

New Smart Industry Readiness Index Prioritisation Matrix to bridge gap between Industry 4.0 awareness and implementation

*Launched at Hannover Messe, the management planning tool will help
manufacturers prioritise transformation initiatives for greater impact*

Hannover, Germany, April 01, 2019 – The Singapore Economic Development Board (EDB) today launched the Smart Industry Readiness Index *Prioritisation Matrix* a management planning tool to help manufacturers worldwide prioritise focus areas and digital initiatives based on their facilities' Industry 4.0 maturity and current financial performance. Unveiled at the world's leading and largest trade fair Hannover Messe, the tool was developed in consultation with knowledge partners McKinsey & Company, SAP, Siemens and TÜV SÜD.

The Prioritisation Matrix aims to close the gap between awareness and implementation of Industry 4.0 solutions¹ by helping companies be more systematic and robust in their implementation and optimising resource allocation for maximum value.

The Prioritisation Matrix uses four inputs to derive a numerical score depicting the relative benefit a company will gain when transformation initiatives are focused on a particular business area (see Annex A for detailed explanation on Prioritisation Matrix formula). This provides manufacturers with greater clarity on desired outcomes and a higher level of confidence that implemented projects would generate sufficient value.

¹ In a 2018 McKinsey survey of over 200 manufacturing companies across six ASEAN markets, 75 per cent of respondents recognised that Industry 4.0 technologies and concepts could improve business performance, yet only 13 per cent had embarked on Industry 4.0 initiatives

“As a medium-sized enterprise with limited resources, it is especially important that we invest our time and effort in the right areas,” said Mr Amos Leong, CEO, Univac. “The Prioritisation Matrix is a valuable tool because it highlights the high impact areas that we should focus on for our Industry 4.0 plans.”

“We began our transformation journey back in 2014, where Industry 4.0 was a relatively new concept. The Prioritisation Matrix is therefore timely as it not only validates our ongoing initiatives, but also helps provide greater clarity on their desired outcomes,” said Ms Maeve Lynch, Plant Manager of Pacific Refreshments Pte. Ltd. (Coca-Cola). “We will be using the recommendations from the Prioritization Matrix to review our implementation plans and ensure that we are able to harness the full potential of Industry 4.0 over time.”

The Prioritisation Matrix builds upon the Smart Industry Readiness Index *Assessment Matrix*, which was launched in November 2017 (see Annex B). The Assessment Matrix helps companies identify their Industry 4.0 maturity across three fundamental pillars of Industry 4.0: Process, Technology and Organisation.

“When it comes to Industry 4.0, many companies often focus on technology, while neglecting other critical enabling aspects such as internal company processes and manpower development,” said Mr Chng Kai Fong, Managing Director, EDB. “The Prioritisation Matrix complements the Assessment Matrix by providing a holistic approach to transformation, ensuring companies prioritise their efforts on the areas that are most critical to their business.”

The Prioritisation Matrix is available to all manufacturing companies globally. Interested parties may contact EDB or any of the respective knowledge partners to learn how they can utilise the application for their facilities. A downloadable copy of the whitepaper detailing the development of the Prioritisation Matrix can be found at www.edb.gov.sg/en/news-and-resources/news/advanced-manufacturing-release.html.

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Annex A: How does the Prioritisation Matrix work?

Four inputs to help manufacturers identify focus areas for transformation

THE 4 INPUTS INDEX OF THE PRIORITIZATION MATRIX



The Prioritisation Matrix was developed in consultation with the knowledge partners over a ten-month period, utilising 200 used case studies in Industry 4.0 transformation. To ensure its technical robustness and applicability, pilots were conducted with nine Singapore-based manufacturers, comprising small and medium-sized enterprises (SMEs) and multinational corporations (MNCs) across both discrete and process industries (see Annex B for list of participating organisations).

The Prioritisation Matrix utilises the following four inputs to help manufacturers prioritise digital initiatives:

1. *Assessment Matrix Score*: Launched in Nov 2017, the Assessment Matrix (see Annex B) helps companies identify their Industry 4.0 maturity, ranging from Band 0 to Band 5, across 16 dimensions
2. *Revenue-Cost Profile*: breakdown of a company's cost categories as a percentage of its overall revenue
3. *Key Performance Indicators*: measures used to evaluate a company's success or effectiveness in achieving its key business objectives and strategic directives
4. *Proximity to Best-in-Class*: difference between the average banding of the top performing manufacturing facilities and the users' current banding for each of the 16 dimensions

The Prioritization Matrix formula brings together four inputs to generate an impact value per band improvement (“Impact Value”) across the 16 Index Dimensions. The Impact Value represents the relative benefit that a company will gain from progressing by a single band, within a particular Index Dimension. By comparing the Impact Values of the different band improvements, manufacturers will be able to quantitatively identify the focus areas to prioritise.

Participating organisations as at 01 April 2019

1. Infineon Technologies Asia Pacific Pte. Ltd.
2. Kimberly Clarke Singapore Pte Ltd
3. Pacific Refreshments Pte Ltd
4. Procter & Gamble International Operations SA Singapore Branch
5. Rockwell Automation Asia Pacific Business Center Pte. Ltd.
6. SATS Ltd
7. Sunningdale Tech Ltd
8. Shine Precision Engineering Pte Ltd
9. Univac Precision Engineering Pte. Ltd.

