Domestic Investment Webinar Series 1/2021

Industry4WRD Readiness Assessment

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Draw down from Industry4WRD Policy

A programme identified under Strategy R2 to assess company's Industry 4.0 readiness and to develop action plans to accelerate adoption

R2 STRATEGY

Create a platform and mechanism to help manufacturing firms, especially SMEs, assess and develop their Industry 4.0 capabilities

Industry*4WRD* is aimed to…

1 Assess	2 Gaps	3 Improve	4 National baseline	5 Pre-requisite
Provide **indication on the level of readiness** for an organisation in the adoption of Industry 4.0 elements	To **identify areas of improvements** in each dimension	To **recommend** further **actions** to **improve efficiency and productivity**	To develop **industries** adoption **baseline**	Proposed as **pre-requisite** for future industry 4.0 **incentive**

Introduction

Objective:

Comprehensive programme to help firms assess their capabilities and readiness to adopt Industry 4.0 technologies and processes.

Outcomes:

- State of readiness in the adoption of Industry 4.0 technologies;
- Gaps and areas of improvement for Industry 4.0 adoption as well as opportunities for productivity improvement and growth; and
- Feasible strategies and plans to perform outcome-based intervention projects.

Readiness Assessment Process

Online Registration

Industry4WRD-RA *Technical/ Steering Committee Review*

On-site Assessment

RA report

Table RA report to Technical/ Steering Committee

Inform assessment outcome to company

On-site Assessment

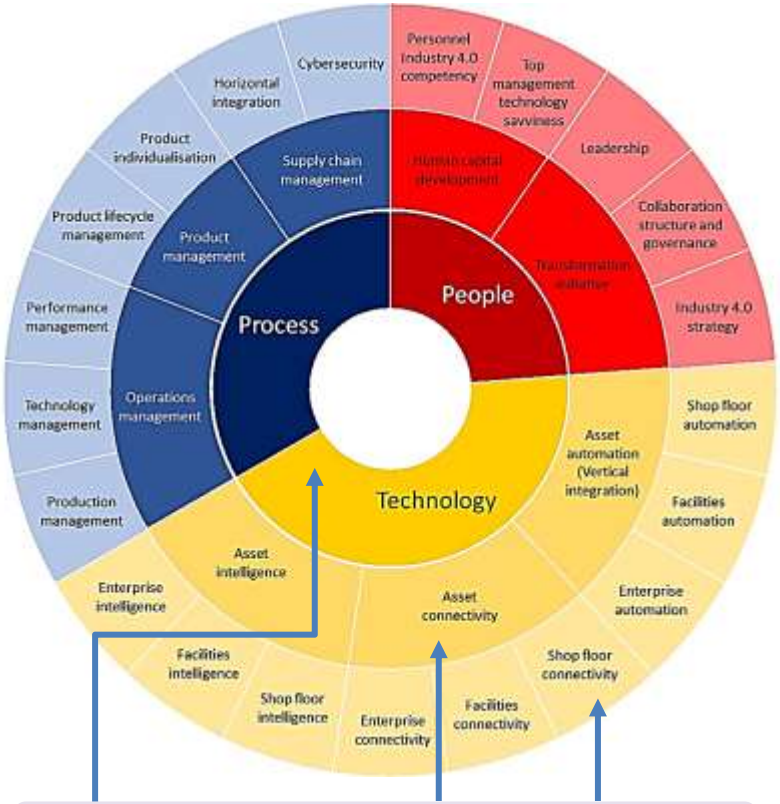
On-site Assessment – Agenda Day 1

TIME	DETAIL	INVOLVEMENT & REMARKS
9.30 a.m.	Opening meeting, introduction of the programme and short presentation on Industry 4.0	Assessment Team & Company
9.45 a.m.	Presentation by company on company's profile and initiatives on Industry 4.0	Assessment Team & Company
10.00 a.m.	Walkabout in production area	Assessment Team & Company
10.15 a.m.	Business and operational review	Assessment Team & Company
10.45 a.m.	Interview and assessment session with company's key personnel – PROCESS & TECHNOLOGY	Assessment Team & Company
12.45 p.m.	Break for lunch	
2.00 p.m.	Interview and assessment session with company's key personnel – PEOPLE	Assessment Team & Company

