

Boardroom questions

Industry 4.0 – the fourth industrial revolution

Board Leadership Center (India)



If machines and products become more connected, what does the future look like for global manufacturers?

By 2020 there will be a projected 30 billion connected 'things' and a revenue opportunity of USD1.7 trillion for the ecosystem¹

India is expected to command nearly 20 per cent of the global Internet of Things (IoT) market by 2020²



Industrial revolution

1st

Steam, water, mechanical production equipment

2nd

Division of labour, electricity, mass production systems

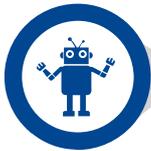
3rd

The advent of cyber physical systems, Electronics, IT and automated production

4th

Cyberphysical systems - integrated and interconnected

Technologies enabling the i4.0 movement



Robotics



Cloud



Machine-to-machine



Digital twinning



AI and Virtual reality



Data analytics

What is i4.0 ... and the potential opportunities and risks



Industry 4.0 (i4.0) is a shift from digitisation to cyberphysical systems through integrated and interconnected technologies such as Internet of Things (IoT), robotics, big data and augmented decision

Pitfalls to avoid include:



- Underestimating the importance of people e.g. limited planning to retrain the existing workforce or find high-tech talent
- Adopting new technologies without tying them to strategic business objectives or knowing their expected return on investment (ROI)
- Failing to incorporate sufficient cybersecurity
- Lacking a strong, enterprise-wide governance structure

Potential benefits include:



- Greater flexibility to adapt to customer demands
- Enhanced speed-to-market
- 'Competitive edge' with smarter products
- New revenue streams from aftermarket services
- Enhanced business models to avoid being disrupted

1. IDC: Worldwide Internet of Things Forecast, 2015-2020
2. AIMA, KPMG study, March 2019

Boardroom questions

- 1 How different will our manufacturing facilities look in the next 5 -10 years in light of rapidly increasing i4.0 technologies (e.g. advanced automation, IoT, artificial intelligence, etc.)?
- 2 How are we addressing innovation and disruption in our sector?
- 3 Have we considered new revenue streams or business models based on 'smart product' initiatives?
- 4 How well have we integrated supply chain partners to speed up products to market, lower manufacturing risk and improve connected products?
- 5 How confident are we that we are getting adequate returns on our i4.0 investments? How confident are we that we are getting adequate returns on our i4.0 investments?
- 6 What criteria are we using to decide which i4.0 technologies to invest in?
- 7 What 'Smart Factory', 'Digital Factory' or 'Industry 4.0' initiatives are already underway in our organisation?
- 8 How are we encouraging successful i4.0 pilots/ initiatives to be shared/embraced across our enterprise?
- 9 How is the move towards new i4.0 technologies being received in our organisation (e.g. with skepticism or seriousness)?
- 10 Given the rapid advances in i4.0 technologies, what initiatives are we engaging in to attract/retain and support the workforce of the future?
- 11 How confident are we that our connected factories, supply chains and product data are secure from cyberattacks?

Questions for senior management



1. How can we grow our market share?
2. Is our operating model fit for its purpose?
3. How do we improve our productivity and dramatically impact our cost curve?
4. What are the expected returns on our i4.0 investments?
5. How do we ensure successful i4.0 pilots are adopted across the wider enterprise?
6. What is our competition doing?



What actions can the Board consider?



1

Take stock of what i4.0 pilots/initiatives are already underway and determine the criteria for scaling them across the enterprise

2

Conduct an i4.0 maturity assessment and benchmarking

3

Focus on strengthening organisational data privacy and cybersecurity protocols

4

Appoint an i4.0 leader or steering committee to ensure enterprise-wide, holistic i4.0 adoption, addressing governance, people, risk, etc.



Vinodkumar Ramachandran
Partner and Head
Industry 4.0.
KPMG in India



Ritesh Tiwari
Partner
Risk Consulting
Leader, Board Leadership Center
KPMG in India
T: +91 124 336 9473
E: riteshtiwari@kpmg.com

home.kpmg/in

#KPMGjosh

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