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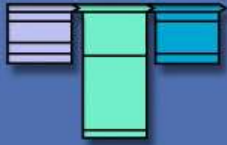
FORESIGHT

Strategic futures planning Suggestions for success

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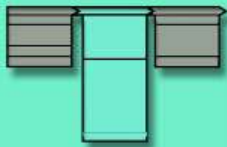
Strategic Futures Planning

Suggestions for Success

Author: Andrew Jackson, Deputy Director Foresight

Foresight and the OST Horizon Scanning Centre are run by the Office of Science and Technology in the Department of Trade and Industry. Project findings are independent of Government and do not constitute Government policy.

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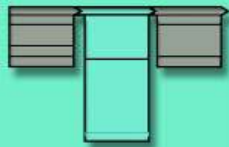
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Roadmaps



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Roadmaps: the broad approach

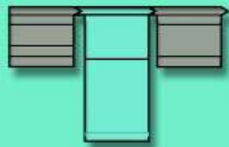
Decide on the type of roadmap

Identify key areas of science, potential applications and broad market drivers

Build draft roadmaps noting interdependencies and possible alternative technological solutions

Collect data to provide assessment of cost to deliver roadmaps

Workshop to test data and refine roadmaps



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Roadmaps: key steps

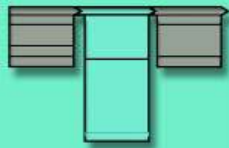
Step 1: Decide the type of roadmap. There are a number of different types of roadmaps – from those which underpin the development of a specific product, those which set out the technologies to deliver an evolution in the capability of an existing product and those which set out the broad steps and critical technologies to deliver a step change in capability. The last type also tends to include incremental advances that might lead to that step change

Step 2: Identify current science and market drivers. You will need to collect this information using either workshops or paper-based analysis

Step 3: Build skeletons of the roadmaps. A good approach to this is to run a workshop to play with the information you have created. The workshop should bring together the scientists, with the users. Working around large pieces of paper to play with ideas in small groups of six works very well. Then allowing the groups to comment on each other's drafts ensures breadth of input

Step 4: Develop the roadmaps. Once you have the skeletons, you need to undertake more detailed analysis of timings costs and connections between technologies

Step 5: Test the roadmaps. Once you have developed the roadmaps, you need to return to the community and check that the development is correct



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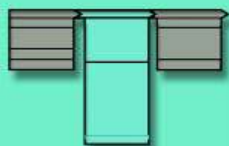
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Roadmaps: suggestions for success

- The future owners must work with you on the roadmap throughout the process. This means you need to engage them from the start and agree how they will maintain and use the roadmap once it is built - a roadmap is for life not just for Christmas
- Provide an opportunity for those with understanding of the market to interact with those with understanding of science. Ideally, involve social scientists as well as technologists and the users, as well those who will deliver the new technology. If possible it is also good to bring in one or two people who are unconnected with the area you are exploring who can give completely different perspectives
- It takes time to develop a good roadmap, to allow time for iteration
- Look to see whether there are other technological or social solutions outside of the scope of your roadmap which might make your roadmap irrelevant. Example, if looking at medical imaging, is to recognise that the future of such technology might either come from ultrasound equipment or radiation-based imaging equipment
- Look for key technologies or key applications. These become clear if you build more than one roadmap and can suggest key areas for investment, which might mean you need a sub-roadmap to focus on the delivery of that underpinning technology
- Consider capability - whether this is for the UK or a company, you need to consider the capability of the owner to deliver the roadmap. So at the end, a good decision might be not to seek to draw up a roadmap if competitors are a long way ahead, though if the future is far enough ahead, it might be possible to catch up with a competitor



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Roadmap: a case study – Foresight EEMS project

Objective

- The objective of the project was to identify areas of commercial opportunity for the UK from developments in science of the electromagnetic spectrum, from radio waves through to laser and X-rays. And then to develop a plan to invest in those areas

Outcomes

- Four roadmaps showing the critical stages in the development of the technologies
- Data on potential market size for each of the areas of opportunity with an assessment of steps and costs to realise those opportunities

Approach

Step 1 – Identify with leading scientists the key areas of exciting science

Step 2 – Work with experts and businesses to identify potential future technologies and their wider implications