On-site Assessment – Agenda Day 2

TIME	DETAIL	INVOLVEMENT & REMARKS
9.30 a.m.	Discussion on pain points and potential technology intervention POC	Assessment Team & Company
11:00 a.m.	Continue with report writing and preparation of preliminary findings	Assessment Team
2.00 p.m.	Discussion on preliminary findings with company's management team & end of assessment	Assessment Team & Company

Industry4WRD Readiness Assessment Criteria



3 Shifts Factors **8** Thrusts **21** Dimensions

Technology

Focuses on the **application** of intelligent, connected and automated technologies at **3 different layers**

50%

Process

Focuses on the **management system** involved in running business **operations, supply chain & product lifecycle**

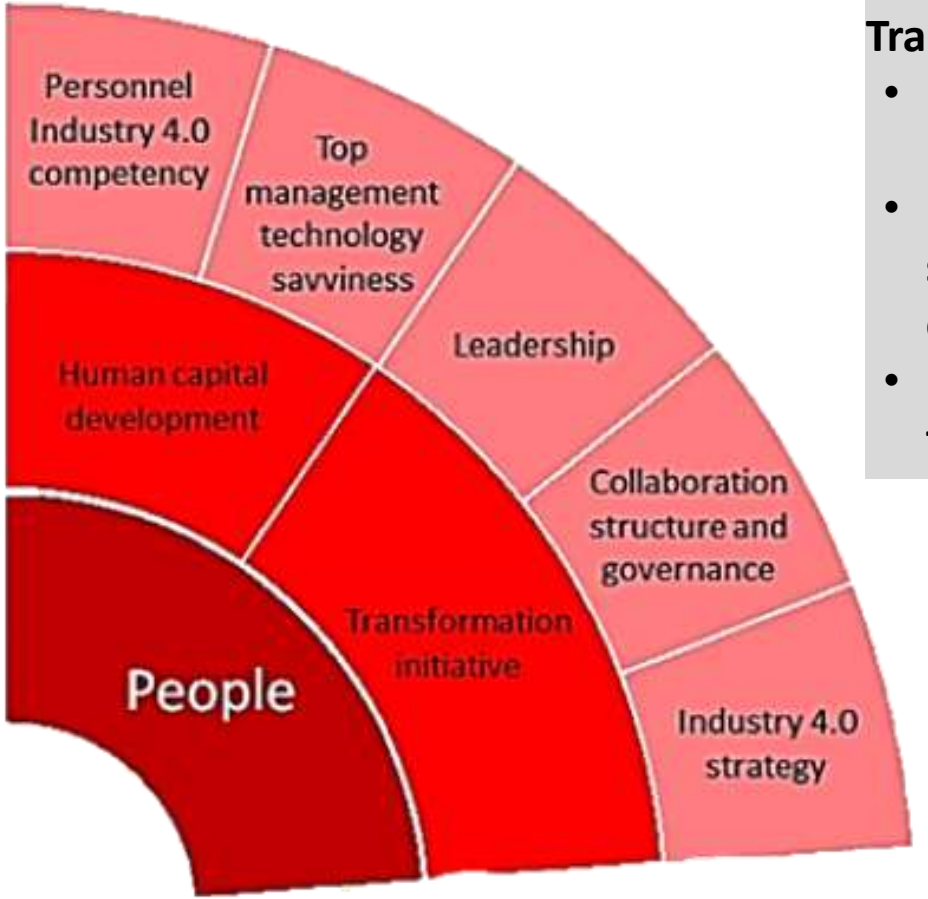
30%

People

Focuses on the **people** and the entire organisation by emphasising on strategies towards having a **suitable** set of **workforce**

20%

Industry4WRD Readiness Assessment Criteria - People



Transformation Initiative

- **How the company transform itself towards Industry 4.0?**
- **How the communication & information sharing is performed within the company & external parties?**
- **Does the company have an Industry 4.0 transformation plan?**

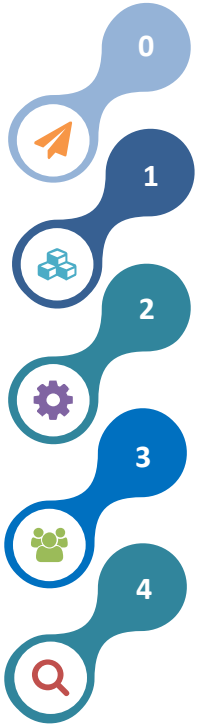
Human Capital Development

- **Is there any competency development plan for the management team and employees?**
- **Is there any training plan developed?**
- **Do they measure training effectiveness?**

Assessment bands for Shift Factor : People

Leadership dimension

BAND



Unfamiliar

Management **is unfamiliar with the concept** of the Fourth Industrial Revolution and/or Industry 4.0 product requirements, and/or technology trends. (Traditional leaders)

Reactive

Management is **aware** of the changes brought by the Fourth Industrial Revolution and/or Industry 4.0 but adopts a **wait and see** approach of peers before responding or depend on external parties before developing initiatives.

