Report Launch

Digital Transformation Roadmap for India’s Automotive Industry

08 February 2019
A.T. Kearney is one of the oldest and leading high value-added management consultancies, with 30+ years in India

Experience in automotive…

We work with all top 10 passenger car OEMs

Go To Experts in Digital with >110 digital engagements in the last 3 years

Global thought leaders and partners of partners for World Economic Forum on Industry 4.0

Bring the best methodologies in Digital

… and digital transformation

We work with all top 5 construction equipment OEMs

We work with all top 5 manufacturers of agricultural equipment

We work with 7 of the top 10 global dealers and aftermarket players

Robust digital partner ecosystem having Strong links with over 50 external partners

Source: A.T. Kearney
Digital technologies have grown exponentially, but they have now reached a point where they can transform operations.

Driven by these disruptions, the 4th Industrial Revolution is blurring the lines between the physical, digital and biological spheres of production.

Context & Objectives
A combination of modern digital technologies leads to the fast development of 4 new industrial capabilities

Key capabilities and related technologies

**Connectivity and computing power**
- Internet of Things
- Knowledge digitalization

**Analytics and intelligence**
- Predictive analytics
- Machine learning and artificial intelligence

**Human–machine interface**
- Wearables
- Advanced human interface

**Digital–physical transformation**
- Advanced robotics
- Additive manufacturing

Capability to generate data from anything
Capability to use data to make decisions
Capability to talk and listen to machines
Capability to integrate digital and physical activities

Source: A.T. Kearney
With the emergence of digital technologies, there is a need to understand the opportunities available for automotive industry

Objectives of Digital Transformation Roadmap study

- Identify **key digital technologies** with business relevance
- Outline **a near to long term technology adoption roadmap** for the industry
- Articulate **action items for every stakeholder** incl. industry bodies and policy makers

... with a comprehensive view on ...

- Impact of Megatrends
- Need for industry collaboration
- Digital partner ecosystem
- Infrastructure Push
As a first step, we assessed current digital maturity; Digital is slowly picking up momentum across the industry

Health check scores: Indian OEMs

Key points on Digital Maturity

- **Strategy** – Digital roadmap defined by few players with CDO equivalent position; Approach different for Indian origin and International OEMs

- **Sourcing** – SRM solutions are in place for most OEMs; **Limited standardization in data interchange** with suppliers

- **Manufacturing** – Slow adoption of Industry 4.0 technologies; Usage of big data increasing

- **Logistics** – Adoption of fleet telematics & warehousing automation solutions is on the rise

- **S&M / After Sales** – Substantial advancement in improving customer touchpoint

Driven by OEM requirements, component manufacturers are catching up on digitization trend

1. BIC = Best-in-class
Source: A.T. Kearney SIAM ACMA joint study on Digital Transformation Roadmap of Automotive Industry
We evaluated several technologies and selected 11 for our study with ~60-70% of them already being ‘Mainstream’

Digital technologies and their maturity stage

1. Advanced Robotics
2. AR / VR / Wearables
3. APIs and Apps
4. RFID / Sensors
5. Blockchain
6. IoT (Internet of Things)
7. Digital payments
8. Additive Manufacturing
9. AI / ML / DL
10. Advanced Analytics (AA)
11. Robotic Process Automation
Applications of identified technologies have been assessed across three dimensions - Value chain, Product and Ecosystem

Applicability of Digital Technologies

1. Industry value chain
   - R&D
   - Supply chain planning
   - Sourcing
   - Manufacturing
   - Logistics
   - Sales and marketing

   - AR, VR, and wearables
   - Apps and APIs
   - Advanced robotics
   - AR, VR, and wearables
   - Additive manufacturing
   - Blockchain
   - IoT

2. Product
   - Apps and APIs
   - Additive manufacturing
   - Digital payments

3. Industry ecosystem
   - Intra-industry collaboration
   - Inter-industry collaboration
   - Government collaboration

Artificial intelligence
Advanced analytics
In the short term, organizations will need to focus on high impact quick wins across their value chain…

Digital interventions: Short term

<table>
<thead>
<tr>
<th>R&amp;D</th>
<th>Supply chain planning</th>
<th>Sourcing</th>
<th>Manufacturing</th>
<th>Logistics</th>
<th>Sales and marketing</th>
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<tbody>
<tr>
<td>• Advanced analytics for target costing, feature rationalization</td>
<td>• Advanced analytics for supply chain optimization</td>
<td>• Blockchain driven collaboration platform</td>
<td>• 3D printing distributed manufacturing, light-weighting</td>
<td>• Robotics and drones for warehouse management</td>
<td>• AR/ VR based customer experience</td>
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<td>3D printing for Customized tooling</td>
<td>Machine Learning based process optimization</td>
<td>Analytics driven spend and category management</td>
<td>IoT and Robots for smart factories</td>
<td>Wearables for operations</td>
<td>Analytics, AI, Apps and APIs driven sales &amp; marketing</td>
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<td>Wearables for complex design visualization</td>
<td>RPA driven HR, IT, Finance automation</td>
<td>RPA for P2P process automation</td>
<td>Wearables based training &amp; capability development</td>
<td>IoTs, AI analytics, sensors for logistics management</td>
<td>3D printing for improved service levels</td>
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Not exhaustive
… and many more applications and use cases in Medium to Long term for every part of automotive value chain
We have also defined the roadmap for the “connected car” and the imperatives for components manufacturers.
Industries bodies, SIAM and ACMA, would drive digitalization on three key pillars

Digital interventions: Industry bodies (SIAM, ACMA)

1. Standardization
   - Build on the foundation laid by AutoDX
   - Drive standardization in nomenclature, semantics, and information flow protocols

2. Pilots and implementation
   - Launch pilot programs for collaboration with other industries (high-speed connectivity, data management standards, payments, financing)
   - Initiate a program to create an industrywide blockchain network

3. Benchmarking and capability development
   - Setup a digital knowledge management platform and benchmarking tool
   - Create a Centre of Excellence (CoE)
   - Leverage government support to setup skill development program

Not exhaustive
We identified five broad themes for external support required from other industries and the government.

### Digital interventions: Government and other industries

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Skill development</strong></td>
<td>Develop relevant digital skills through provision of programs by industry-academia, training infrastructure, Centre of Excellence (CoE) etc.</td>
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<td><strong>Data sharing</strong></td>
<td>Enable data sharing by creating data governance mechanisms, developing APIs, standardization of data sharing protocols amongst others</td>
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<td><strong>Digital infrastructure</strong></td>
<td>Set-up digital infrastructure such as data centres, transmitters, fiber infrastructure, etc. for data storage, processing and transmission</td>
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<tr>
<td><strong>Connectivity</strong></td>
<td>Ensure fast, reliable and ubiquitous data network such as 5G for connected cars, V2V communication</td>
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<td><strong>Finance and Insurance</strong></td>
<td>Provide innovative financing and insurance facilities to enable pay-as-you-go and user-based service fee models in alignment with regulations</td>
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Having developed the roadmap, organisations will need to quickly pilot, test, improve and scale up.

Next steps in the Digital Journey

- **Scale up initiatives** throughout the function with proper mechanisms and KPIs.
- **Launch pilots** to test hypotheses and provide proof of concept.
- **Identify digital initiatives** aligned with the overall strategic goals of the organization.
- **Set-up dedicated resources** to focus on use cases and potential impact of emerging technologies.

Source: A.T. Kearney
For further details…

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