Malaysia
Lighthouse
Project
The beacon of Malaysia future industry
Lighthouse Project:
Understanding the Lighthouse model
Understanding the Lighthouse Model

- A WEF initiative launched in 2018 together with McKinsey to identify and showcase those manufacturers at the forefront of implementing technologies enabling the Fourth Industrial Revolution/Industry4.0/Smart Manufacturing.

- In general, the Lighthouse Project consist of industry players that have taken 4IR/Ind4.0/Smart Manufacturing technology from pilot to integration at scale, thus achieving significant financial and operational benefits.

- The term “lighthouse” denotes that these factories can act as beacons to guide the many thousands of others around the world that are still looking to apply technologies like artificial intelligence, additive manufacturing and advanced analytics as well as overcome challenges in upgrading existing production systems.
Step 1: Pilot Phase

Step 2: Integration at Scale
- 4 Walls Lighthouse Model

Step 3: Influence Ecosystem
- Growth, Connectivity with Supply Chain
  - End-to-end Lighthouse Model
Characteristic of Lighthouse Factory

**Large & Small Companies**
These sites represent both large and small companies. Fourth Industrial Revolution innovation is accessible not only to large organizations but also to small- and medium-sized enterprises (SMEs).

**Emerging & Developed Economics**
Lighthouses can be found in emerging and developed economies. Fourth Industrial Revolution technologies are also paying off in manufacturing environments that benefit from low labour costs.

**Minimal Replacement of Equipment**
Lighthouses achieve high impact with minimal replacement of equipment. Most were created by transforming existing brownfield operations. Optimizing existing infrastructure and augmenting it with new machinery can deliver many benefits.

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**Resetting Benchmark**
Lighthouses are resetting industry benchmarks for the manufacturing sector as they are all taking operational and financial impact to new levels. Efficiency gains can reach up to 30% and are leading the broader manufacturing community to accelerate its transformation.

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**Human Capital**
Lighthouses are injectors of human capital. Rather than replacing operators with machines, lighthouses are transforming work to make it less repetitive, adding values, more interesting, diversified and productive.

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**Scalable Technology Platform**
Technology adoption at scale that can have a radical impact upon organizations. A Lighthouse would be able to showcase successful integration of several use cases.

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**Innovators & Collaborators**
Lighthouses are open innovators and collaborators. They engage a innovation system comprising business, government and the social sector, including academia.
Key performance indicator of a Lighthouse factory

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
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<tbody>
<tr>
<td>Productivity</td>
<td>Factory output increase</td>
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<tr>
<td></td>
<td>Productivity increase</td>
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<tr>
<td></td>
<td>OEE increase</td>
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<tr>
<td></td>
<td>Product cost reduction</td>
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<td></td>
<td>Operating cost reduction</td>
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<td></td>
<td>Quality cost reduction</td>
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<td>Sustainability</td>
<td>Waste reduction</td>
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<td></td>
<td>Water consumption reduction</td>
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<td>Energy efficiency</td>
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<td>Agility</td>
<td>Inventory reduction</td>
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<td></td>
<td>Lead time reduction</td>
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<td></td>
<td>Change-over shortening</td>
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<tr>
<td>Speed to market</td>
<td>Speed to market reduction</td>
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<tr>
<td></td>
<td>Design iteration time reduction</td>
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<tr>
<td>Customization</td>
<td>Configuration accuracy increased</td>
</tr>
<tr>
<td></td>
<td>Lot size reduction</td>
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</tbody>
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Benefits of Lighthouse Model

• Manufacturing has experienced a decade of productivity stagnation and demand fragmentation; thus innovation is long overdue.

• Technology can create a better, cleaner world through new levels of efficiency in manufacturing.

• It provides not just incremental but rather, a step change in resetting benchmarks for operational and financial key performance indicators (KPIs).

• Address rapid emergence of ecological constraints, balancing global resource consumption against availability, avoiding challenging impacts on ecosystems, human health and well-being associated with global climate change.
44 Global Lighthouse Network sites as of January 2020

### Site | Change story | Top 5 use cases | Impact | Highlight
---|---|---|---|---
Johnson & Johnson DePuy Synthes in Cork, Ireland | Global innovation center focused on material science and technology innovation, with in-house technical capability and knowledge development | • OEE real-time monitoring of critical assets  
• Additive manufacturing (3D printing)  
• Autonomous process optimization  
• VR training and design tool  
• Collaborative Robotics | • ↑ 5% Asset utilization  
• ↓ 25% Cost of goods sold  
• ↓ 10% Scrap  
• ↑ 5x Safety information retention  
• ↑ 25% Labor efficiency | Dedicated Fourth Industrial Revolution space serves as in-house testing ground for the agile testing and deployment of new use cases

Haier in Qingdao, China | Developed digital manufacturing transformation to meet consumer demand and innovate a new business model | • Mass customization & B2C³ online ordering  
• Real-time operator performance ranking  
• Digital quality management system  
• Digital manufacturing performance  
• Digital product after sales | • ↓ 33% Lead time  
• ↑ 64% Labor productivity  
• ↓ 21% Defects per million  
• ↑ NA OEE increased  
• ↓ 50% Customer, maintenance staff | Innovated new business model with web-based B2C sales channel for configuration and ordering of air conditioners

