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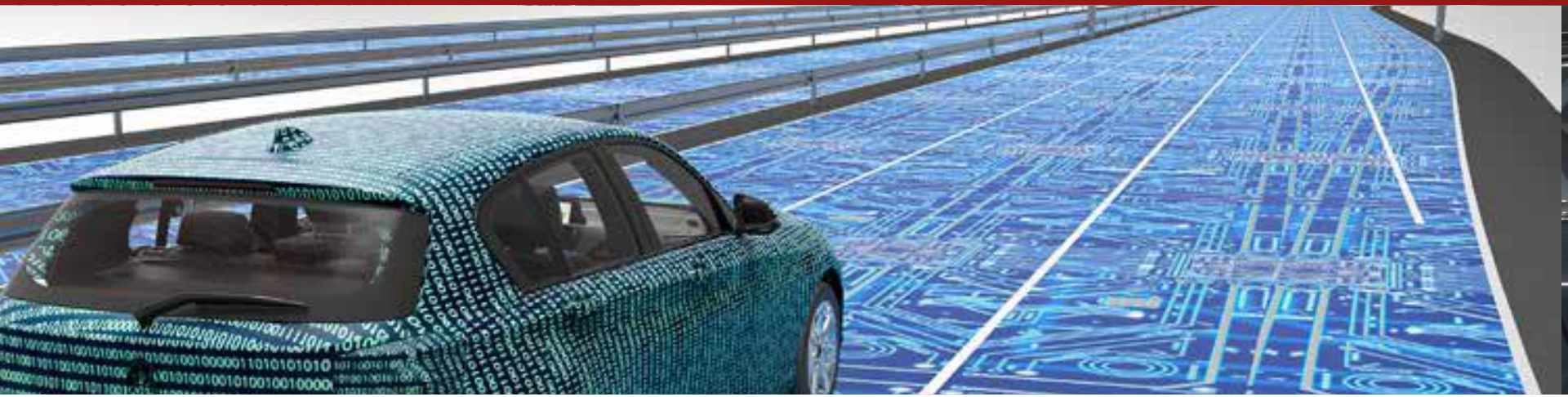

Report Launch

Digital Transformation Roadmap for India's Automotive Industry

08 February 2019

A.T. Kearney

ACMA
Automotive Component Manufacturers Association of India

SIAM
Society of Indian Automobile Manufacturers
Building the Nation, Responsibly.

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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**

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**

… and digital transformation

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

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

Source: A.T. Kearney

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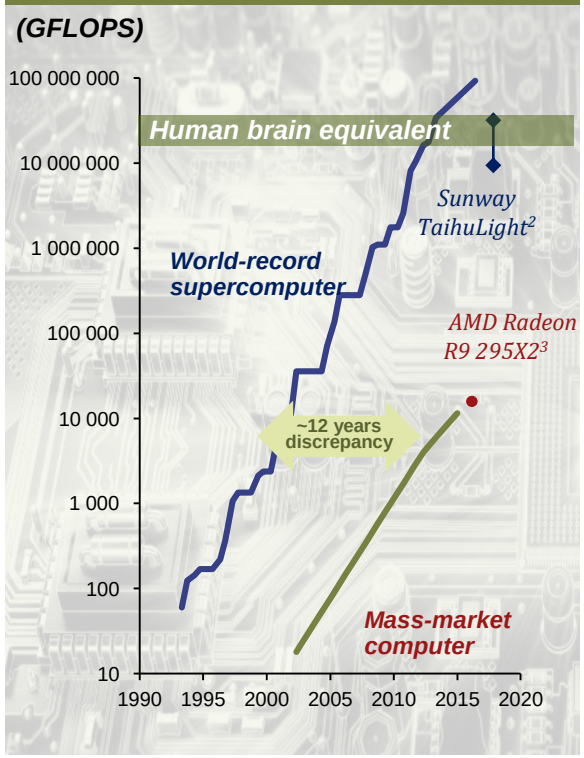
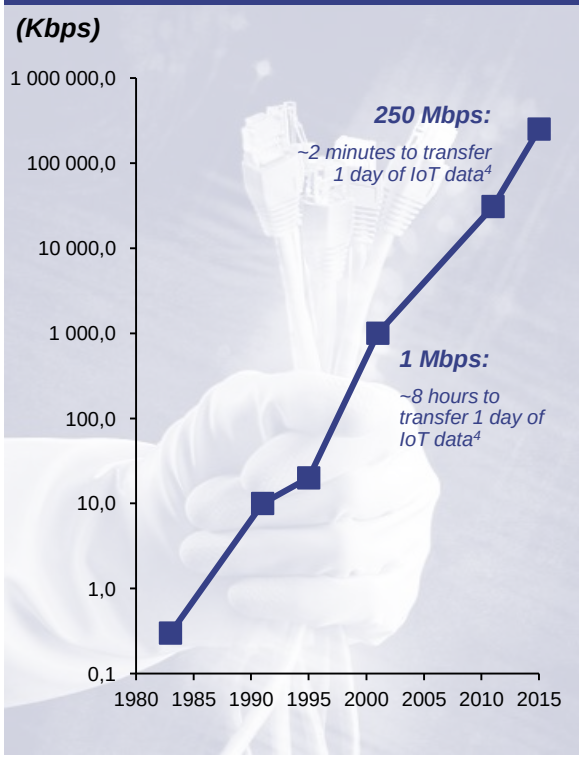
Digital technologies have grown exponentially, but they have now reached a point where they can transform operations

