

Update on Operation & Technology Roadmapping (OTR): Consortium OTRs

联营商业与科技运作蓝图

What is it?

A*STAR started the Operation & Technology Roadmapping (OTR) initiative in 2003 as part of the **Growing Enterprises through Technology Upgrade (GET-Up)** programme to help local enterprises, especially SMEs, develop customised roadmaps aligned to their business strategies and goals. The initiative aims to help local enterprises identify technologies to increase their competitive edge.

2 As announced at Budget 2017, A*STAR is committed to expand its efforts to support 400 companies from 2017 till 2020. As of 2018, A*STAR has engaged 309 companies through OTR since the inception of the scheme.

How does it work?

3 OTR is typically conducted on a one-on-one basis by A*STAR's SME Office with individual companies, over five half-day sessions, covering the following steps:

- a. Defining business objectives;
- b. Understanding key drivers;
- c. Developing new ideas;
- d. Identifying technology enablers; and
- e. Actualising the roadmap.

A detailed infographic is in [Annex A](#).

4 Building on the success of the OTR initiative, A*STAR will be launching "consortium-style" OTRs to develop technology roadmaps for groups of local companies within the same sub-sector, in collaboration with industry partners including Trade Associations and Chambers (TACs). This will enable A*STAR to reach out to more local enterprises, in line with our efforts to foster pervasive innovation in the economy.

5 These consortium-level roadmaps will:

- a. Help individual companies in the consortium make better-informed decisions in their firm-level innovation strategies. This would include decisions related to R&D investments, intellectual property strategy and potential R&D partners;
- b. Provide a roadmap where the consortium can work together to develop deeper capabilities in innovation. This would include capabilities that would help SMEs in the consortium move up the value chain; and

- c. Serve as a platform for Institutes of Higher Learning (IHLs) to gear their research towards industry needs.

The main differences between Consortium and one-to-one OTRs is summarised in Annex B.

6 Following the identification of technologies or innovation solutions to meet the consortiums' needs, A*STAR will link potential solution providers to the participating companies for potential adoption. If there are no readily available technologies, A*STAR can work with the participating enterprises to co-develop these new technologies, together with relevant Research Institutes and Institutes of Higher Learning (IHLs).

7 A*STAR has successfully conducted pilots of Consortium OTR in sectors such as Food Manufacturing and Logistics. In line with the plans set out under the Industry Transformation Maps (ITMs), Consortium OTR workshops will be held for other sectors and will involve participants from government agencies, industry, and research performers.

8 One example of how a Consortium OTR benefitted multiple companies is the **Food Manufacturing Consortium OTR**, where 16 SMEs came together to identify key technological needs in the sector. This Consortium then narrowed its focus on the area of Industrial Internet of Things (IIoT), which aimed to achieve the following through the OTR process:

- a. Identify IoT needs and applications for food manufacturers to raise productivity;
- b. Identify future capabilities/needs for food manufacturers to be world leading food companies;
- c. Identify and link-up solution providers with food manufacturing companies.

9 The key technologies which were identified through this OTR include: (i) solutions to enhance monitoring of operations (automated reporting based on integration of shop floor data and core business processes, shop floor control system); (ii) inventory and supply chain management (delivery fleet management); (iii) manpower (scheduling solution for dynamic task re-scheduling); and (iv) food waste management (monitoring shelf life). A*STAR is in the process of rolling out the next phase of the Food Manufacturing Consortium OTR, to match companies with technology partners, such as from the IHLs, private sector technology providers and contract research organisations (CROs).

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For media enquiries, please contact:

Derrick Wong

Corporate Communications, Agency for Science, Technology and Research (A*STAR)

DID: 6517 7970

Email: derrick_wong@scei.a-star.edu.sg

Annex A:



Annex B

Consortium OTR vs 1-to-1 OTR

- Consortium OTR**
- To map out the general trend and direction for an industry aligned to the ITM
 - To identify industry needs
 - To kick-start projects/research programmes to uplift the sector

- 1-to-1 OTR**
- To map out a specific direction for a company
 - To identify company specific needs
 - To identify new technology and/or new products for adoption such that company is able to increase their competitive edge