Materials
Knowledge Transfer Network

FARADAY ADVANCE

The Transport node of the Materials KTN

Effective Use of Networks and Technology Translation

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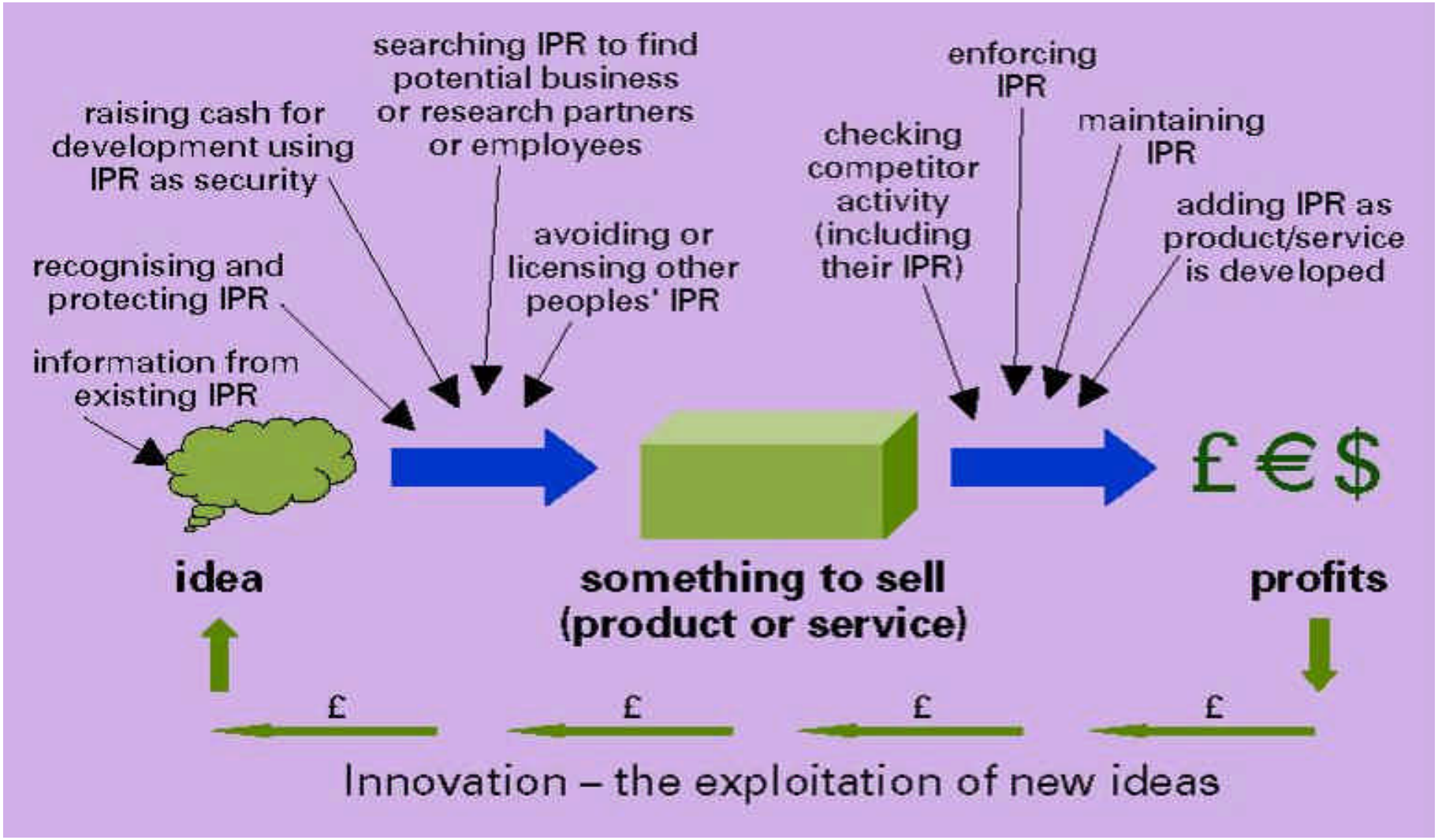
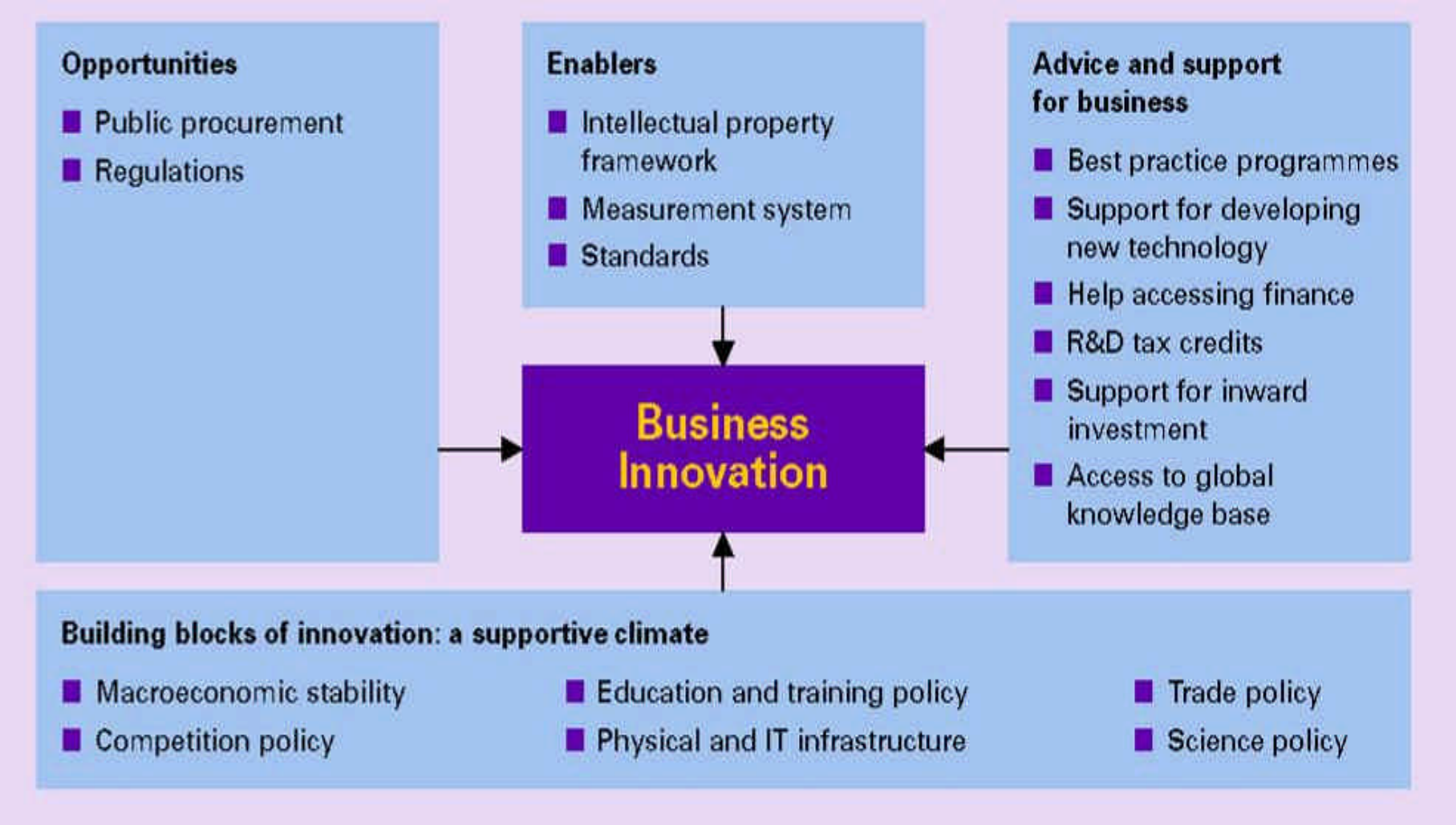
Multitudes of Networks

