The Malaysia Automotive Institute (MAI) is an agency of the Ministry of International Trade and Industry (MITI)

- 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 Government Driving Auto Industry Transformation
THE rapid transformation of automotive mobility — from fossil fuel to hybrid and fully electric vehicles — is attributed to the creativity and innovativeness of the global automotive industrial community.

NAP 2014 vision and strategy is to prepare Malaysian Automotive vendor, businesses and entrepreneurs better for a game changing of automotive global digital technology and equip them with the knowledge and skills needed to compete and thrive.

DRIVING INNOVATION IN THE AGE OF EXPERIENCE

Understanding IT Transformations
Defining Policy Transformations
Shape the Malaysian vision and strategy
Innovative & Globally Competitive Workforce

Cloud
Digital Age of Experience
Boosting Digital Entrepreneurship
Public policies
Supporting digital entrepreneurship
Offering Malaysian SMEs new business opportunities
public-private partnerships
COMPONENT VENDORS | CAR MANUFACTURERS | AFTER SALES | ACADEMIA | RESEARCH & DEVELOPMENT

AEC
FTA
LIBERALISATION
NAP 2014 AT A GLANCE

Background
- Development of Automotive Authorized Treatment Facilities Framework (ATFR)
- Malaysia Automotive Remanufacturing Roadmap

Focus
- Market Expansion & Outreach
- Technology & Engineering
- Investment
- Safety, Security & Environment

Perspective
- Human Capital Dev. Roadmap (HCDR)

Concept
- Malaysia Automotive Technology Roadmap (MATR)
- Human Capital Development
- Malaysia Automotive Supply Chain Dev Roadmap

ASEAN HUB FOR AUTOMOTIVE MANUFACTURING
EEV PLAN TO DRIVE SECTOR'S COMPETITIVENESS

Background

On the technological development front, EEV will open up a new frontier for local technocrats, academia, R&D organisations and players in the entire supply chain to design and develop products, processes and materials to fulfil the EEV manufacturing requirement.

- Low Fuel Consumption
- Low emissions
- High Efficiency

- Mono-Fuel
- Bi-Fuel
- Dual-Fuel
- CNG-DI
- Bio-Diesel B5
- Euro 4

- EV
- PHEV
- Hybrids
- Fuel Cell

Lower Fuel Consumption & Lower CO2 Emission
EV Penetration Plan

Passenger Car
- EV Rental/Sharing/Leasing
- EVs with temporary Gov’t Assistance

Battery Manufacturing
- Battery Packs for CVs, Power Storage
- REEV part of solution to extend distance

CV (Public Transportation)
- Pilot (City/ Island)
- Strategic Routing
Understanding how new information technology developments are transforming the Automotive global business landscape and the new way of doing business in the Age of Experience.
EXPERIENCE & DIGITAL FORCE

Focus

Cloud
- Infrastructure as a service
- Cloud accounting
- Virtualization
- Software as a service
- Hybrid clouds
- ...

Cyber

Mobile
- Geo-location marketing
- Localization
- Internet of things
- Mobile payment
- Apps
- ...

Operating model
- Automation of processes
- Use of smart infrastructure
- Integration of physical products into the digital world through embedded wireless devices
- Internal and external collaboration platforms
- Digital prototyping, testing, production and distribution

Business model
- Virtual stores and companies
- Digital services
- Made-to-order, i.e. custom-made to the exact criteria and specifications of the customer

Customer & business insight
- Decisions through deeper analysis of increasing amounts of data
- Social virtualisation
- Digital marketing
TECHNOLOGY COLLABORATION

**Background**
- Mould Making optimisation
- Tool Wear Prediction
- Plastic Injection Optimisation

**Focus**
- Lithium Ion Battery Manufacturing
- Electric Vehicles (EV)
- Flexible Roll Forming
- Lightweight Glazing
- Composites Manufacturing towards 2030
- Battery Material Development towards 2030
- Mould Making optimisation
- Tool Wear Prediction
- Plastic Injection Optimisation

