiple manufacturers, as well as insights gleaned from primary interviews with numerous industry stakeholders, points to four key mandates that manufacturing companies must master through technology-led innovation (see Figure 1).
• **Operational excellence:** Modern shop floors are highly automated and leverage the industrial Internet (aka, the Internet of Things) to manage day-to-day operations, as well as prevent disruption. Flexibility and efficiency – the traditional manufacturing goals – are becoming increasingly business-critical, partly due to spiraling customer demand for additional product customization and personalization with the least possible price impact.

By introducing a platform that enables sample requests, shipping and customer follow-up, Dow has achieved campaign response rates of 40% to 50%, in addition to gaining tremendous insights into sample performance.

In light of these trends, operational excellence is acquiring new meaning. It is no longer only about incremental improvements in quality, productivity and waste reduction, but also optimizing plant operations, leveraging technologies such as intelligent products, enabling machine-to-machine collaboration and utilizing prescriptive analytics. A typical example would be an automotive shop floor, in which embedded devices in the chassis (informed products) communicate seamlessly with machines in the assembly line, and direct specific processes and part types to be fitted to build the car according to the bill of materials (BOM).

According to our 2014 global informed manufacturing study, 60% of respondents believe that leveraging data from informed products is vital for product engineering and development; 65% felt this data is critical to improving manufacturing operations. Digital leaders, such as Mercedes-AMG, are beginning to leverage the huge volumes of data generated from informed products to reduce waste and increase efficiency, especially for high-investment equipment such as dynamometers. The car maker recently piloted a quality assurance platform based on predictive analytics to optimize its engine-testing capacity and speed resolution of engine issues. Rather than the traditional process of analyzing results after all tests are conducted, Mercedes now compares historical engine test data with real-time sensor data during test runs to identify quality issues and take immediate action. The result: Significant time savings and less resource waste.

• **Agility:** Present-day supply chains are diverse, dispersed and complex to manage, as the result of a global supply base with multiple manufacturing plants that address the needs of multiple markets. Boeing, for example, has a supply base of more than 5,000 production facilities for its global operations and employs a half-million people worldwide. To ensure smooth and responsive operations of these large and complex supply chains, many manufacturers integrate their supply chain partners through a common platform, facilitating communication and joint risk management. Supply and demand volatility, on the other hand, remains the rule rather than the exception following the 2008-2009 global recession, and it shows no sign of stability in the near term. These trends have forced manufacturers to adopt technologies such as mobility and cloud to enable greater visibility and control.

We estimate that close to 80% of all manufacturers and service providers are using technology such as barcoding and RFID to generate more data from products, and about half use this data for supply chain track-and-trace operations.

Companies such as Dow Chemical are leveraging cloud technology to generate tremendous visibility and flexibility across the value chain. The chemical manufacturer makes more than 6,000 products and operates in more than 36 countries, which results
In an exceptionally high volume of customer requests. By introducing a platform that enables sample requests, shipping and customer follow-up, Dow has achieved campaign response rates of 40% to 50%, in addition to gaining tremendous insights into sample performance through automation of follow-up processes.4

- **Innovation:** The traditional integrated value chain from the supplier’s supplier to the customer’s customer is now broken into distinct chunks, as new players leverage emerging technologies to provide innovative products and services through newer business models. Companies such as Flipkart5 (the India-based e-commerce giant also known as the Amazon of India) and Paytm6 (the India-based online wallet and payment solutions provider, similar to SQUARE in the U.S.) have become giants in a very short span of time, snatching business from existing players. These companies are succeeding by developing completely new business models that address consumer pain points, such as stock-outs in physical stores, and providing convenience, such as secure online transactions and home delivery.

The challenge for manufacturers is to figure out where and how to innovate, in order to reduce risk and ensure sustained growth. While product engineering and technology remain key targets for innovation, an area of growing importance is the development of holistic strategies that connect the entire product, service and delivery channel. Environmental sustainability – ecosystem preservation, waste disposal and carbon emission regulation – is another hotbed of innovation with vast potential for manufacturers. With warnings of global warming and increased customer awareness, manufacturers must find innovative ways to implement green practices.