- Social networks
  - Friends, Family, work colleagues and peers
- Business support networks
  - Local Chamber of Commerce
  - Regional and Government initiatives
  - Trade bodies
  - Professional institutes
- Financial support
  - Banks
  - Venture capital
- Virtual communities
  - Web based, help lines

Networks aid the innovation process



Government policy can influence innovation



The UK Technology Strategy

- Formed a Technology Strategy Board (TSB)
  - The Government's 10-Year Science and Innovation Investment Framework is aimed at ensuring the UK remains internationally competitive.
  - TSB role is to drive business R&D as part of a National Technology Strategy

- Operates across Government helping to create engagement between business and Government in specific areas of opportunity

TSB funded programmes

- Over 360 projects already approved for funding
- Represents over £580m of R&D activity,
- Over £270m provided in Government support
- Technology Programme has undertaken
  - over 9,000 Outline assessments
  - 700 Full stage assessments
  - from over 10,000 applicants
- 20 Knowledge Transfer Networks

Key emerging technologies

- Proactive
  - Seven key technology areas selected
- Develop medium term strategies for each application area
- Validate the seven areas with business and government
- Determine the appropriate support

Key Technology Areas

Electronics and Photonics

Advanced Materials

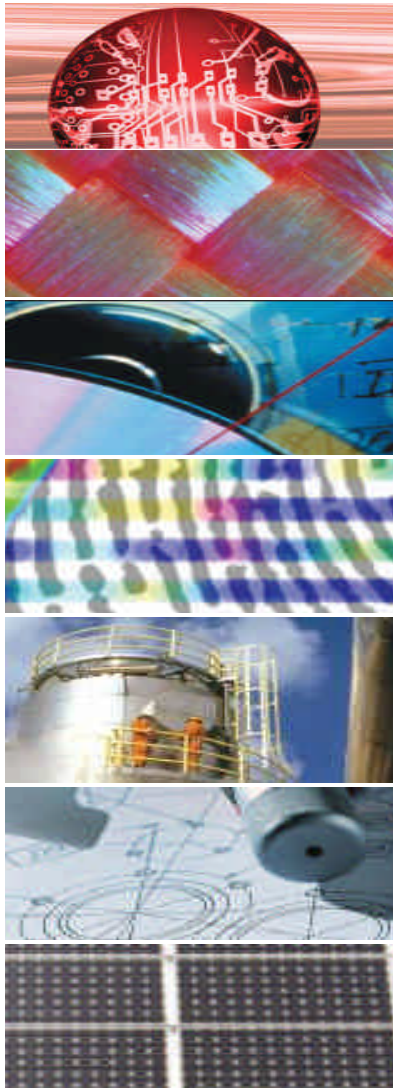
Information and Communication Technologies

