

# Introduction to CSTI & Policy Links and project examples

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## Research themes



**Design  
Management**



**Industrial  
Photonics**



**Distributed Information  
& Automation Laboratory**



**Strategy and  
Performance**



**Technology  
Management**



**Industrial  
Sustainability**



**Inkjet  
Research**



**International  
Manufacturing**



**Technology  
Enterprise**



**Science, Technology  
& Innovation Policy**

A unique environment for manufacturing, technology  
& industrial policy research

# Centre for Science, Technology & Innovation Policy

## An engineering contribution to STI policy

“What makes some national innovation systems more effective than others at translating science & engineering research knowledge into new technologies, industries & economic wealth?”



# Centre for Science, Technology & Innovation Policy

## Engagement with BIS and 'implementation agencies'



**Studies & reports**

**Research Project**  
Role of UK Research Base in Attracting R&D Investment

**AstraZeneca to invest £330 Million in new strategic R&D centre and global headquarters in Cambridge**

Monday, 18 March 2013

AstraZeneca today announced its intention to establish a new global R&D centre and corporate headquarters in Cambridge in the UK by 2015. The planned investment of around £330 million

[Access to the full £330 million AstraZeneca investment plan to attract R&D](#)

**Research projects**

**Technology Strategy Board**  
Driving Innovation

**Synthetic Biology Scoping Workshop**

June 13<sup>th</sup> 2013  
UCL, London

Dr Belinda Clarke  
Lead Technologist, Synthetic Biology  
email: belinda.clarke@tzb.gov.uk  
twitter: @Belinda\_Clarke

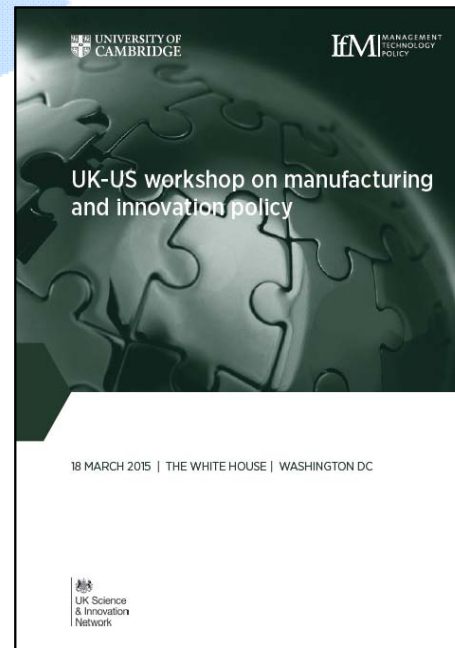
**Opening soon**

Tools and services for synthetic biology  
Competition for collaborative R&D funding  
Opens: 18 Nov 2013      Registration closes: 08 Jan 2014  
Closes: 15 Jan 2014      Programme: Collaborative research and development

**Support for programme strategy development**

# International Manufacturing & Innovation Policy Workshops

A collaboration between CSTI and the UK Science & Innovation Network





- Policy Links is the knowledge exchange unit of the [Centre for Science, Technology & Innovation Policy \(CSTI\)](#), University of Cambridge
- Policy Links has been established thanks to the generous support of the [Gatsby Foundation](#).



**A 'think tank' grounded in the latest science, technology & innovation research**

### **AIMS**

- Professionalise and align transfer of new tools, approaches and ideas developed by CSTI to government departments & agencies
- Act as a 'think tank' providing tailored education & consultancy services to respond to government evidence needs in flexible and timely manner
- Contribute to building corporate memory in UK policymaking
- Fund future research and contribute to the financial sustainability of CSTI

## AREAS OF EXPERTISE

- ▶ High value manufacturing & industrial strategy
- ▶ Emerging industries & technology strategy
- ▶ Smart specialisation & regional development strategy

## SERVICES

- ▶ Policy practice knowledge hub
- ▶ Policy advice and consultancy
- ▶ Policy workshops and seminars
- ▶ International benchmarking studies
- ▶ Training for policy officials and civil servants





Repository of policy benchmarking studies, 'quick start guides' for new civil servants and discussion papers developed in collaboration with policy officials

## Knowledge exchange mechanisms

- Manufacturing Policy Portal (country profiles, resources, policy database)
- Hosting of policy visitors for joint development of discussion papers
- Briefing sessions to policy officials

## Example CSTI ongoing or completed projects

<p><b>Country Profiles</b></p> <p>One-stop overview of actors, policies and programmes in leading industrial countries</p>	<p><b>Resources</b></p> <p>Briefing notes, workshop reports and benchmarking studies for policy practitioners</p>	<p><b>Policy Database</b></p> <p>Dedicated searchable database of international policies and future studies on manufacturing</p>