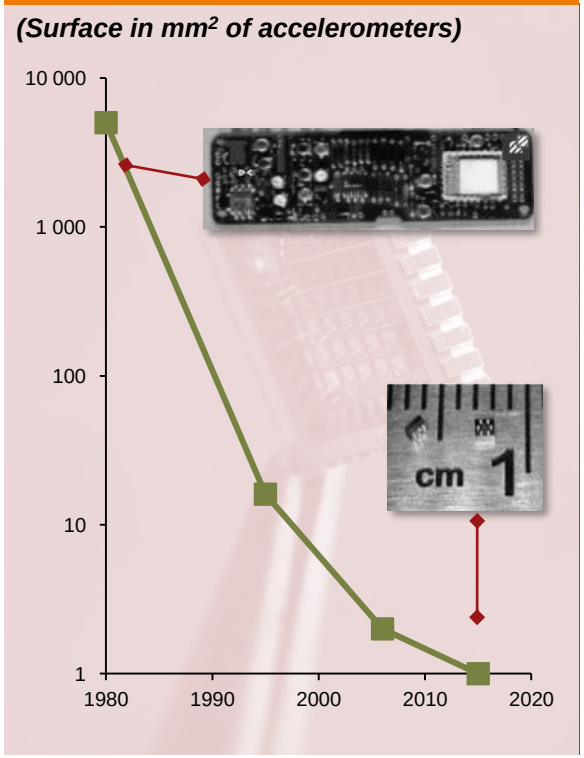
Computing power: Close to human brain



Internet connectivity : travelling information



Miniaturization: sensors everywhere



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

Sources Desk search, A.T. Kearney analysis,

ATKearney

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	Analytics and intelligence	Human–machine interface	Digital–physical transformation
			
Internet of Things	Predictive analytics	Wearables	Advanced robotics
Knowledge digitalization	Machine learning and artificial intelligence	Augmented reality	Additive manufacturing
		Advanced human interface	
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

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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

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As a first step, we assessed current digital maturity; Digital is slowly picking up momentum across the industry