**Perspective**
- Automotive I-Cloud Initiatives
- Total Automotive Parts Solution (TAPS)

**Concept**
- APRiSO®
  - MOM, MES
  - 3Rs: Recyclability, Recoverability, Reusability
- Workshop Management System

**Application Domains**
- **PRODUCT**
- **PROCESS**
- **MATERIAL**
- **MANUFACTURING**
- **SYSTEM**
- **AFTERMARKET**
<table>
<thead>
<tr>
<th>Code</th>
<th>Research Program</th>
<th>Theme</th>
<th>Project Title</th>
<th>Project Description</th>
<th>Period (months)</th>
<th>Parties Involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-111</td>
<td>1 – Vehicle Electrification</td>
<td>1.1 – Breakthrough Battery</td>
<td>Development of Electrodes and Electrolytes for Lithium Ion Battery</td>
<td>A composite anode materials with compatible binder and ionic liquid-based electrolyte</td>
<td>36</td>
<td>MAS, AUS</td>
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<td></td>
<td>MAI, AutoCRC, UoW, UTS</td>
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<td>1-112</td>
<td>1 – Vehicle Electrification</td>
<td>1.1 – Breakthrough Battery</td>
<td>Battery Charge, Mechanical and Thermal Management System Development</td>
<td>A battery charge, mechanical and thermal management system</td>
<td>36</td>
<td>MAI, AutoCRC, UoW, SUT</td>
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<td>1-113</td>
<td>1 – Vehicle Electrification</td>
<td>1.1 – Breakthrough Battery</td>
<td>Lithium Ion Battery Module Packaging and Testing</td>
<td>A battery packaging that reliable for testing</td>
<td>36</td>
<td>MAI, AutoCRC, UoW, UTS</td>
</tr>
</tbody>
</table>
Competitive ASEAN Automotive Industry ...

various existing schemes to boost Digital Entrepreneurship, such as public policies, private initiatives and public-private partnerships
Global vehicle sales have attained a total of 82.27 million units, positive growth of 3.8% in 2013.

Source: Automotive World, marklines, MAI Analysis
Global vehicle production rose by 2.49% with 84.85 million units in 2013.
ASEAN vehicles sale growth of 0.91% in 2013. The significant growth within ASEAN market was mainly attributed to Thailand and Indonesia achievement where, both nations have recorded domestic vehicles sales exceeding 1 million units. Thailand new-vehicle sales fell 10.66% to 1.26 million units in 2013 compare to prior years its tandem with the escalating political violence in the Southeast Asian country. The political issues also shows that the production volume drop by 3,340 units for Thailand industry.

Source: MAI Analysis
The ASEAN Free Trade Area (AFTA) is a collective effort by ASEAN member countries to reduce/eliminate tariffs on intra-ASEAN trade in the goods sector. The initial target is to achieve tariffs between 0 to 5% in 2003 for the six original member countries, while Vietnam by 2006, Lao PDR and Myanmar by 2008 and Cambodia by 2010, and this include elimination of quantitative restrictions and other non-tariff barriers.

The primary objective of AFTA is to enhance ASEAN’s position as a competitive production base for both the regional and the global markets and shall be achieved through:

- promotion of intra-ASEAN trade and industrial linkages, specialisation and economies of scale; and
- promoting the region as an efficient and competitive production base for investments.
CEPT – Common Effective Preferential Tariff

- Introduced in 1993 to eliminate intra-ASEAN import tariffs

- Among its objectives is to reduce tariffs down 0 to 5% rates for ASEAN-6 by 2003, which later will be joined by Vietnam (2006), Laos and Myanmar (2008) and Cambodia (2010)

- More Foreign Direct Investment are expected by the introduction of CEPT

- Cover all four (4) categories namely Inclusion List, Temporary Exclusion List, Sensitive and Highly Sensitive List, and General Exception List.

1. Transferred all CBU and CKD motor vehicles into the Common Effective Preferential Tariff (CEPT) Scheme.
   - The CBU motor vehicles included in the CEPT at 20% tariff, while CKD motor vehicles were phased-in at zero duty on January, 2005.

2. Reduced duties on CBUs to 15% in October 2005 and by January 2008 the duties were reduced between 0 to 5%.
   - The CEPT rates for two CBU public transportation vehicles (motor buses) was reduced to 5% effectively January 2006.
ASEAN vehicles markets

**Perspective**

**ASEAN**
- Dominated by Japanese OEMs
- Toyota @ #1
- 1386 Japanese Automotive Suppliers

**MALAYSIA**
- Dominated by National OEMs PROTON & PERODUA

AFTA benefits OEMs and Suppliers by creating a larger economic scale for Manufacturing

