Industry 4.0 in government:
New horizon of data-driven economy

BY
MALAYSIA AUTOMOTIVE INSTITUTE (MAI)
The Malaysia Automotive Institute (MAI) is an agency of the Ministry of International Trade and Industry (MITI) established in 2010

- We are a think tank, tasked with strengthening the Malaysian automotive industry.
- An Intermediary between stakeholders in Malaysia's automotive community
- We Formulate policies & perform research on the industry
- We also develop human capital & coordinate between public and private sectors
Malaysia as regional hub for Energy Efficient Vehicles (EEV) with high technology uptake *(implementation of Industry 4.0)* among industry players for domestic & international export.

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INDUSTRY 1.0 TOWARDS 4.0

1st: Mechanization, water power, steam power
2nd: Mass production, assembly line, electricity
3rd: Computer and automation
4th: Cyber Physical Systems
VIDEO 1
9 PILLARS OF INDUSTRY 4.0

- Augmented Reality
- Big Data Analytics
- Cloud Computing
- System Integrator
- Additive Manufacturing
- Autonomous Robots
- Simulation
- Cybersecurity
- Internet of Things
CREATIVE ECONOMY CALLS FOR THE NEW WORLD OF THE MAKERS – INDUSTRY 4.0
GOVERNMENT OR INDUSTRY DRIVEN?

Some of the leaders…

- **Industry-driven**
  - Smart Manufacturing Leadership Coalition (SMLC)

- **Industry-driven** through the Industrial Value Chain Initiative launched by 30 Japanese companies (e.g. Nissan, Mitsubishi, Fujitsu, Panasonic)
  - Done via collaboration with Germany for specific areas of interest

- **Industry-driven**
  - Industrie 4.0 as one of the 10 forward-looking projects

- **Government-driven** via Smart Nation Programme (Prime Minister's Office)
  - Provide infrastructure and Innovation Grant
  - Invest S$19 billion in R&D over the next five years (2016-2020)

- **Government-driven** through the ‘Made in China 2025’ national initiative
  - Inspired by Germany's "Industrie 4.0”
  - 10 priority sectors identified for targeted assistance
VIDEO 2
EXAMPLES OF SECTORS ADOPTION INTO INDUSTRY 4.0

- Promote energy efficient vehicles (EEV)
- Digital Engineering & Prototyping (DEP)
- Automotive Cloud Computing
- Industry Integrated Information System (IIIS)
- Smart Manufacturing concept advocacy
- IoT Open Innovation Platform
- Integrated and Intelligent Process Manufacturing
- Proposal of Innovation Manufacturing Centre (IMC) via Research Management Agency (RMA) under EPU
- Data inter-operability
- Cloud computing
- Factory of Future initiative
- National Aerospace R&T Roadmap and industry-led R&T
- More complex aircraft parts work packages that require advanced manufacturing technology
- Digital infrastructure
INDUSTRY 4.0 MANUFACTURING FRAMEWORK

DIGITAL ENABLEMENT ARCHITECTURE
Unified Automotive Platform (UAP)

MAI AUTOMOTIVE DATA OCEAN

Level 5
Corporate Performance

Level 4
Business Logistics
Plant Production Scheduling, Shipping, Receiving, Inventory, etc.

Level 3
Manufacturing Execution System
Dispatching, Detailed Production Scheduling, Production Tracking...

Level 2
Batch Production Control
Continuous Production Control
Discrete Production Control

Level 1
Batch Production Control
Continuous Production Control
Discrete Production Control

BI
ERP
MES
vMould
PLC
Sensors, Actuators

CAD
CAE
PLM
INDUSTRY 4.0: SERVICES INNOVATION
INDUSTRY 4.0: NEW JOBS CREATION

Creation of new jobs & skills.

- Design Engineer
- Data Engineer
- Draughtsman
- Big Data Engineer
- Machine Learning Scientist
- Certified Analyst Engineer
- System Analyst
- CAD
- CAE
- PLM
- Manufacturing Execution System
- Batch Production Control
- Continuous Production Control
- Discrete Production Control
- Manufacturing
- Physical Prototyping
- Design
- CAD
- CAE
- PLM
- Augmented Reality
- IT Engineer
- System Engineer
- Business Analytics Specialist
- Data Scientist
- Software Engineer
- BI Solutions Architect
- IT Analyst
VIDEO 3
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