Schneider Electric in Le Vaudreuil, France | 50 year old plant that recognized the need to stay price competitive for the next 50 years through deployment of digital tools | • Predictive maintenance through IoT  
• Mixed reality for maintenance work  
• Energy management through IoT  
• Lean digitization  
• Smart supply chain- Automated Guided Vehicles | • ↑ 7% OEE  
• ↓ 20% Time to diagnosis/repair  
• ↓ 10% Energy costs  
• ↓ NA Time for lean analysis  
• ↓ 80% Time for milk runs | Workforce involved in the digital transformation from the beginning, leveraging digital technologies such as virtual reality to communicate vision

BMW in Regensburg, Germany | Highly advanced factory with lean processes leverages digital manufacturing to reach the next performance level | • Data analytics and predictive maintenance  
• Smart autonomous logistics transports  
• Smart maintenance and assistance  
• Collaborative robotics and automation | • ↓ 25% Unplanned downtime of press  
• ↓ 35% Logistics cost  
• ↓ 5% Rework  
• ↓ 5% Efficiency in assembly | Strategy focused on effectiveness, the right mindset and easy access to improve quality, cost and productivity

Success Story of Haier in Shenyang, China

Haier’s air-conditioning unit uses digital technology to connect customers with operations. Haier’s air-conditioning unit is achieving its transformational goal of moving from a one-time customer mindset to a lifetime user mentality by using digital technology to connect customer experience with daily operations.

Success Story of Schneider Electric in Batam, Indonesia

Schneider Electric’s platform monitors and adjusts for anomalies. Schneider Electric in Batam has created a platform for stakeholders to monitor and adjust for anomalies within its manufacturing processes.

Key impacts:
- 70% Supplier service rate
- 85% Administration time
- 40% On-time delivery

MIDA
Perspective on Malaysia
Lighthouse Project
MIDA Lighthouse Project

MIDA LP definition
A project that offers an unrivalled opportunity not only to highlight the transformational efforts of advanced manufacturers but also, more importantly, to create a shared learning journey that will help manufacturers around the region/world, across value chains and of all sizes to access and capitalize on the positive potential of the 4IR/Industry 4WRD.

The Elements
- Potential element of Center of Excellence (CoE) that focuses on the development and adoption of digital manufacturing/factory of the future.
- Lighthouse project could be a pioneer/frontier project one of its type in the country
- Mentoring and Vendor Development Programme – between anchor companies and their vendors
- Universities involvement – talent readiness

Focus Points
- Attracting potential foreign/local companies with the Industry 4.0 capabilities
- Rejuvenate existing manufacturing sector
- Encouraging SMEs involvement and co-development
- Collaboration with other agencies e.g. SIRIM, MIMOS, MIDF, Bank Pembangunan
- Potential offset programmes
- Setting up a benchmark for the Industry 4.0 adoption in Malaysia

Creating a Viable Growth
- Resetting benchmarks for the manufacturing sector on operational and financial impact to new levels
- Talent readiness/academia collaboration
- Creative innovation
- Cross-industry collaboration (i.e. supply chain)
- More companies to adopt Industry 4.0
Issues and challenges in implementing Lighthouse Project

- Pilot Purgatory
- Implementing without knowledge
- Understanding business cases
- Company culture
- Finding the right talent
- New business model, new strategy
MIDA as your business partner

1. Industry 4.0 Support
2. Talent & Human Capital Support
3. Business & Post Investment Support
4. Incentives
Possible incentives for Lighthouse project

Industry4WRD DISF/HIF

- Adoption of Industry 4.0 technology
- DISF - Matching grant (60:40) on reimbursable basis for the eligible expenditures in relation to Industry 4.0.
- High Impact Fund - Matching grant (50:50) on reimbursable basis for the eligible expenditures for R&D, training and modernization in relation to Industry 4.0.

Vendor Development Programme

- To create a supply chain ecosystem in relation to Industry 4.0
- To undertake product development, upgrading capabilities & skill training of vendors in relation to Industry 4.0.
- Double deduction on the qualifying operating expenditure incurred by anchor companies up to RM1 million per year for 3 consecutive years of assessment

Industry4WRD Intervention Fund

- A financial support facility for Malaysian Small and Medium Enterprises (SMEs) - manufacturing and related services sectors to embrace Industry 4.0
- Matching grant (70:30) on reimbursable basis for eligible expenditures, up to a maximum of RM500,000.00

Automation Capital Allowance (ACA)

ACA of 200% on the first RM2 / 4 million expenditure incurred within 8 years of assessment from 2015 to 2023.

- To encourage manufacturing companies to engage in innovative and productive activities
- To encourage quick adoption of automation specifically for labour-intensive industries
- To further spur automation initiatives
- To enhance productivity in manufacturing sector

Principal Hub 2.0

Effective 2019, companies approved with the enhanced Principal Hub incentive, also known as PH 2.0, will be able to enjoy a concessionary 10% tax rate for their operations in Malaysia

*Note: Pending Approval from MOF

For further details, please refer to https://www.mida.gov.my/home/forms-&-guidelines/posts/