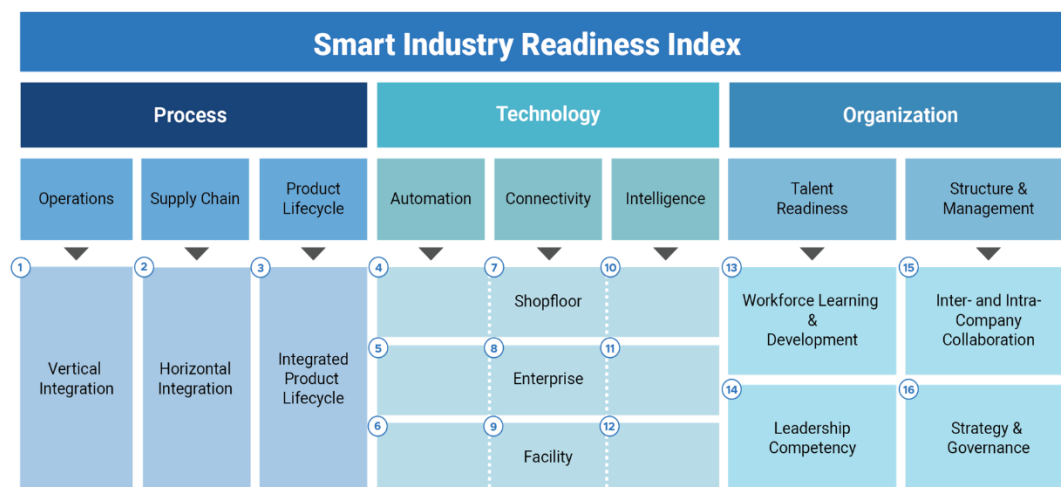
Annex B: The Smart Industry Readiness Index – Assessment Matrix

Launch of the Assessment Matrix on 13 Nov 2017

The Smart Industry Readiness Index Assessment Matrix is a world-first Industry 4.0 tool developed by the Singapore Government to enable the transformation of industrial sectors, at both the enterprise and national levels. Created in partnership with global testing, inspection, certification, advisory and training company TÜV SÜD and validated by an advisory panel of industry and academic experts, the Assessment Matrix has been designed as a comprehensive tool to help companies across all industries and sizes to harness the value of Industry 4.0 in a systematic and comprehensive way.

The Assessment Matrix comprises 3 layers. At the top are the 3 fundamental building blocks of Industry 4.0: Process, Technology, and Organization. Underpinning these building blocks are 8 pillars of focus, which then map onto 16 dimensions of assessment. Companies can evaluate their current processes, systems and structures across these 16 dimensions.

The Assessment Matrix also doubles as a step-by-step improvement guide, as each dimension provides intermediate steps needed for companies to progress.



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About the Singapore Economic Development Board (EDB)

The Singapore Economic Development Board (EDB), a government agency under the Ministry of Trade and Industry, is responsible for strategies that enhance Singapore's position as a global centre for business, innovation, and talent. We undertake investment promotion and industry development, and work with international businesses, both foreign and local, by providing information, connection to partners and access to government incentives for their investments. Our mission is to create sustainable economic growth, with vibrant business and good job opportunities for Singapore.

For more information on EDB, please visit www.edb.gov.sg.

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About McKinsey & Company

McKinsey & Company is a global management consulting firm, deeply committed to helping institutions in the private, public and social sectors achieve lasting success. For over eight decades, our primary objective has been to serve as our clients' most trusted external advisor. With consultants in more than 100 offices in 60 countries, across industries and functions, we bring unparalleled expertise to clients anywhere in the world. We work closely with teams at all levels of an organization to shape winning strategies, mobilize for change, build capabilities and drive successful execution.

About McKinsey's Digital Capability Centers (DCC)

McKinsey's Digital Capability Centers (DCC) are a global network of Industry 4.0-focused capability centers to drive digital transformation of companies around the world. Offering services from experiential learning and capability-building to piloting new technologies, the DCCs support companies at every stage of their digital transformation journey. The DCC network includes facilities in Aachen (Germany), Beijing, Chicago, Singapore and Venice (Italy). Each center has been founded in partnership with a leading industry consortium, government organization, or research institution.

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About SAP

As market leader in enterprise application software, SAP (NYSE: SAP) helps companies of all sizes and industries run better. From back office to boardroom, warehouse to storefront, desktop to mobile device – SAP empowers people and organizations to work together more efficiently and use business insight more effectively to stay ahead of the competition. SAP applications and services enable more than 404,000 business and public sector customers to operate profitably, adapt continuously, and grow sustainably. For more information, visit www.sap.com

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About Siemens AG

Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for more than 170 years. The company is active around the globe, focusing on the areas of electrification, automation and digitalization. One of the largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of efficient power generation and power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry. With its publicly listed subsidiary Siemens Healthineers AG, the company is also a leading provider of medical imaging equipment – such as computed tomography and magnetic resonance imaging systems – and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2018, which ended on September 30, 2018, Siemens generated revenue of €83.0 billion and net income of €6.1 billion. At the end of September 2018, the company had around 379,000 employees worldwide. Further information is available on the Internet at www.siemens.com.

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About TÜV SÜD Group

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing and advisory services. Since 1866, the company has remained committed to its purpose of enabling progress by protecting people, the environment and assets from technology-related risks. Through more than 24,000 employees across over 1,000 locations, it adds value to customers and partners by enabling market access and managing risks.

TÜV SÜD is on the forefront of the fourth industrial revolution. The Industry 4.0 services comprise technical advisory, maturity assessments and roadmapping, training, as well as testing and certification of digital twins and connected industrial systems. TÜV SÜD's experts ensure that smart solutions are safe, secure and reliable.

By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in a physical and digital world to create a safer and more sustainable future.

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