Another key challenge is nurturing a culture of innovation within the organization. Investments in technology, such as collaboration platforms for knowledge-sharing, can help with innovation, but they will only yield results when accompanied by change management initiatives that bring about a mindset shift to a new philosophy of working. In our experience, roughly a quarter of all manufacturing organizations have a crowdsourcing/co-innovation platform to fuel managed innovation, which has become a key differentiator for leading players.

Over the years, 3M has cultivated a culture of innovation7 through new processes and platforms, enabling it to consistently maintain an enviable average gross margin of around 50%. Employees are encouraged to use 15% of their time to work on projects outside of their core responsibilities, and failures are gracefully tolerated. The company has broken down silos within the company and between the company and its customers, and makes available various forms of seed-funding to foster innovation.

- **Customer centricity:** Customers can now access information and conduct transactions anytime/anywhere, whether on the Web, their smartphone or in a traditional store. The number of users accessing the Web from a mobile device is quickly escalating, and is expected to reach 7.6 billion by 2020, exceeding the current world population.8 The adage “the customer is king” is perhaps more true today than ever, as a bad customer experience can spread like wildfire over the Internet if not detected and corrected in near real-time. An increase in competition, coupled with the explosion in Internet connectivity and availability of mobile devices, has presented customers with a cornucopia of choices and increased their expectations for product availability and a strong digital experience. As a result, manufacturers today have little choice but to make their products and services available across multiple channels and devices while providing consistency of experience, service and information access.

On the plus side, intelligent data mining and analysis of social media information, among other technologies, now make it possible for manufacturers to obtain an unprecedented 360-degree view of their customers’ behavior and needs. According to our informed
manufacturing study, roughly 70% of respondents had integrated social media and internal planning system data to inform customer sentiment analysis and enhance product research, development and planning.

Lenovo, for example, leverages advanced analytics for enhancing customer satisfaction and loyalty. It aggregates customer data from all sources, including social media, to provide a very high level of personalization via one-to-one customer relationships. This also enables the company to run extremely effective targeted marketing campaigns to maintain customer interest, from product announcement to release.

Senior managers not only need to fund advanced analytics to generate insights from the vast volumes of operational data available on a modern shop floor, but they also need to guide and motivate the workforce to use these insights to improve productivity and efficiency.

Understanding Manufacturing’s Imperatives

Many manufacturers have taken an ad hoc approach to addressing these requirements. Many have implemented point solutions, while others are still grappling with where to start and what is relevant to them and their customers and partners. To assess and build effective digital capabilities, manufacturers need a comprehensive framework that spans these four mandates, as well as a structured method that helps formulate a strategy, lay out an execution process and develop comprehensive performance management for tracking progress (see Figure 2). This framework includes the following:

- **Strategy and vision statements.** A formal strategy statement is indicative of leadership buy-in and involvement and displays the requisite accountability and responsibility to drive success. A top-down approach to digital transformation ensures that funding is allocated for various initiatives, as well as successful adoption. For instance, in order

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**Pillars of Digital Excellence**

**Strategy**
- Top-down approach
- Defined objectives
- Budgeting

**Execution**
- Effective processes
- Enabling technologies

**Performance Management**
- Target setting
- Progress monitoring and accountability

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Figure 2
to achieve operational excellence, senior managers not only need to fund advanced analytics to generate insights from the vast volumes of operational data available on a modern shop floor, but they also need to guide and motivate the workforce to use these insights to improve productivity and efficiency.

- **Strategy execution.** Systems and mechanisms must be in place to enable employees to work more effectively toward the goal. Technology needs to be leveraged for collaboration, visibility and efficiency. Take innovation, for example; co-innovation platforms must be utilized by innovation groups to organize activities for idea generation, shortlisting and building proofs of concept in order to meet challenges in product design, business models, etc.

- **Performance measurement.** This third lever helps quantify the current state and the future envisioned state, while tracking progress along the way. Accountability cannot be achieved unless the impact is measured. For example, in order to meet agility goals, corresponding KPIs need to be correctly defined to prioritize initiatives and set targets for progress tracking.