Health check scores: Indian OEMs

Outside-in perspective

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

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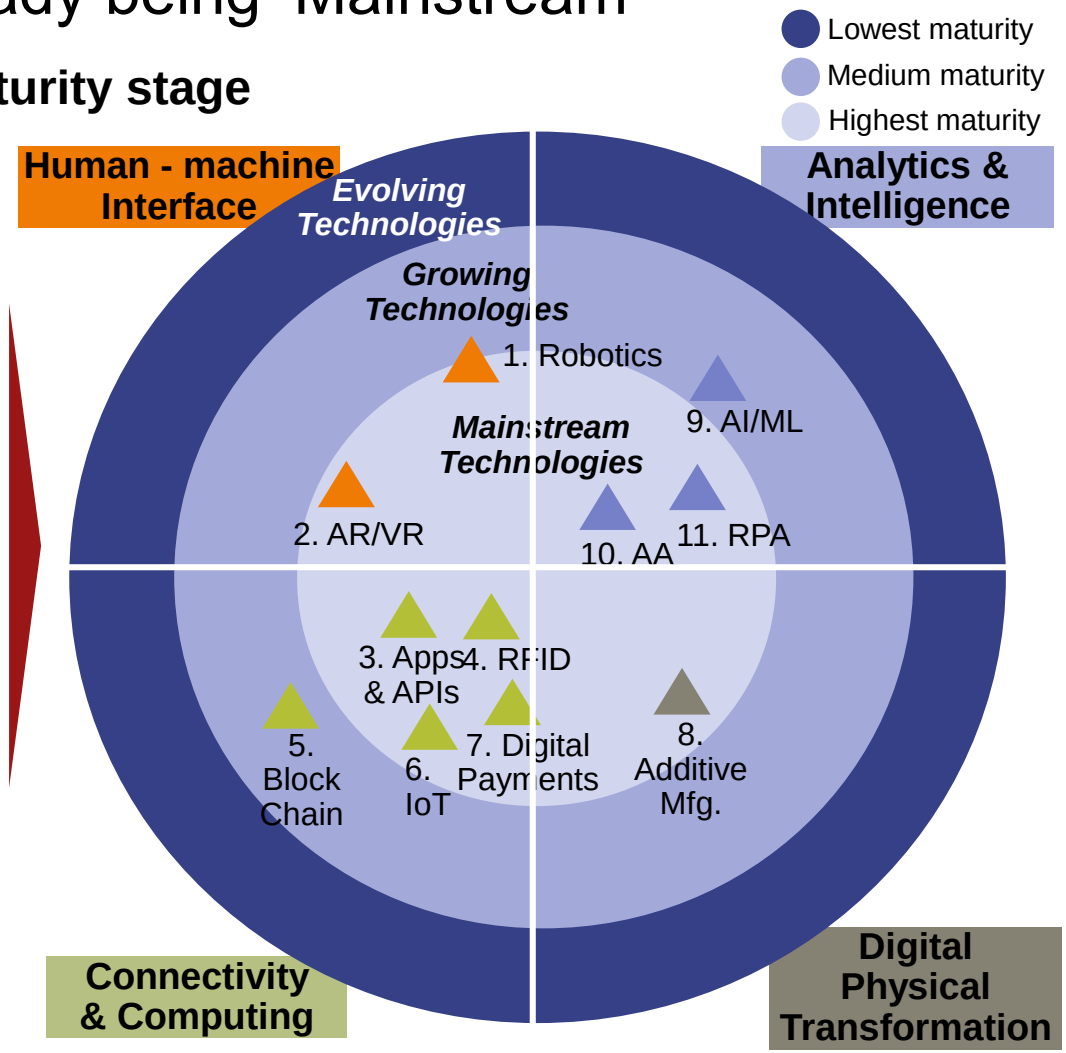
We evaluated several technologies and selected 11 for our study with ~60-70% of them already being 'Mainstream'

