# Catalyzing Industry 4.0 transformation through maturity assessment and road mapping

## Genesis of Industry 4.0

Since the last three decades, manufacturing companies have made great strides in productivity gains under the Operational Excellence theme driven predominantly by use of Lean Six Sigma methodologies. However, Lean continuous improvements have been heavily people centric, based on small volume of batched shop floor data, visually driven and mostly in stable repetitive situations. Efficiency and customer satisfaction were the primary focus.

Since early 2000, a wave of technological and sociological change has taken place and Lean implementations have turned over a new leaf. The ubiquitous sensorization of products and machines, connectedness of these devices, generation of 4Vs of big data and advanced data algorithms have given rise to the next generation of digital Lean focused on agility in supply chain, customer experiences over the whole life cycle of the product and convergence of material and information flows. Traditional Lean approaches like Kaizen event with static VSM, Gemba walks and process waste elimination will now be replaced by continuous data and behavior monitoring of processes, analyzing the data captured, making intelligent predictions and aiding people with superior decision support systems.

This is the relevance of Industry 4.0. It refers to the real-time digital integration of suppliers, producers, and customers along value chains and business models. Expected business outcomes are added value to customers in new profound ways and creation of enterprise wide, digitally driven agile operating systems. Simply put, Industry 4.0 is a personalized digital transformation journey, for a manufacturing company to create competitive advantage and generate profitable revenue growth. Manufacturing companies risk being quickly irrelevant without making Industry 4.0 a very high priority mandate and being able to execute it at scale.

**Manufacturing companies can avoid currently prevalent pilot purgatory state and instead forge ahead with confidence towards driving digital transformation at scale with this newer approach.**

## Challenges of Industry 4.0

The word "transformation" always conjures up some dramatic kind of change in our minds, both at personal and organizational levels. The success rate of the organizational transformational journeys is not very promising at just 26%.[1] Industry 4.0 transformation is no different as it is indeed a business transformation. Efforts towards Industry 4.0 have produced lackluster results so far. Only 30 percent of the pilots end up reaching scale across the entire organization.[2]

**Key challenges for business have been:**

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| 1 | Lack of common understanding of Industry 4.0 from top floor to shop floor |
| 2 | Lack of company-specific Industry 4.0 vision tied to business strategy |
| 3 | Narrow and near-term focus on incremental operational gains only |
| 4 | ROI not clear or unattractive for proof of concept (POC) projects |
| 5 | Don't know where to start and identification of relevant and prioritized use cases |
| 6 | Long pilot implementation cycles – 6 months to 1 year per pilot |
| 7 | Lack of needed data availability and quality at low cost |
| 8 | Lack of working model of humans, machines and insights collaboration for decision making |
| 9 | Regarded as only technology-based improvement of production capabilities |
| 10 | Lack of effective trust and collaboration between business functions and IT |
| 11 | Traditional Operational Excellence leadership and Industry 4.0 unit operating in silos |
| 12 | Neglect of organizational structures, culture and talent development |
| 13 | "Man with a hammer syndrome" of digital technologies – force fitting technology without grasping business need or use case relevance |

## Need for Industry 4.0 maturity assessment and roadmap

To overcome growing uncertainty and dissatisfaction in manufacturing companies regarding the idea of Industry 4.0, new methods and tools are needed to provide guidance and support to align business strategies and operations. A robust and holistic methodology of assessment can be used to develop a digital roadmap precisely tailored to the needs of each individual company in order to help them make the most of Industry 4.0 and transform themselves into learning, agile organization. The model should guide companies in developing their specific Industry 4.0 objectives along with a set of measures to reach them. Sequencing the measures through projects will greatly aid in effective communication of change management, ROI justification, building a culture collaborative system of engagement, and reevaluation of complete business model.

Companies should also institutionalize corporate cross-functional team from operations, IT, etc. which will champion Industry 4.0 from a true business transformation perspective rather than just view it as another incremental operational/IT tool set.

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### References:

[1]How to beat the Transformation odds - McKinsey 2015

[2]It's the last IT/OT mile that matters in avoiding Industry 4.0's pilot purgatory – McKinsey 2018

## About the author

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Girish Datar is Director, Engineering Consulting, Industry 4.0 - Industrial and Engineering Services at Wipro. He has been with Wipro for about 4.5 years starting with the smart manufacturing practice. He is a seasoned manufacturing professional with 20 years of global experience with Fortune 500 companies such as ABB, AlliedSignal and Flextronics. Girish brings a unique blend of expertise that includes manufacturing physics, transformational change process and right sizing of digital technologies to democratize digital and accelerate business impact. He is certified CPIM, PMP, Six Sigma BB, and Harada system for transformational change.

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