



## CASE STUDY: IHI CORPORATION

**IfM Education and Consultancy Services worked with IHI Corporation to help the heavy industry manufacturer integrate roadmapping techniques in future systematic innovation and strategy planning.**

### Sector

Industrial manufacturing

### Project scope

Develop knowledge and skills to effectively integrate roadmapping techniques into the company's innovation and strategy planning

### About the organisation

IHI was established as Ishikawajima Shipyard in 1853 and has evolved into a global heavy industry manufacturer that builds ships, aircraft engines, storage and processing plants, rocket and space exploration systems, energy systems, transport infrastructure and agricultural machinery. The company employs more than 29,000 people and has offices around the world, with its head office in Tokyo, Japan.

### The Challenge

IHI has been successfully developing advanced manufacturing technologies and product lines in-house since the company was established. It has an international reputation for energy management, materials and combustion technologies.

With an increasingly complex world economy accelerating the demand for information and communications technologies, IHI saw an opportunity to step up its innovation efforts. IHI was already innovating in the areas of low-carbon technologies and working with robotics, artificial intelligence, and the Internet of Things in smart factories. The company's senior executives were looking for further opportunities and felt that the company could increase its successful commercialisation of R&D by

improving strategic dialogues within and between its internal departments and with external stakeholders to align technology push and market pull through co-created solutions. IHI has traditionally relied on its technical experts to come up with innovations and was looking for a structured approach involving interactive processes to include various stakeholders of the company in innovation and strategy planning.

### Roadmapping process

The graphical nature of roadmapping was identified as a particularly useful tool for IHI to communicate and discuss strategies with people from different departments and across different levels of the company. Roadmapping enabled staff from key areas of IHI to work together through a series of mapping workshops to

clarify what strategic themes were important to the company and to understand which technological resources and capabilities were needed. To support the process, IfM's Make-or-Buy method was integrated into the roadmapping workshop.

To fully benefit from roadmapping, the technique needs to be expanded to the rest of the organisation, integrated into its business cycle and readily accessible to all staff and stakeholders. Roadmapping is also most powerful when used in conjunction with portfolio management, scenario planning, technology assessment and 'manufacturing footprint' strategies. IfM ECS provided intensive roadmapping facilitator training to the core-members at IHI so that they could introduce and utilise roadmapping and the other complimentary strategies as a tool back within their own departments and across the whole company.

### The Outcomes

Roadmapping is helping IHI to clearly define and prioritise the company's vision and the different options to reach that vision. As a result, the company has formulated a clear strategy and future directions that draw on its collective strengths, preparing for IHI's future energy business. It is helping IHI to develop a sustainable strategy that can be re-visited on a regular basis to ensure

that the company stays on track to fulfil its vision. It is the roadmapping process involving interactive learning and communication across key departments of the company and with external stakeholders that is helping IHI make better strategic and innovation decisions.

Through the roadmapping process, IHI developed strategic themes for its energy business, which will be used as a foundation in future energy strategy discussions. It was identified that leveraging ICT to deliver high value solutions including products, services and systems was a key priority to enable the company to undertake more sophisticated manufacturing. A key outcome was the recognition that open innovation could potentially increase the company's ICT capabilities. Roadmapping also revealed the key steps that are required to introduce open innovation into the company's traditional structure and the different options for commercialisation of R&D and business development, including business model transformation. A further aspect of the collaboration was the building of in-house capability in roadmapping to support the wider rollout of the approach and to help embed it in formal processes.

IHI developed the strategy for one part of its company through the roadmapping workshop as a pilot and is now applying the resources to implement the roadmapping

technique into the company's organisational systems and business cycle. The core members of the workshops, who are from various departments of IHI, are introducing roadmapping techniques to their departments. Roadmapping is being used as a tool to communicate and discuss strategies in a common language within and between departments, between different levels of the organisation and with external stakeholders.

**“Roadmapping provided a valuable framework to bring the right people together to share knowledge and to transform this collaborative knowledge into delivering better strategy and innovation planning.”**

Dr Hiroyuki Nose,  
Manager, Technology Planning  
Department  
IHI Corporation

**IHI GROUP**



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IfM Education and Consultancy Services works with companies of all sizes to help create and capture value, and with national and regional governments to support and grow their industrial sectors. It does this by transferring the new ideas and approaches developed by researchers at the Institute for Manufacturing (IfM) through a programme of education and consultancy services.

IfM ECS is owned by the University of Cambridge. Its profits are gifted to the University to fund future research.

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