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



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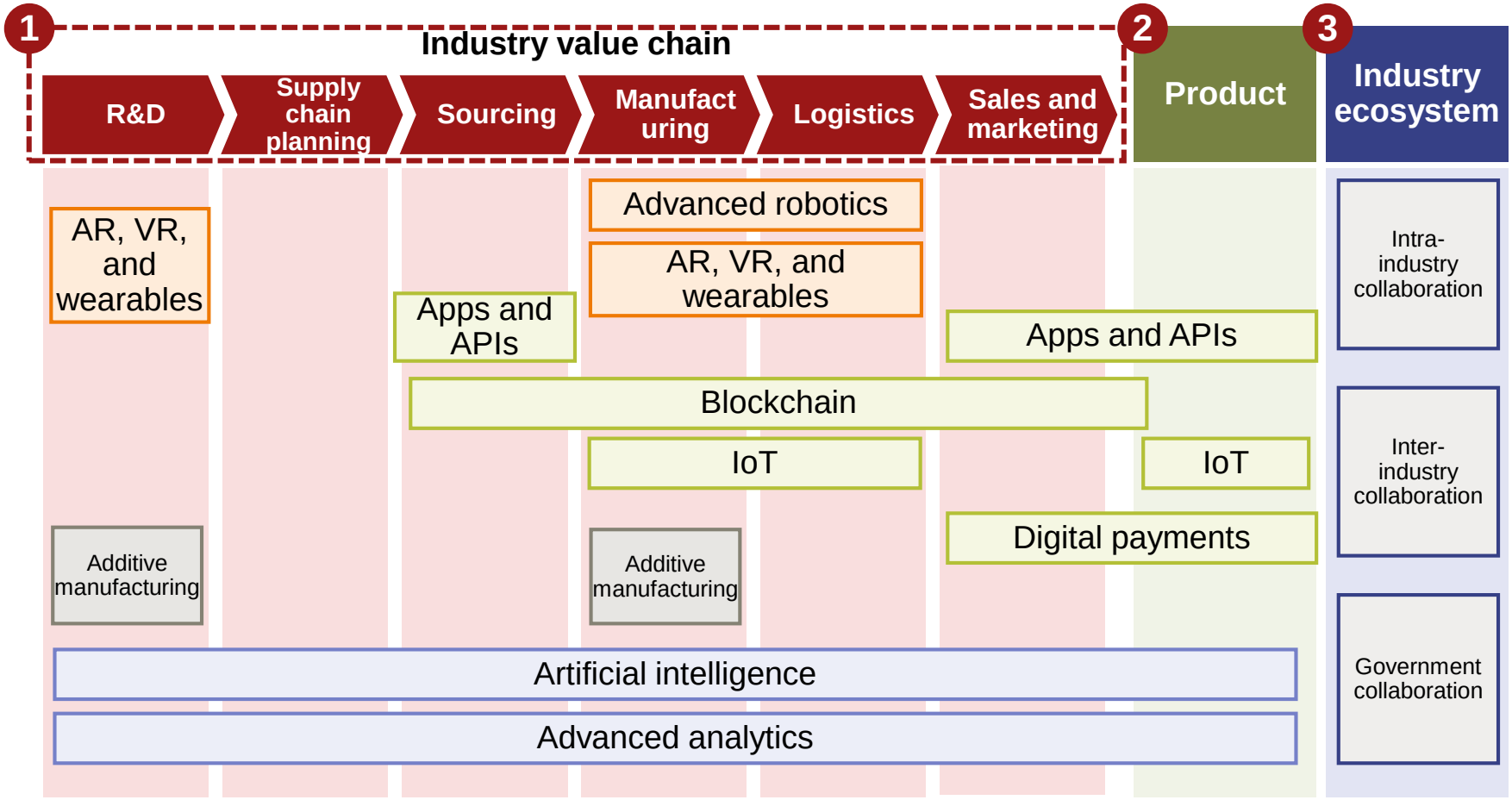
Applications of identified technologies have been assessed across three dimensions - Value chain, Product and Ecosystem

Applicability of Digital Technologies



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

Digital interventions: Short term

Not exhaustive

R&D	Supply chain planning	Sourcing	Manufacturing	Logistics	Sales and marketing
• **Advanced analytics** for target costing, feature rationalization • **3D printing** for Customized tooling • **Wearables** for complex design visualization • …	• **Advanced analytics** supply chain optimization • **Machine Learning** based process optimization • **RPA** driven HR, IT, Finance automation • …	• **Blockchain** driven collaboration platform • **Analytics driven** spend and category management • **RPA** for P2P process automation • …	• **3D printing** distributed manufacturing, light-weighting • **IoT and Robots** for smart factories • **Wearables** based training & capability development • …	• **Robotics and drones** for warehouse management • **Wearables** for operations • **IoTs, AI analytics, sensors** for logistics management • …	• **AR/ VR** based customer experience • **Analytics, AI, Apps and APIs driven** sales & marketing • **3D printing** for improved service levels • …