Beginner

Management have **strategic perspective and critical analysis** of opportunities and threats posed by the Fourth Industrial Revolution and/or Industry 4.0. Have plans to be early adopters. (Fast follower)

Strategist

Management **understands application of latest technology and trends**. Management has a sustainable **plan** for **early adoption** which is efficiently organised and resources coordinated to ensure a successful implementation. (Pace setter)

Flexible

Management can **independently adapt and apply its organisational transformation framework** based on changing needs and technology trends, with a clear vision for Industry 4.0. Sustainable implementation plan is continuously reviewed and monitored. Management is actively engaged with each personnel group.

Industry4WRD Readiness Assessment Criteria - Process

Operation Management

- How the company manage the production process?
- How production technology is being managed?
- How the performance is being managed?

Product Management

- How the product lifecycle process is being managed?
- Does the production machine can allow product individualisation or mass customisation?

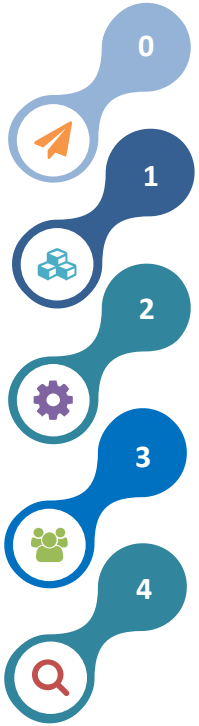
Supply Chain Management

- How the company interact or exchange data with the suppliers and customers?
- Does the company have a cybersecurity policy?

Assessment bands for Shift Factor : Process

Production management dimension

BAND



Unstructured

Production processes are done **manually**. No dedicated machine or equipment to run production process. **No operation management system** in place.

Dedicated but unstructured

Dedicated machine or equipment are allocated to run production process, but manufacturing/quality parameters are unstructured.

Dedicated

Dedicated machine or equipment are allocated to run production process and manufacturing/**quality** parameters are **controlled.**