Manufacturing Policy Portal

**CSTI POLICY BRIEFING NOTE**  
Country Overview of Manufacturing Policy  
**Germany**

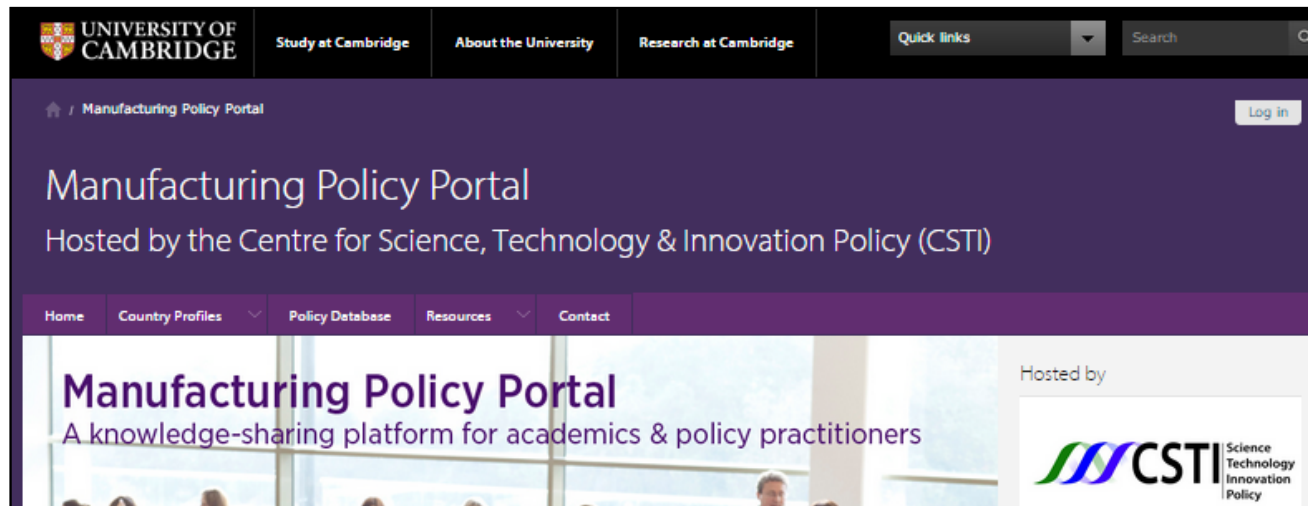
**CSTI POLICY BRIEFING NOTE**  
Country Overview of Manufacturing Policy  
**Japan**

**CSTI POLICY BRIEFING NOTE**  
Country Overview of Manufacturing Policy  
**United States**

Country briefing notes

# Manufacturing Policy Portal

[www.manufacturing-policy.eng.cam.ac.uk/](http://www.manufacturing-policy.eng.cam.ac.uk/)



The screenshot shows the top navigation bar of the Manufacturing Policy Portal. It includes the University of Cambridge logo and links for 'Study at Cambridge', 'About the University', and 'Research at Cambridge'. There is also a 'Quick links' dropdown menu and a search bar. Below the navigation bar, the page title 'Manufacturing Policy Portal' is displayed, along with the text 'Hosted by the Centre for Science, Technology & Innovation Policy (CSTI)'. A secondary navigation bar contains links for 'Home', 'Country Profiles', 'Policy Database', 'Resources', and 'Contact'. The main content area features a large banner with the title 'Manufacturing Policy Portal' and the subtitle 'A knowledge-sharing platform for academics & policy practitioners'. To the right of the banner is the CSTI logo, which stands for Science, Technology, Innovation, and Policy.



## Country Profiles

One-stop overview of actors, policies and programmes in leading industrial countries



## Resources

Briefing notes, workshop reports and benchmarking studies for policy practitioners



## Policy Database

Dedicated searchable database of international policies and future studies on manufacturing

# Manufacturing Policy Portal

[www.manufacturing-policy.eng.cam.ac.uk/](http://www.manufacturing-policy.eng.cam.ac.uk/)

Manufacturing Policy Portal  
Hosted by the Centre for Science, Technology & Innovation Policy (CSTI)

Home United Kingdom United States Germany Policy Database Resources

Policy Database Overview

Enter your search:  then select

**Germany**

2014	Die neue Hightech-Strategie Innovationen für Deutschland	National research strategy	BMBF
2014	Innovationen für die Produktion, Dienstleistung und Arbeit von morgen	Programme strategy	BMBF
2014	Industrie 4.0 - Smart Manufacturing for the Future	Positioning document	GTAI
2014	Germany's Leading-Edge Clusters	Programme strategy	BMBF
2014	Challenges for a Modern Industrial Policy	Positioning statement	BMBF
2013	Recommendations for implementing the strategic initiative INDUSTRIE 4.0	Expert working group recommendations	Industrie 4.0 Working Group