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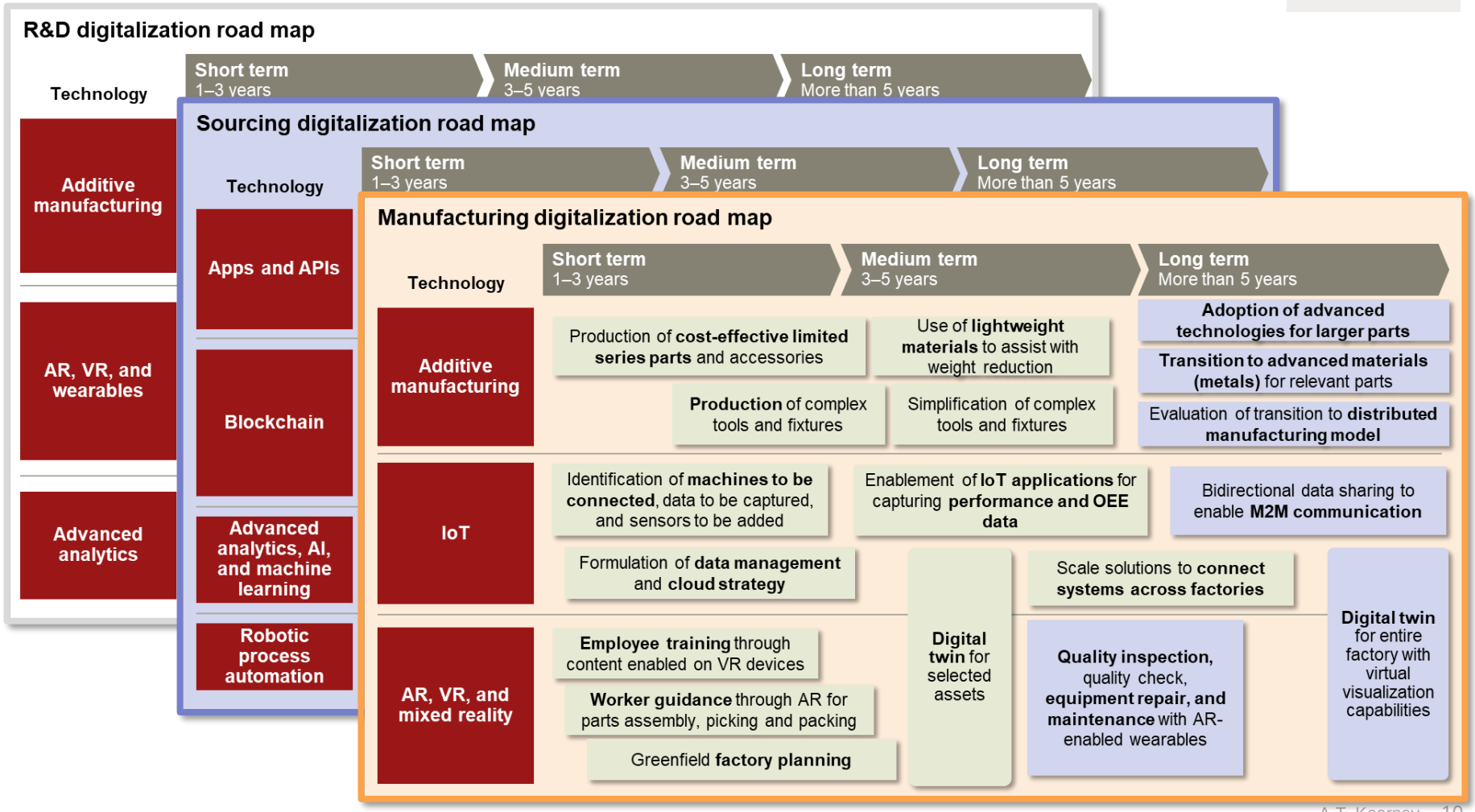
… and many more applications and use cases in Medium to Long term for every part of automotive value chain