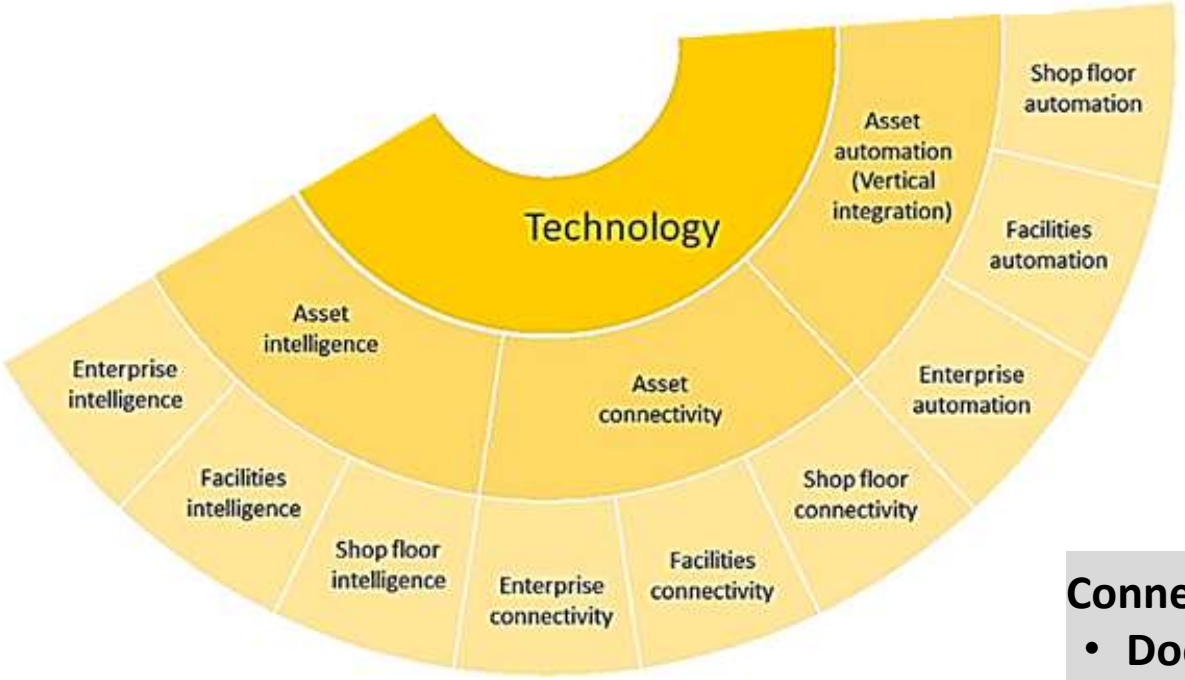
Reconfigurable

Dedicated manufacturing cells with predetermined **reconfigurable** machines or equipment are allocated to run continuous production process.

Flexible

Manufacturing cells are capable of utilising any predetermined machine or equipment for the purpose of continuous production. **Flexible** manufacturing systems **are highly automated.** Machines are **fully integrated** at the shop floor and at enterprise level. This management systems have **analytical and adaptive** capabilities.

Industry4WRD Readiness Assessment Criteria - Technology



Automation

- **Machines/system used to carry out the processes at shop floor, facilities & enterprise.**

Connectivity

- **Does the machine/system connect to other machine /system at shop floor, facilities & enterprise?**

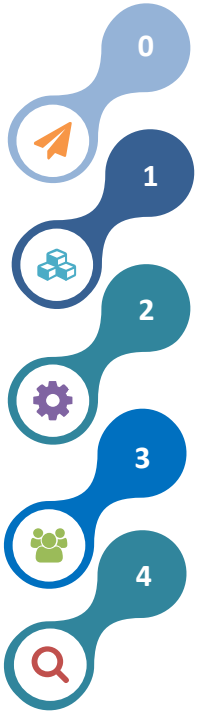
Intelligence

- **Does the machine/system at shop floor, facilities & enterprise achieved Cyber-Phycisal Level 1, 2 or 3?**

Assessment bands for Shift Factor : Technology

Shop floor intelligence dimension

BAND



None
Shop floor assets are **not on any electronic or digital system**

Computerised
Shop floor assets apply **pre-programmed logic to perform tasks** on its equipment, machinery and computer-based system

Diagnostics
Shop floor assets are **connected with network sensors and devices** which allows the **integrated system to identify and notify critical problem** and inform **possible causes**

Predictive
Shop floor assets can **predict** and notify critical problem and inform possible causes

Adaptive
Shop floor assets can predict, notify critical problem, and **independently execute decision** to optimise performance and resource efficiency. Assets are able to undertake corrective measures

Scoring & Readiness Profile

Readiness profile	Percentage scored	General descriptions
Conventional	0 % to 20 %	Operation remains “as is” with no intention or initiative to embark on Industry 4.0 initiative.
Newcomer	21 % to 40%	Have interest to pursue Industry 4.0 but with none or very minimal efforts.
Learner	41 % to 60 %	Have interest to pursue pilot project for Industry 4.0 in operation. Planning and strategies, efforts either simple or scattered initiatives exist. Ready for minor system adoption.
Experienced	61 % to 90 %	Have undertaken small to medium scale Industry 4.0 initiatives in operation as well as horizontal integration. Ready for major system adoption.
Leader	91 % to 100 %	Have implemented large scale Industry 4.0 initiatives (company-wide) and system integration.

Report Structure

Company Profile & KPIs

Company information including name of organisation, main product, business & operational KPIs, RA participants

Assessment Findings & Recommendations

Point scored for 21 dimensions, key findings and recommendations

Classification of organisation based on its Readiness Level

Overall score and readiness profile

Shift factor improvement plan

Highlight of pain points and best practices in relation to Industry 4.0 for all shift factors

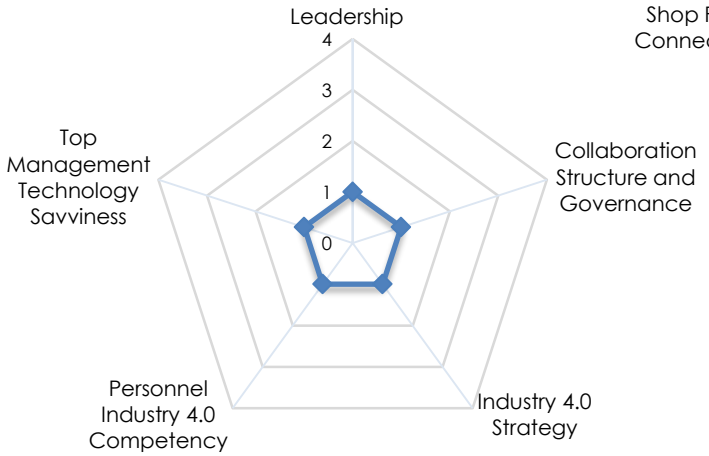
Proposed Action Plan

List of possible action plans to address the pain points and human capital development

