

HOW TO SPEED MANUFACTURING'S DIGITAL BUSINESS TRANSFORMATION

By Badrinath Setlur and Christopher Andreas

To succeed in today's competitive market, manufacturers need to embrace technologies that encompass social, mobile, analytics and cloud.

This combination can deliver the operational excellence, agility, innovation and customer-centricity required to remain relevant with customers, business partners and the manufacturing ecosystem.

Emerging digital technologies are enabling businesses worldwide to transform. Their customers are clear winners, benefiting from unprecedented information availability, product choices and channel options.

The race to identify and deliver on ever-changing customer needs is gaining momentum. To succeed, manufacturers need to commit to four key interconnected mandates to leverage emerging digital technology:

- 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.

To check progress, manufacturers must assess three organisational attributes: leadership support, execution mechanisms and performance management, through KPI tracking and management accountability. They can rate their digital capabilities and benchmark themselves against competitors, using a recommended reference framework and scoring mechanism.

The technology helping manufacturers to move forward keeps evolving, changing the ways in which products are made, service is delivered and business conducted. Embedded technologies enable manufactured products

to be more 'informed', while innovative new products and services are disrupting traditional supply chains through new channel options. Customers are demanding new levels of customisation.

Today's objective is to use technology to do the same things in far more efficient and effective ways. In order to prosper, manufacturing companies need to master four interconnected mandates of technology-led innovation: operational excellence, agility, innovation and customer-centricity.

Highly automated shop floors leverage the Internet of Things (IoT) to manage operations and prevent disruption. Flexibility and efficiency are becoming increasingly important, driven partly by customer demand for extra product customisation and personalisation with low impact on pricing.

In response, operational excellence is changing. The usual incremental improvements in quality, productivity and waste reduction are being enhanced by optimising plant operations, leveraging technologies such as intelligent products, enabling machine-to-machine collaboration and utilising prescriptive analytics.

According to Cognizant's 2014 global manufacturing study, 60 per cent of respondents believe that leveraging data from informed products is vital for product engineering and development, while 65 per cent feel this data is critical for improving manufacturing operations.

Today's supply chains are diverse, dispersed and complex. To ensure responsive operations, many



manufacturers integrate their supply chain partners through a common platform, facilitating communication and joint risk management. But with supply and demand volatility showing little improvement, manufacturers are being forced to adopt technologies such as mobility and cloud to enable greater visibility and control.

The traditional integrated value chain, from a supplier's supplier to the customer's customer, is now split into distinct chunks as new players leverage emerging technologies to provide innovative products and services through newer business models.

The challenge for manufacturers is to judge where and how to innovate, to reduce risk and ensure sustained growth. While product engineering and technology remain primary targets for innovation, holistic strategies that connect the entire product, service and delivery channel are also essential.

Another challenge is nurturing a company-wide culture of innovation. Investments in technology such as collaboration platforms for knowledge-sharing can help, but will yield results only when accompanied by change management initiatives that drive a mindset shift.

Intelligent data mining and analysis of social media information make it possible for manufacturers to acquire a 360° view of their customers' behaviour and needs.

The Cognizant study shows that roughly 70 per cent of respondents have integrated social media and internal planning system data to inform customer sentiment analysis and enhance product research, development and planning.

To assess and build effective digital capabilities, manufacturers need a comprehensive framework plus a structured method that helps to formulate a strategy, lay out an execution process, and develop comprehensive performance management for tracking progress. Such a framework includes the following:

- A formal strategy statement indicates leadership buy-in and involvement and displays the accountability and responsibility required to drive success.
- A top-down approach to digital transformation ensures that funding is allocated for various initiatives and successful adoption. To achieve operational excellence, it is imperative to fund advanced analytics that glean insights from the vast volumes of data available on a modern shop floor, and to motivate the workforce to use these insights to improve productivity and efficiency.
- Systems and mechanisms will enable employees to work more effectively towards set goals. Technology must cover collaboration, visibility and efficiency. Co-innovation platforms can be utilised to organise activities for idea generation and for shortlisting and building proofs of concept in order to meet challenges in product design and business models.
- Performance measurement helps to quantify the current state and the targeted state, while tracking progress.



Accountability cannot be achieved unless the impact is measured. In order to meet agility goals, KPIs need to be defined to prioritise initiatives and set targets for progress tracking.

- A maturity framework allows manufacturers to assess their current state by answering questions across manufacturing’s four primary imperatives. These high level questions are kept open-ended to encourage discussion and debate.

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Phase 1 – Assess

This entails thoroughly understanding the organisation’s as-is and to-be states. Typically, it involves conducting workshops and interviews with stakeholders and external subject matter experts. Competitive analysis should be undertaken with local and global players.

- Current-state assessment and competition benchmarking: To begin, manufacturers must understand their strengths and limitations and how their digital capabilities compare with those of their competitors and leading companies.
- Due diligence: Understand and document existing systems and processes across the industry mandates through observation and user interviews. Play it back to stakeholders for confirmation and approval.
- Identify comparable organisations: Select one or more competitors/global best-in-class companies to serve as a comparison.
- Complete benchmarking: Rate capabilities against benchmark/s across each theme depicted in the framework, to gauge maturity levels.
- Future-state defined: Define digital capabilities across the themes as the end-state vision. This is derived from the company vision, capability benchmarking, technological developments and industry best practices worldwide.

Phase 2: Plan

Further analysis of collected information is conducted to derive a list of initiatives that are eventually prioritised to prepare the digital transformation roadmap.

- Gap analysis: Analyse differences in the current state and future vision for each parameter and prepare a list of initiatives.
 - Identify limitations: Ascertain 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.
 - Conceptualise and validate the solution: Create a list of identified initiatives that meet all requirements comprehensively.
- Prioritisation and business case preparation: Determine the relative importance of each initiative based on criticality and ROI.
 - Rate each initiative on a cost, benefit and risk scale. Plot them in a risk benefit matrix.
 - 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.

Phase 3: Recommend & Implement

This final step includes:

- A recommendation workshop: Prepare a detailed business case for final budgetary approval. This should identify all revenue and cost-related metrics that digital transformation would impact, calculating total implementation cost, agreeing on improvement targets and arriving at the net business value gain. 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.
- Execution: Finally, initiatives are implemented according to the roadmap and progress is monitored until completion. Performance for the initiatives is measured continuously to assess impact.

Digital leaders have a head start over other manufacturers and are enjoying a significant competitive advantage.

The others need to understand how they can maximise the impact of a new approach.

Fully adopting implemented technologies is critical to producing the business performance impact desired and, in turn, ensure market relevance with partners and customers.

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MOTORISED HEIGHT-ADJUSTABLE WORKBENCH



“The choice of sitting, standing or adjusting the bench height to somewhere in between, is ideal. It allows the task and the worker to determine the best height for the job and for their health.”

*Suzanne Smythe, Occupational Physiotherapist
Work Wellness Australia*



Sit



Stand



Weight



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