Industry 4.0 Enabler of Digital Opportunities

September 29th, 2020
Industry 4.0 – The Policy Framework

**The Vision**
- Malaysia’s vision for the manufacturing sector in the next 10 years

**The National Goals**
- Specific goals to guide and measure the progress of transformation
  - Labour Productivity Growth
  - Manufacturing Contribution to Economy
  - Innovation Capacity
  - High-skilled Jobs

**The Shift Factors**
- A set of shift factors that need to be optimised in a balanced manner
  - PEOPLE
  - PROCESS
  - TECHNOLOGY

**The Enablers**
- Specific enablers that determine the strategies, policies and action plans
  - FUNDING: Funding & Outcome-based Incentives
  - INFRASTRUCTURE: Enabling Ecosystem & Efficient Digital Infrastructure
  - REGULATIONS: Regulatory Framework & Industry Adoption
  - SKILLS & TALENT: Upskilling Existing & Developing Future Talents
  - TECHNOLOGY: Access to Smart Technologies
Digital transformation (DX) is a process of moving to a technology-enabled platform to positively change a business model while providing new revenue streams and after-sales opportunities.

The end objective of any DX is to bring in automation by digitalising every aspect of the manufacturing touchpoints through a digitalisation drive.

**Smart Manufacturing**
Data driven processes that rely on asset performance metrics.

**Digital Supply Chain**
Working model depicting product journey before and after manufacturing.

**Connected Customer**
A highly informed customer with access to real-time value chain data.

**Convergence**
Linking the business imperatives with operational data.

Source: IDC
Smart Manufacturing Ecosystem

- To have a communicating medium inter-machine and systems.
- Multiple point sensors for maximum data collections.

- System real-time health monitoring will help releasing dependencies on resources.
- Minimising possibilities of equipment’s over-used to increase machineries life span.

- Data collected and masseur to have a better insights on what’s going on.
- Predictive analysis and Self-Learning Machine.

Connected

Smart Production Journey

Monitoring

Analytics

Digitalisation and Automations

Intelligence

- Full automation of productions.
- Digitalising ecosystem with tweaked data management to put high working efficiencies.

- Semi automations, self guard system and preventive alarm with the insight and detailed analysis on every details received.
Challenges of Malaysia’s Manufacturing Industry & Business Priorities

Manufacturing Industry Challenges

- Declining Sales
- Demand Variability
- Increased Competition
- Lack of Innovation
- Increasing Internal Costs

Business Priorities

- Improved Supply Chain Performance
- Better Operational Excellence
- Reduced Operational Risks
- Increased Focus on Product Innovation
- Exploiting New Markets and Customer Segmentations

- Improved supply chain and equipment effectiveness will improve overall productivity level, providing opportunities for increased revenue.

- Reducing operational risks through streamline operations, total productivity management etc, allows manufacturer to address any value chain related challenges and brace themselves for future disruptions.

Source: IDC
Manufacturing Technology Challenges

- IT Security
- Infrastructure Constraints/Scalability
- Growth of Shadow IT
- Managing of Outsourced Vendors for IT
- Recruitment, Training and Retention of IT Talents
- Justify IT Budget on New Implementation
- Integrating Disparate Applications
- Integrating Suppliers’/Vendors’ Business Processes

How TM ONE can help the Manufacturing Industry

- **Cloud Infra Addressing Data Residency & Security**
  Enterprise Grade Cloud Infra hosted in highly secured TM ONE Data Centre within Malaysia

- **State of the Art Facilities with Sovereignty Compliance**
  - Tier III Data Centre in Malaysia
  - Data Residency, Sovereignty Compliance.
  - Low latency of 4 millisecond round trip

- **End to End Connectivity/ Cloud Solutions**
  TM ONE Cloud Services provide end to end capabilities for Private Cloud, Hybrid Cloud, Multi Cloud and Public Cloud solutions that addresses various markets needs

- **Cloud/ IT Professional Services Capabilities**
  Comprehensive Cloud Professional services from Consultancy, Technology Consulting, Migration Assessment, Cloud Design Planning to enable customers on their cloud adoption journey

- **Industry Solutions**
  In House/ Partners’ Industry Solutions

Source: IDC
Our Products/ Solutions Offerings

Front-End Business Operations
- ONE PASS
- Digital Marketing
- Smart Retail
- VSaaS
- eClassroom
- Fleet Management System

Back-End Business Operations
- Smart Workforce
- Smart Forklift
- Smart Genset
- Smart Manufacturing
- Smart Helmet
- Power BI (Business Intelligence)
- Smart Map
- Document Management as a Service
- Analytics Starter Program

Device and Equipment
- Controllers
- Temperature Sensors
- Humidity Sensor
- Pressure Sensor
- Speed Sensor
- IoT Gateway
- Camera

Data Centre & Cloud
- Twin Core Data Centre
- Virtual Private Cloud
- IaaS
- PaaS
- SaaS

Connectivity
- SDWAN
- unifi Biz
- Enterprise WiFi
- IPVPN
- Metro-E
- VSAT
- Wireless

Professional Services
- Training
- Consultancy
- Business Advisory & Project Management
- Contact Centre
- BPO services
Leveraging On Data Driven Analysis For Smart Manufacturing Implementation

Company Background

- Food manufacturing company with over 30 years of experience.
- Exports to more than 40 countries worldwide.

Challenges

- Silo-ed business systems: order capture, production, warehouse.
- Getting visibility on sales distribution require high human effort.
- Most production machinery has no IT system capabilities hence data is recorded manually.

Solutions

- Geo-location product distribution analysis through integration with TM ONE Smart Map.
- Production dashboard through data capture from IoT sensors.

Outcomes

- Insights on product performance
- Increased visibility on production machinery: temperature, RPM
Case Study

Connecting IOT sensors to plant operation and Collecting insights for Dashboard Reporting

2.1.1 Chilled Water
   - Water Temperature

2.1.2 Sponge Mixer
   - Mixer Duration

2.2 Fermentation Room
   - 1. Room Temperature
   - 2. Room Humidity
   - 3. Fermentation Duration

2.1.3 Dough Mixer
   - Mixer Duration

User Dashboard

IOT Gateway

Legend:
- Serial Connection
- IP Connection
- Sensor
- Signal
- Tapper
- IDAM

Forming & Baking

2.3.1 Forming & Baking
   - 1. Cutter Roller Speed
   - 2. Conveyor Speed (before oven)

2.4.1 Packing
   - Cartoon Number
   - Metal Detector

2.3.5 Forming & Baking
   - Biscuit Moisture

2.3.4 Forming & Baking
   - Oven Temperature

2.3.3 Forming & Baking
   - Oven Conveyor Speed

Dough Sheet Thickness

Cartoon Number

Metal Detector

IOT Platform

TM ONE

User Dashboard

IOT Gateway

Internet

TM ONE

IOT Platform

Connecting IOT sensors to plant operation and Collecting insights for Dashboard Reporting.
Case Study

Smart Forklift & Smart Gen-Set

Company Background

• International presence in 7 countries in the Asia Pacific Region

• One area of business is supply of forklifts and gen-set for industrial use

• Over 30 years of experience in gen-sets

Challenges

• Unable to monitor the machines’ health

• Time consuming and require number of people to perform health check at site.

• High maintenance due to unscheduled maintenance/repair

Solutions

TM ONE Cloud & IOT Platform

TM ONE IOT Gateway

Outcomes

✓ Live monitoring of equipment

✓ Improved maintenance scheduling
Thank you!

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