Bioscience and Healthcare Technologies

Sustainable Production and Consumption

Design Engineering and Advanced Manufacturing

Emerging Energy Technologies



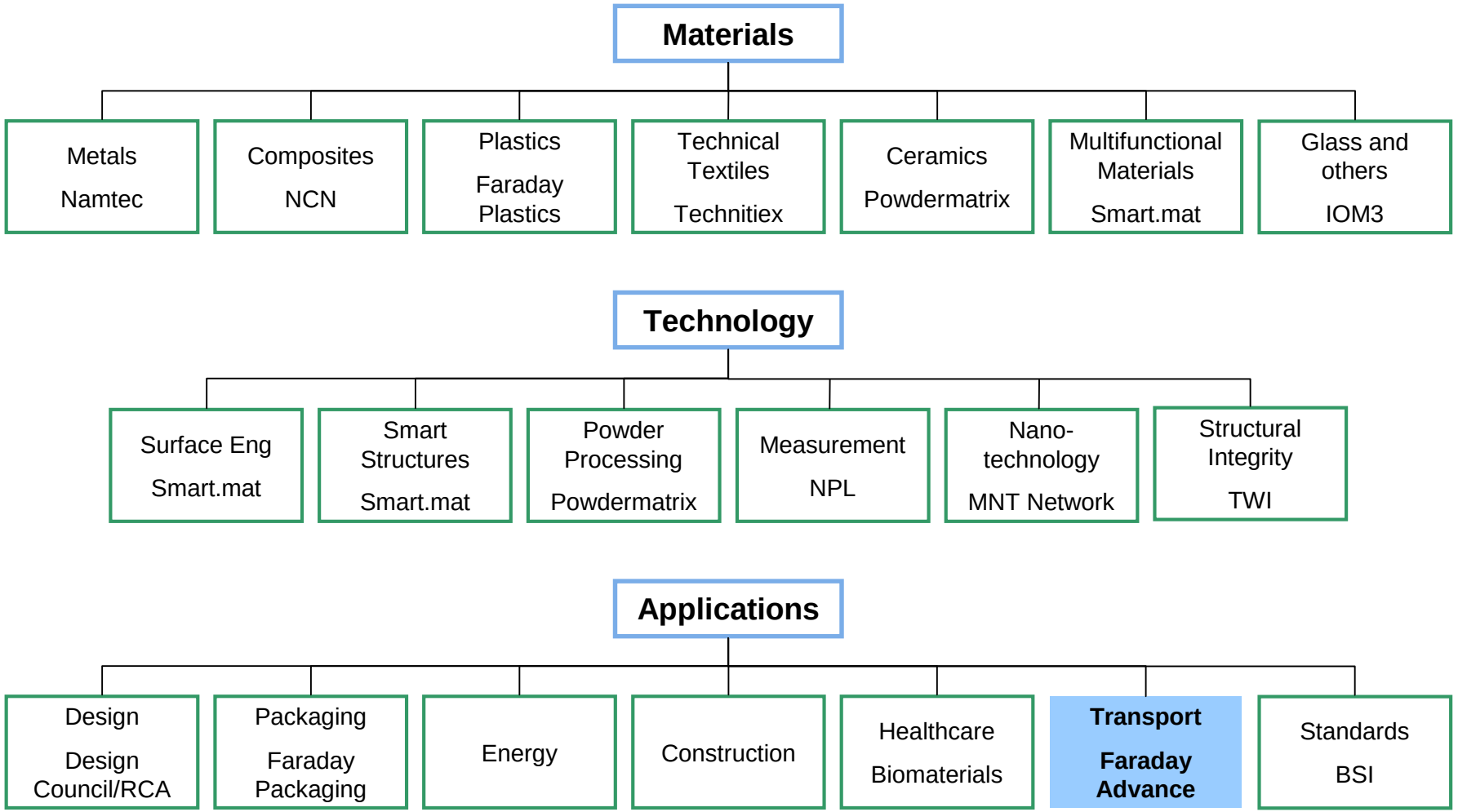
Knowledge Transfer Network

- to provide UK businesses with the opportunity to meet and network with individuals and organisations
- to encourage knowledge transfer between the supply and demand sides of technology-enabled markets
- to encourage the flow of people, knowledge and experience between industry and the science base
- to attract and optimise the use of funding resources
- to provide a forum for a coherent industry voice to inform government policy making
- to provide advice on the various support mechanisms available to the research base and business

Knowledge Transfer Networks

- Aerospace and Defence
- BioProcess UK
- Bioscience for Business
- Chemistry Innovation
- Electronics-enabled Products
- Food Processing
- Low Carbon Technologies
- Grid Computing
- Industrial Mathematics
- Location and Timing (GPS applications)
- Materials
- Health Technologies
- Photonics
- Resource Efficiency & Waste Management
- Sensors
- UK Displays
- [Cyber Security]
- [Biometrics]

The Materials KTN



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Faraday Advance

FARADAY ADVANCE

Technologies	AEROSPACE	Civil powered wing	Environmentally Friendly Engine	More Electric Aircraft	AUTOMOTIVE	Lightweighting	Reduced Emissions	ELV	RAIL	MARINE	
Composites		●				●			●	●	Agile and cost-effective manufacture
Joining		●				●		●	●	●	
Light alloys		●				●					
High temperature materials			●				●		●		
Sustainable use of materials		●	●	●		●	●	●	●	●	