### The Maturity Framework

Manufacturers can assess their current state by answering a set of questions across manufacturing’s four primary imperatives (see Figure 3). These questions are kept intentionally open-ended and at a very high level to encourage discussion and debate. We suggest that manufacturers interpret them in a way that best represents their organization.

### Scoring Mechanism

These mandates apply to all manufacturers – be it a tractor company or a chemical company. However, we have observed a varied degree of adoption from different types of manufacturers as a result of the nature of their business. A method for making these questions more objective and capable of measuring overall maturity across the themes is depicted in Figure 4 (next page). The weights are determined by our past experience and roughly represent the sum total of management efforts required, implementation costs and perceived benefits.

While our approach offers a sound starting point, we recommend that manufacturers tweak the framework to match their business, based on industry sector, target customer segment, geographic location, etc.

Scoring for each mandate is performed by rating the three parameters, based on the guidelines provided, and then applying the corresponding parameter percentage to calculate the weighted rating.

For example:

\[
\text{Agility Score} = 0.4 \times \text{Strategic Alignment} + 0.3 \times \text{Execution} + 0.3 \times \text{Performance Management}
\]
Assessing Digital Maturity
Scores are based on a scale from 1 to 3, where 1 represents least maturity, and 3 represents highest maturity.

### Operational Excellence

<table>
<thead>
<tr>
<th>Weight</th>
<th>Basic (1)</th>
<th>Advanced (2)</th>
<th>Transformational (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy Alignment</td>
<td>30%</td>
<td>A digital operations strategy and vision is defined.</td>
<td>The digital operations strategy includes a department-specific list of digital initiatives.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Leaders communicate the operational strategy and review progress to motivate the workforce.</td>
<td>Leaders monitor improvements in process efficiencies, productivity, etc. that result from any initiative.</td>
</tr>
<tr>
<td>Execution</td>
<td>40%</td>
<td>Data is captured and stored in a central repository for root-cause analysis.</td>
<td>Operational data from the central repository is analyzed to define standard operating procedures, improve quality and reduce maintenance costs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engineering platforms assist managers in scheduling and performing operations based on orders and capacities.</td>
<td>Engineering platforms automatically schedule operations using predefined decision models.</td>
</tr>
<tr>
<td>Performance Management</td>
<td>30%</td>
<td>Cost, quality and productivity data is manually collected and displayed.</td>
<td>Informed products automatically monitor performance data during manufacturing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance reports are generated for monthly reviews.</td>
<td>Dashboard-based performance data displays real-time updates and drill-downs.</td>
</tr>
</tbody>
</table>

### Agility

<table>
<thead>
<tr>
<th>Weight</th>
<th>Basic (1)</th>
<th>Advanced (2)</th>
<th>Transformational (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy Alignment</td>
<td>40%</td>
<td>Leadership is flexible to the changing business environment, but responses are mostly reactive.</td>
<td>Proactive measures are taken by leadership to handle changes based on internal and external information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Customer-facing functions such as sales and service continuously evaluate new technologies for agility.</td>
<td>Upstream functions such as supply chain management have technology budgets to improve agility.</td>
</tr>
<tr>
<td>Execution</td>
<td>30%</td>
<td>Digital platforms enable periodic communication between downstream functions (such as sales) with upstream ones (such as manufacturing).</td>
<td>Digital platforms integrate all functions for demand and supply visibility within the organization.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Senior managers and key people in the organization leverage data to improve decision-making.</td>
<td>Almost everyone in the organization uses data and basic descriptive analytics.</td>
</tr>
<tr>
<td>Performance Management</td>
<td>30%</td>
<td>Business-level KPIs are used as an indicator for agility improvement as a result of technology implementation.</td>
<td>Specific agility KPIs, such as supply chain velocity and turnaround time, are used to prioritize investments and develop a digital roadmap.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Accountability exists only for implementation targets.</td>
<td>Accountability for improving specific agility KPIs exists at a function/department level.</td>
</tr>
</tbody>
</table>
### Assessing Digital Maturity