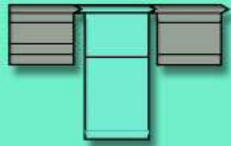
Step 3 – Build the information on technologies, science and applications into a technology roadmap

Step 4 – Contract a market research company to assess the potential market sizes of the new technologies

Step 5 – Review the opportunities with experts and investors, prioritise the key opportunities and update the roadmap to reflect steps to realise the new technologies

Step 6 – Develop a clear plan of action with stakeholders to invest in the critical areas of science and technology and to take any necessary steps to explore the wider implications (e.g. ethical, regulatory)

Building the roadmaps



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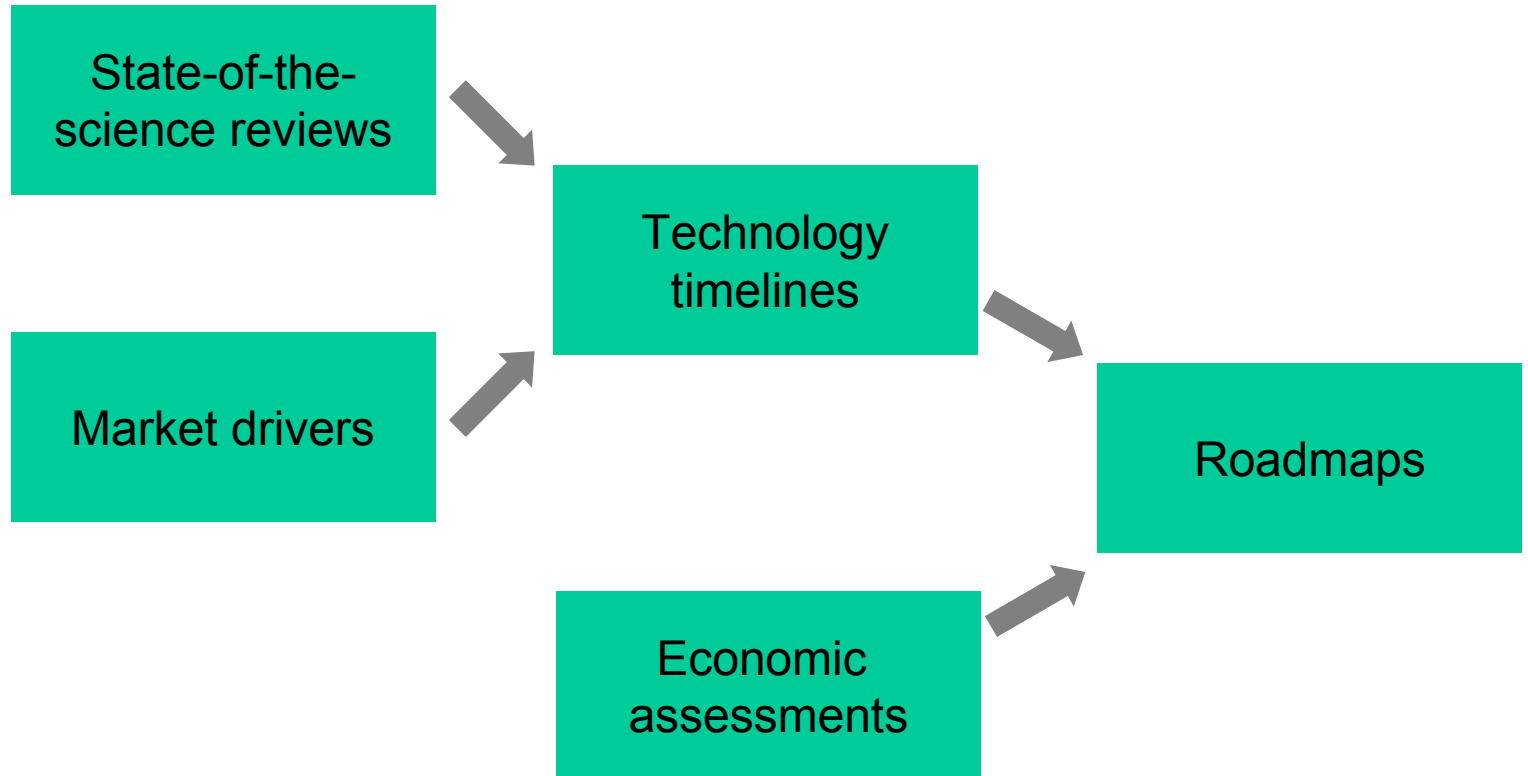
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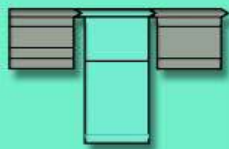
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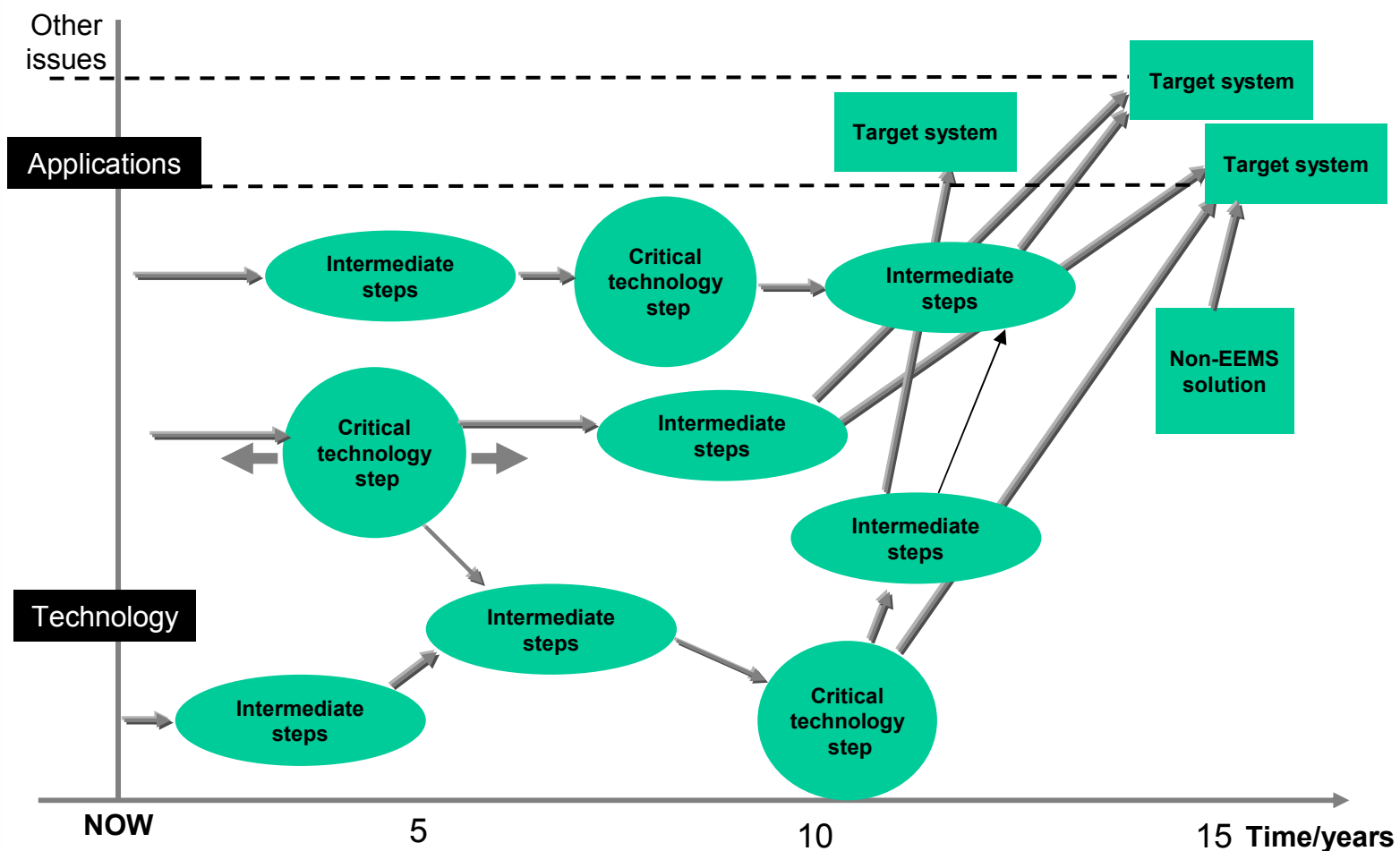
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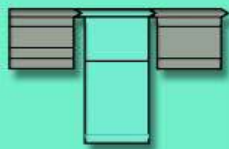
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Example overview for a technology timelines





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Switching to light: all-optical data handling technology timeline