Functional systems for harsh environments			●	●			●			●	
More electric technologies		●	●	●			●		●	●	
Alternative energy technologies			●				●				
Smart composites		●								●	
Nano-composites		●	●	●		●	●		●	●	
Unmanned air vehicles			●	●							

Technology translation

Technology Translators

- Advice and support for identifying, acquiring or developing knowledge to increase UK competitiveness
- Building of consortia across the supply chain and industrial sector
- Help for small companies to access markets
- Consultancy, provision of roadmaps and technology briefing documents
- Preparation of third party funding proposals, from Grants for R&D to major DTI Technology Programme and EU research proposals
- Project management
- Dissemination
- Short-term problem solving

Project Portfolio

- Large scale multi-partner collaborative projects
- Focus Group Networks
  - WINGNet – Sustainable use of materials in the aerospace sector
  - DRIVENet – Sustainable use of materials in the automotive sector
  - HITEN – the global High Temperature Electronics Network
- Consortium and project building
- Project management
- Consultancy
- Briefing packs
- Conferences and meetings
- Overseas missions
- Advice to Government

Case study
Project Building and Management

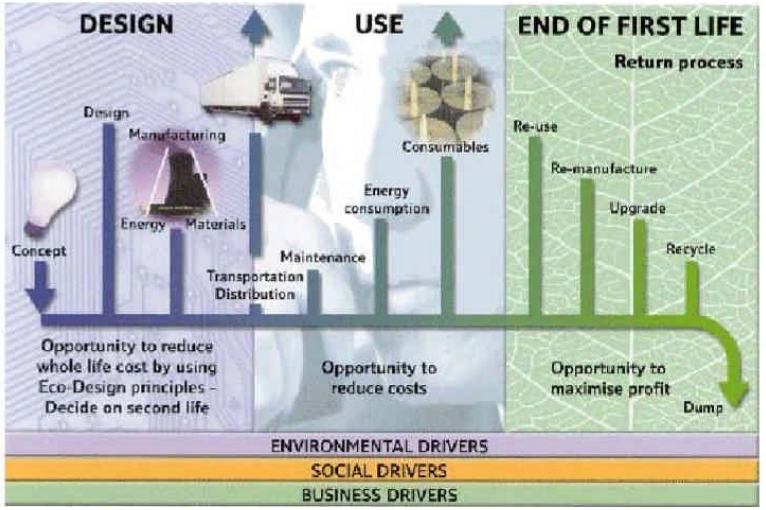
- Node Optimisation in Truss Structures
  - establish the underpinning science and technological know-how to design, manufacture and test complex multi-material nodes and structures for application in airframe, space, advanced motor-sport and military applications.
  - Conceived, written, secured, and project managed by Faraday Advance - £1.1M
  - Patents, follow-on project