#### Innovation

<table>
<thead>
<tr>
<th>Strategy Alignment</th>
<th>Weight</th>
<th>Basic (1)</th>
<th>Advanced (2)</th>
<th>Transformational (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation goals and targets are set mostly for product development and marketing teams.</td>
<td>50%</td>
<td>Innovation goals and targets are set, such as sales, service and operations.</td>
<td>Companywide and cross-functional innovation targets and goals are set.</td>
<td></td>
</tr>
<tr>
<td>Technology budget is mostly in line with product design and testing.</td>
<td></td>
<td>Technology budget additionally supports improvements to cross-function, cross-geography collaboration.</td>
<td>Technology budget additionally supports the building of labs that support innovation across functions.</td>
<td></td>
</tr>
<tr>
<td>Innovation targets for additional functions are set, such as sales, service and operations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Execution</td>
<td>30%</td>
<td>Incremental innovation is enabled through the use of existing facilities and resources.</td>
<td>Managed innovation is enabled through events and fairs, with dedicated resources leveraging collaborative platforms.</td>
<td>Innovation additionally includes work conducted with supply chain partners for solving industry-wide challenges, using tools such as PLM-centric team collaboration.</td>
</tr>
<tr>
<td>Basic tools such as CAD/CAM are used to help with faster and more efficient product innovation.</td>
<td></td>
<td>Simulation and virtual validation tools are used to reduce design and testing times.</td>
<td>Rapid prototyping, testing, analytics and industrial 3-D printing technology are used to augment product development capabilities.</td>
<td></td>
</tr>
<tr>
<td>Performance Management</td>
<td>20%</td>
<td>Innovation KPIs measure annual cost savings and product performance improvement.</td>
<td>Innovation KPIs additionally measure the number of viable new product ideas, profitability increases, etc.</td>
<td>Innovation KPIs additionally measure future revenue possible from new products and business models.</td>
</tr>
<tr>
<td>Accountability and target-setting are conducted for some functions, such as R&amp;D and marketing.</td>
<td></td>
<td>Accountability and target-setting are used across all functions, from procurement to customer service.</td>
<td>Individual, functional and cross-functional targets are set, as well as accountability for innovation.</td>
<td></td>
</tr>
</tbody>
</table>
| Customer Centricity

<table>
<thead>
<tr>
<th>Strategy Alignment</th>
<th>Weight</th>
<th>Basic (1)</th>
<th>Advanced (2)</th>
<th>Transformational (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic customer segmentation is performed, based on account value or demography.</td>
<td>40%</td>
<td>Complex, multi-attribute techniques for segmentation are used, supported by CRM tools.</td>
<td>Advanced analytics drive segmentation, leveraging next-generation CRM tools.</td>
<td></td>
</tr>
<tr>
<td>A limited customization and personalization strategy exists.</td>
<td></td>
<td>Basic personalization is possible through a multi-channel strategy.</td>
<td>Superior personalization is enabled at the strategy level, for one-to-one customer interactions.</td>
<td></td>
</tr>
<tr>
<td>Execution</td>
<td>40%</td>
<td>Key customer data is harmonized and maintained in a central repository for reference.</td>
<td>All customer data is maintained and basic analytics are used to support decision-making, spanning product and service delivery.</td>
<td>Comprehensive profiles are developed for each customer, including personal details, spending patterns and preferred touchpoints, with advanced analytics for faster decision-making.</td>
</tr>
<tr>
<td>Manual recording of customer data is performed during inquiry, purchase and service.</td>
<td></td>
<td>Feedback is generated through online surveys and secondary sources, such as social media.</td>
<td>Products and services are co-created with customers, as well as support across buying and usage cycles.</td>
<td></td>
</tr>
<tr>
<td>Performance Management</td>
<td>20%</td>
<td>Customer satisfaction KPIs, such as NPS and customer complaints, are captured and monitored.</td>
<td>Operational KPIs, such as service-ability and repeat service, are monitored to measure customer centricity.</td>
<td>Advanced customer metrics, such as lifetime value and sentiment scores, are periodically measured.</td>
</tr>
</tbody>
</table>

Figure 4
Using the Framework

Manufacturers can use this framework to either devise a transformation strategy themselves or hire a third-party to do so. Both approaches are covered in Figure 5.