<table>
<thead>
<tr>
<th>Market Leader</th>
<th>Popular Brand 2</th>
<th>Popular Brand 3</th>
<th>Popular Brand 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>Toyota</td>
<td>Honda</td>
<td>Mitsubishi</td>
</tr>
<tr>
<td></td>
<td>36%</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Toyota</td>
<td>ISUZU</td>
<td>Honda</td>
</tr>
<tr>
<td></td>
<td>36%</td>
<td>15%</td>
<td>6%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Proton</td>
<td>Suzuki</td>
<td>Nissan</td>
</tr>
<tr>
<td></td>
<td>30.1%</td>
<td>22.5%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Philippines</td>
<td>Toyota</td>
<td>Mitsubishi</td>
<td>Honda</td>
</tr>
<tr>
<td></td>
<td>41%</td>
<td>22%</td>
<td>8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Countries</th>
<th>Japanese-based Vendors</th>
<th>Total Vendors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of vendors</td>
<td>Share, %</td>
</tr>
<tr>
<td>Thailand</td>
<td>710</td>
<td>36</td>
</tr>
<tr>
<td>Malaysia</td>
<td>134</td>
<td>24</td>
</tr>
<tr>
<td>Indonesia</td>
<td>346</td>
<td>51</td>
</tr>
<tr>
<td>Philippines</td>
<td>95</td>
<td>29</td>
</tr>
<tr>
<td>Vietnam</td>
<td>101</td>
<td>73</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1,386</td>
<td>38</td>
</tr>
</tbody>
</table>

Source: MAI Analysis
ASEAN ECONOMIC PARTNERSHIPS

Background

Strategic economic bloc for the Automotive Investments with growing Bi Lateral and Multi Lateral partnerships

Focus

2013 Combined vehicle sales of 3.54 million units.

Perspective

GDP growth of 5.3% in 2012 & forecasted to double its economic growth by 2020 to USD4.7 trillion.

Concept

Vehicles production in ASEAN has further increased to 4.43 million units in 2013, 5% YTY

Source: ASEAN Automotive Federation, MAA

Source: MITI
ASEAN Economic Community (AEC) 2015

**Perspective**

AEC will further strengthen the automotive markets in ASEAN region and will provide a sustainable business environment in the longer term.

- Complete Elimination of Tariffs Intra-ASEAN
- Mutual Recognition Agreement on Certification
- Harmonization of Automotive Technical Regulations
- Customs Procedures and Distribution Systems Rationalization
- Automotive-Supporting Industries and Human Resources Developments
- Promotion of Safety Precaution and Environmental Protection

**Objectives of AEC**
In some countries, however, doing business is ‘easier’ than in others.

Source: The World Bank (2012); Ease of doing business rank 2012
Malaysian vision & strategy... to support digital entrepreneurship and to offer Malaysian Automotive Vendors new business opportunities and a leading place in the modern digital economy
SUPPLY CHAIN DEVELOPMENT

**Background**
- Lean Production System (LPS)
- Supplier Competitiveness Level (SCL)
- Lean Production System (LPS)

**Concept**

Global Automotive Supplier Level

- Engineering services
- Component supplier / Tier 2
- Original Design Manufacturer (ODM)
- Module supplier / Tier 1

**Level 1**
- Component supplier / Tier 2
- Engineering services

**Level 2**
- Module supplier / Tier 1

**Level 3**
- Engineering services

**Level 4**
- Component supplier / Tier 2

**Level 5**
- Original Design Manufacturer (ODM)
- Module supplier / Tier 1

3DEXPERIENCE Platform for ramp up of the Malaysian Supplier capabilities to a global level

Malaysian Supplier Level
GREEN AUTOMOTIVE LIFECYCLE

**Background**

**Focus**

**Perspective**

**Concept**

New Environmental KPIs

*Dashboards the environmental impacts with Health, Resources & EcoSystem KPIs (ReCiPe method)*

Define environmental objectives

*Capability to define the target environmental score and link it to the requirements.*

3D Product Design connection to the worldwide n°1 environmental catalog provider

*Data linked to the physical model*
DRIVING INNOVATION IN THE AGE OF EXPERIENCE

Background  Focus  Perspective  Concept

PRODUCT  PROCESS  M  MATERIAL

Automotive I-Cloud Initiatives

Business Intelligence (BI)

MANUFACTURING  AFTERMARKET
Three Focus growth areas requiring Human Capital Development Programmes:

1. 1985 (IMP1) - Assembly Based Industry
2. Technology Development
   - Engine Mfg
   - Transmission design
   - Telematics
   - Vehicle Electronics
3. Future Automotive
   - Transmission Mfg
   - Connected vehicles
   - Green cars
   - Production Technology

Areas to be developed through enhancing R&D and Design capability
- Design & Development
- Testing
- Production
- Maintenanc e & quality
- PPC & Logistic
- Distribution & Aftersale

Current areas to be enhanced
- Lean Technology
- Re Manufacturing
The 3DEXPERIENCE Platform - Harnessing the power of collaborative idea realization - to enable our automotive community to create delightful EXPERIENCES for their ultimate customers or consumers.
Thank You

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