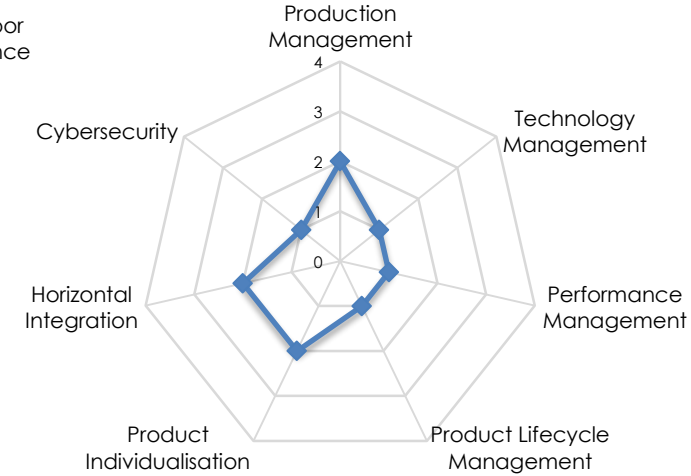
Snapshot of Shift Factor Scoring

Technology (11% out of 50%)

People (5% out of 20%)



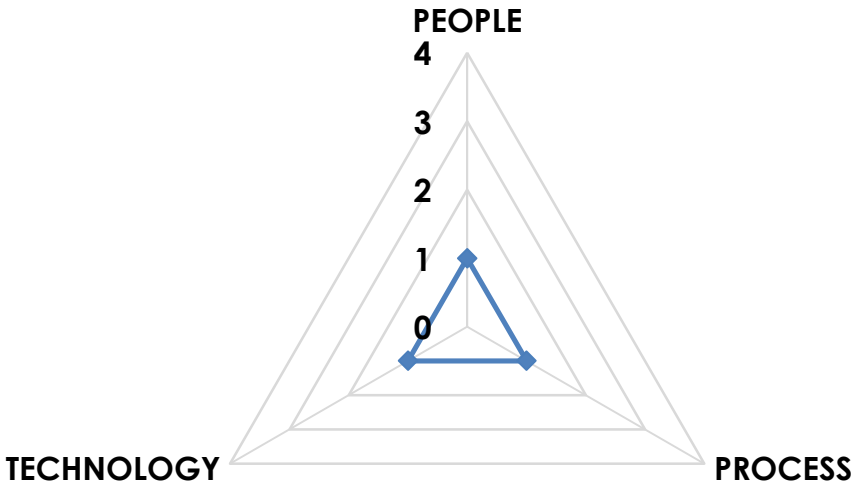
Process (11% out of 30%)



Total Score (27% out of 100%)

Report Summary

Average Score for Each Shift Factor



Company scored 27%

Readiness Profile	Points
Conventional	0 %-20 %
Newcomers	21 %-40 %
Learners	41 %-60 %
Experienced	61 %-90 %
Leaders	91 %-100 %

Snapshot of Findings

PEOPLE

- Company A does not have an explicit Industry 4.0 implementation strategy for the company's business operations. However, the management team has the intention to adopt Industry 4.0 for the factory operations.
- No analysis has been carried out on the opportunities and threats that maybe caused by digitalising its business operations. The management focuses on the immediate action to improve the production capacity.

PROCESS

- Performance indicators are organised manually and through partial application of electronic/digital management system such as ABC Platform for retail sales performance and DEFGH Accounting software for financial performance.
- Cybersecurity initiative is minimal and limited to some aspects of physical device security and computer-based systems access control.

TECHNOLOGY

- All processes along the value stream in the shop floor use standalone and semi-automated machines, which require operators to start and stop each process using a dedicated control panel at each machine.
- Several shop floor assets apply pre-programmed logic controller (PLC-based or hard-wired control system) to perform tasks. However, all machines are standalone and have no connectivity feature.

Thank You

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