Digital Transformation Approach

Assess

Current-State Assessment and Competition Benchmarking

1. Operational Excellence
   - Customer Centricity
   - Agility
   - Innovation

2. Future State Definition
   - Competitive
   - Lean
   - Green
   - Reliable
   - Connected

Plan

Gap Analysis

3. Identify limitations
4. Review system
5. Conceptualize solution
6. Validate

Prioritization and Preparation of the Business Case

7. Lowest Priority
8. Moderate Priority
9. Highest Priority

Roadmap Preparation

Recommend & Transform

6. Recommendation Workshop
7. Roadmap Execution

Figure 5
Phase 1: Assess

The first step entails thoroughly understanding both the as-is and to-be states of the organization. This stage typically involves conducting several workshops and interviews with company stakeholders and external subject matter experts. Further, competitive analysis should be carried out with local and global players.

- **Current-state assessment and competition benchmarking:** To get started, manufacturers must understand their current strengths and limitations, as well as how their digital capabilities compare with those of their competitors and best-in-class companies. Figure 6 offers a high-level representation of the result of a typical competitor benchmarking and scoring exercise.
  
  > **Conduct due diligence:** Understand and document current systems and processes across the aforementioned industry mandates through observation and user interviews; play it back to stakeholders for confirmation and approval.
  
  > **Identify comparable organizations:** Select one or more direct competitors/best-in-class companies from across the globe to serve as a comparison.
  
  > **Complete benchmarking:** Rate capabilities against benchmark/s across each theme depicted in the framework in order to gauge maturity levels.

- **Future-state definition:** This step involves defining digital capabilities across the themes as the end-state vision. The future-state vision is derived from the company vision, capability benchmarking, technological developments and industry best practices across the globe. Figure 7 provides a representation of an end-state vision at the conclusion of the assessment phase, with broad improvement areas highlighted with vision statements.

### Envisioning the Future State (Illustrative)

<table>
<thead>
<tr>
<th>Vendors &amp; Supplier</th>
<th>Plant Operations &amp; R&amp;D</th>
<th>Supply Chain &amp; Logistics</th>
<th>Sales &amp; Marketing</th>
<th>Dealer &amp; Customer Experience Management</th>
<th>Senior Management</th>
<th>Corporate Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agility</strong></td>
<td></td>
<td>Supply chain visibility and flexibility</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>What-if scenarios and predictive analytics</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Easy access to reliable and consolidated data for all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Innovation</strong></td>
<td></td>
<td>Crowdsourcing and co-innovation platforms</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Collaborative tools for faster NPD and process improvement</td>
<td></td>
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</tr>
<tr>
<td><strong>Operational Excellence</strong></td>
<td></td>
<td>Collaborative operations planning and execution</td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Machine learning and prescriptive analytics</td>
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<tr>
<td><strong>Customer Centricity</strong></td>
<td></td>
<td>Omnichannel platform</td>
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<td></td>
<td></td>
<td>Tools for capturing VoC</td>
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</tbody>
</table>

Figure 6

Figure 7
Phase 2: Plan
In this phase, further analysis of collected information is conducted to derive a list of initiatives that are eventually prioritized to prepare the digital transformation roadmap. This phase entails the following:

- **Gap analysis**: Analyze differences in the current state and future vision for each parameter and prepare a list of initiatives.
  
  - **Identify limitations**: Identify broad capability limitations and document them, using the digital framework.
  
  - **Review existing systems**: Develop a detailed understanding of as-is capabilities, along with additional requirements to address documented limitations.
  
  - **Conceptualize and validate the solution**: Create a list of identified initiatives that meet all requirements, comprehensively.

- **Prioritization and business case preparation**: Determine the relative importance of each initiative based on criticality and return on investment.
  