Case Study
WINGNet

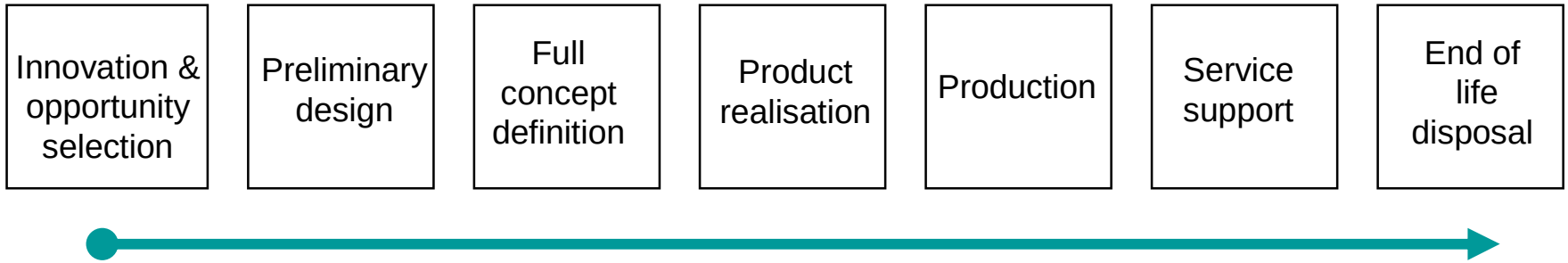
- Network for Waste reduction IN aircraft-related Groups
- Programme of activities funded by Engineering and Physical Sciences Research Council for 2 years
  - To stimulate the development of the technologies and infrastructure required to meet the challenges of sustainable use of aircraft materials and components
  - To identify the critical materials related research required and to provide a platform to secure funding for a portfolio of inter-related R&D projects
- Over the next 20 years 41,000 new civil airliners will be required needing 94,000 engines
  - Pressure on availability of high value metals & alloys
  - Many of the new structures will contain composites
  - Retirement of existing airframes and aeroengines: end of life

WINGNet themes

- Sustainable use of materials in design
- End of life/parting-out supply chain
- Toxic metals
- Composites
- Legislation
- Overseas activities
- Re-use
- Product stewardship



WINGNet



- Environmental impact and lifecycle costs fixed at design stage
- 50% aeroengine revenue comes from aftermarket
- Life cycle thinking (and costing) is increasingly important
- Future environmental costs likely to be fully internalised
- Need for "design for environment"

Value of Networks

- Large companies can benefit as well as SMEs and the knowledge base

"Boeing has been investigating issues and concerns regarding older fleet management and retired aircraft recycling and through early 2005 Boeing leadership felt that effort had been proceeding well, but slowly. This project took on a whole new dimension after Boeing established a relationship with WINGNet and presented our strategy. In the ensuing months, WINGNet assisted Boeing in follow-up contacts and visits throughout Britain. The Boeing strategy has now involved two small/medium UK companies, one large UK company, and support from four UK universities. I am convinced that this could not have proceeded as quickly or as smoothly without the guidance and support from Faraday Advance and WINGNet."
Bill Carberry, Boeing, February 2006.

Small company benefit

- Huntercombe, SME
- Exciting intellectual property in novel braking materials
- Faraday Advance identified the key person within a large OEM end user
- Faraday Advance facilitated a series of joint meetings
- The companies are now involved jointly in a development project to mature and commercialise the new braking technology
- Faraday Advance continuing to assist

Conclusion

- Networks need to deliver value
  - Tangible benefit to members and stake holders
  - Skilled people (translators) to deliver solutions
- Need focus
  - Technical, Sector, Service
  - Constituency
- Must have buy in
  - Champion with vision and drive
  - Its constituency
  - Backing from government (if appropriate)

Needs to make a difference

If it hadn't have been there would it have happened anyway