Illustrative



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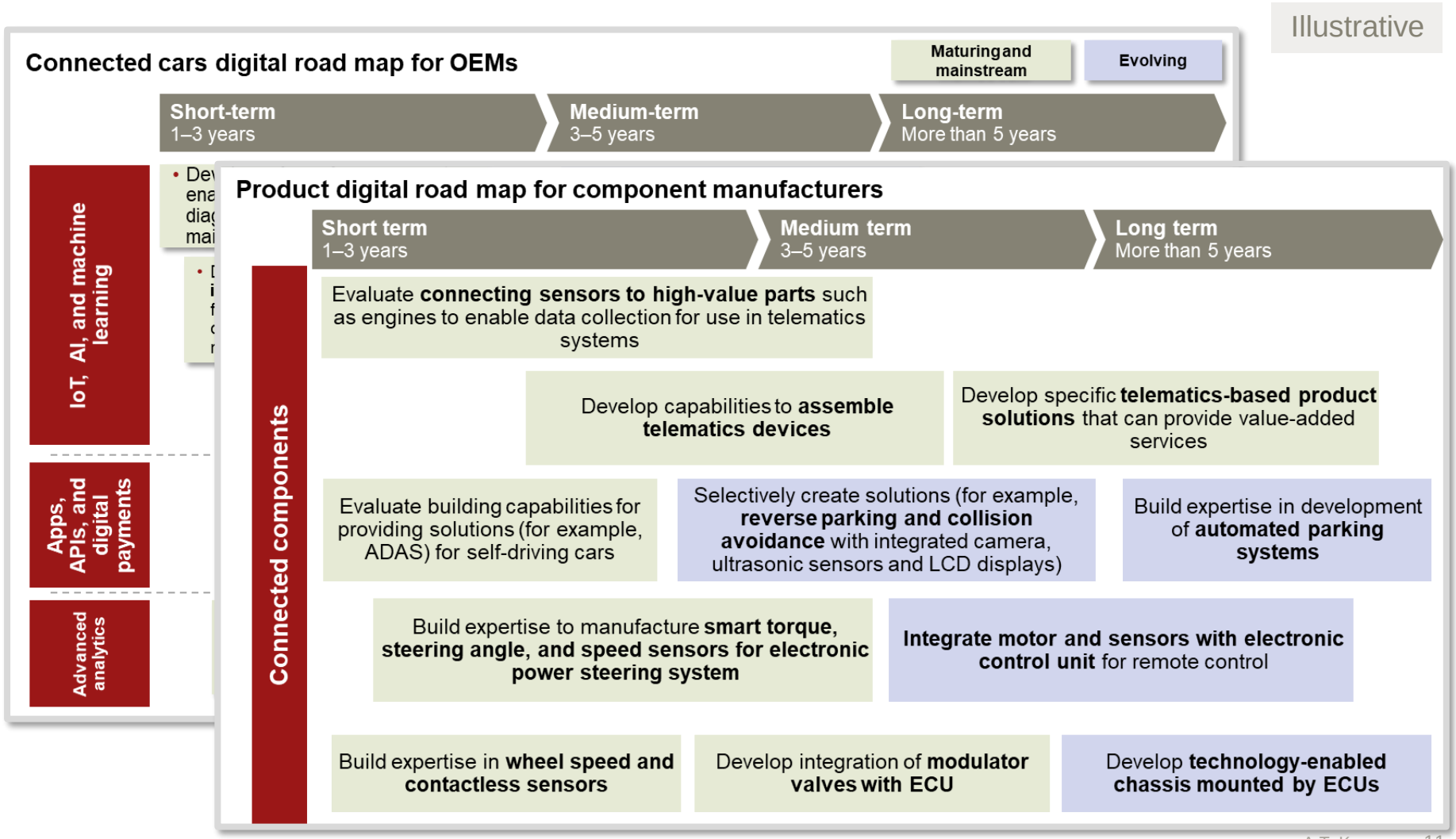
We have also defined the roadmap for the "connected car" and the imperatives for components manufacturers

Illustrative



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Industries bodies, SIAM and ACMA, would drive digitalization on three key pillars

Digital interventions: Industry bodies (SIAM, ACMA)

Not exhaustive

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**

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We identified five broad themes for external support required from other industries and the government

Digital interventions: Government and other industries

Not exhaustive

Skill development	**Develop relevant digital skills** through provision of programs by industry-academia, training infrastructure, Centre of Excellence (CoE) etc.
Data sharing	**Enable data sharing** by creating data governance mechanisms, developing APIs, standardization of data sharing protocols amongst others
Digital infrastructure	**Set-up digital infrastructure** such as data centres, transmitters, fiber infrastructure, etc. for data storage, processing and transmission
Connectivity	**Ensure fast, reliable and ubiquitous data network** such as 5G for connected cars, V2V communication
Finance and Insurance	**Provide innovative financing and insurance facilities** to enable pay-as-you-go and user-based service fee models in alignment with regulations

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Having developed the roadmap, organisations will need to quickly pilot, test, improve and scaleup

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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