  - **Rate each initiative** on a cost, benefit and risk scale. Plot them in the risk benefit matrix, as shown in Figure 8.
  
  - **Conduct estimated ROI calculations**, starting from low-cost, high-benefit quadrants, and prepare a broad-level business case.
  
  - **Present the business case** to senior leaders for approval.

- **Roadmap preparation**: Create a detailed roadmap for a phased implementation across each theme (see Figure 9).
Phase 3: Recommend & Implement

The final step includes:

- **A recommendation workshop:** Prepare a detailed business case (as depicted in Figure 10) for final budgetary approval. The business case should identify all revenue- and cost-related metrics that would be impacted by the digital transformation, calculating total implementation cost, agreeing upon improvement targets and arriving at the net business value gain. The detailed business case is presented to the key stakeholders (decision-makers), and concerns are cited and addressed. The workshop helps in final validation and user buy-in before implementation. Stakeholders also agree on implementation timelines and risk mitigation measures for the transition.

**Preparing a Business Case**

![Figure 10]

- **Execution:** Finally, initiatives are implemented according to the roadmap, and progress is monitored until completion. Respective performance for the initiatives is continuously measured to assess impact.

**Moving Forward**

Digital technology has evolved at a rapid pace, and businesses are beginning to leverage the SMAC Stack by building new systems of engagement that act as a front end to legacy systems of record. Digital leaders already have a head start and are enjoying a significant competitive advantage.

As other manufacturers embark on a digital business transformation journey, or refine existing strategies, it is important for them to understand how they can maximize the impact of the new approach. SMAC Stack technologies are only a means to an end: enablement of a business process innovation or renovation. Fully adopting implemented technologies is critical to producing the business performance impact desired and, in turn, market relevance with partners and customers.

Our experience with digital transformation initiatives suggests that organizations should hold workshops for generating end-user buy-in, identify innovation leaders within various departments (and model their behaviors throughout the organization), and embrace change management techniques. Only then can manufacturers fully embrace digital business adoption and realize the resulting performance boost. A phased implementation roadmap, coupled with an adequate change management strategy, is critical to ensuring a successful transformation.
Footnotes


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About the Authors

Arun Krishnan is a Director in Cognizant Business Consulting’s Discrete Manufacturing Practice. He has over 21 years of consulting experience throughout the manufacturing industry. He has led various projects in strategy consulting, process re-engineering, business analysis, problem structuring and solution development, program management and change management across diversified manufacturing and logistics companies. He earned his M.B.A. (PGDM) from IIM, Bangalore, and has a B-Tech in mechanical engineering from University of Calicut. He can be reached at Arun.Krishnan2@Cognizant.com | https://www.linkedin.com/profile/view?id=22686378.

Gajanan Pujari is a Senior Consulting Manager within Cognizant Business Consulting’s Manufacturing and Logistics Practice. He has 12-plus years of experience and has led multiple business consulting engagements in the areas of export sales distribution, supply chain analytics and IT portfolio rationalization for top automotive and industrial manufacturing companies. His areas of interest include the impact of IoT, digital and big data analytics technologies on the manufacturing industry. He holds an M.B.A. in analytical finance and operations management from the Indian School of Business (ISB), Hyderabad, and has a bachelor’s degree in production engineering from National Institute of Technology, Trichy, India. He can be reached at Gajanan.Pujari@cognizant.com | https://www.linkedin.com/profile/view?id=29549276.

Nirman Sarkar is a Consultant within Cognizant Business Consulting’s Manufacturing and Logistics Practice. He has five years of industry and consulting experience in value chain analysis and roadmapping, supply chain management, operations management and product development across the automotive and industrial products manufacturing industries. He holds an M.B.A. in finance and operations management from the Indian School of Business (ISB), Hyderabad, and has a bachelor’s degree in mechanical engineering from the National Institute of Technology, Durgapur, India. He can be reached at Nirman.Sarkar@Cognizant.com | https://www.linkedin.com/profile/view?id=66782826.
About Cognizant

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