International policy workshops and seminars in UK and partner countries to share policy experiences and address key questions of interest to policy officials

### Knowledge exchange mechanisms

- Workshops to facilitate policy dialogue
- 'Paired policy officials'
- Seminars to share project results in venues easy accessible to officials



### Example CSTI ongoing or completed projects



Policy workshops with participation of UK policy officials in Japan (University of Tokyo), US (White House), and Germany (British Embassy Berlin)



Benchmarking of latest policy design, implementation and evaluation approaches in government departments in selected countries

## Knowledge exchange mechanisms

- Submission of evidence to support ongoing policy development
- Briefing notes on latest development in key industrial countries
- Publication in Manufacturing Policy Portal



## Example CSTI ongoing or completed projects



*Report commissioned by UK and international policy practitioners*





Tailored education services to government department and agencies based on the latest academic thinking & benchmarking of international government practices

## Knowledge exchange mechanisms

- Ad-hoc training and briefing sessions
- Summer courses at Cambridge
- Focus on officials working on technology, manufacturing and innovation



## Example CSTI ongoing or completed projects



Introduction to Science, Technology & Innovation Policy



Presentations & Briefing Notes



# Introduction to Science, Technology & Innovation Policy

A training programme for policy officials and civil servants

Cambridge, UK, 14-15 July 2016



Department  
for Business  
Innovation & Skills

**POLICY LINKS**  
Linking policy principles and practice

## INTRODUCTION TO SCIENCE, TECHNOLOGY & INNOVATION POLICY

A two-day bespoke programme for manufacturing policy civil servants and agency officials

TWO-DAY PROGRAMME | JULY 2016 | CAMBRIDGE/LONDON

A two-day bespoke programme for manufacturing policy civil servants and agency officials

### BENEFITS

- ▶ Introduction to key concepts, frameworks and ideas in the areas of manufacturing and Innovation policy.
- ▶ Overview of the latest manufacturing and innovation policy developments in selected countries.
- ▶ A space to reflect on practical challenges for effective policy implementation and discuss best practices for overcoming them.
- ▶ Opportunity to meet and share experiences with colleagues with a common interest in manufacturing and innovation.
- ▶ Bespoke materials developed by experts from the Centre for Science, Technology & Innovation Policy (CSTI), University of Cambridge.

### OVERVIEW

This training programme, prepared in consultation with the UK Department for Business, Innovation and Skills (BIS), will draw from the expertise of the Centre for Science, Technology & Innovation Policy (CSTI), University for Cambridge, to provide policy officials and civil servants a thorough introduction to manufacturing and innovation policy.

The role of manufacturing and innovation policies is being revisited around the world as countries step up efforts to address challenges related to high-wage job generation, productivity growth and economic rebalancing.

This occurs against the backdrop of new global industrial context characterised by changing consumer demand and the emergence of technological innovations with the potential to transform manufacturing as we know it. In particular, rapid developments around digital technologies and a more widespread use of these technologies in industry are driving what has been heralded as a 'Fourth Industrial Revolution'.

At the same time, the growing demand for manufactured goods and services driven by a rising global middle class, coupled with dwindling natural resources and increasingly adverse effects of climate change, underline the necessity for future industrial systems capable of making more with less.

This new global industrial context presents great challenges but also new opportunities for countries and firms around the world. A global redistribution of industrial value added and employment has already been going on for decades and, as such, the context in which modern policy making takes place is one of increasing competition for the industrial activities with the most 'high value' capture potential.



In order to formulate effective responses policy makers today face the challenge of making sense of increasingly complex industrial systems. This course intends to help policy officials and civil servants address this challenge, drawing insights from a large and valuable body of academic work but also emphasising the opportunities to elicit lessons from international practices and past policy experiences. And while examples will be drawn from a range of important industrial economies, emphasises will be placed on the importance of understanding the local context if policy making is to be effective.

This training programme will provide policy officials and civil servants a thorough introduction to manufacturing & innovation policy.

### BENEFITS

- Introduction to key concepts, frameworks and ideas in the areas of manufacturing and innovation policy.
- Overview of the latest manufacturing and innovation policy developments in selected countries.
- A space to reflect on practical challenges for effective policy implementation & discuss best practices.
- Bespoke materials developed by experts from CSTI University of Cambridge.



Ad-hoc advice and consultancy services to policy officials to respond to evidence needs and support strategy design and evaluation

### Knowledge exchange mechanisms

- Ad-hoc response to enquiries from a variety of policy stakeholders
- Direct engagement in ongoing policy strategy development
- Response to public calls for evidence and invitations to tender



### Example CSTI ongoing or completed projects



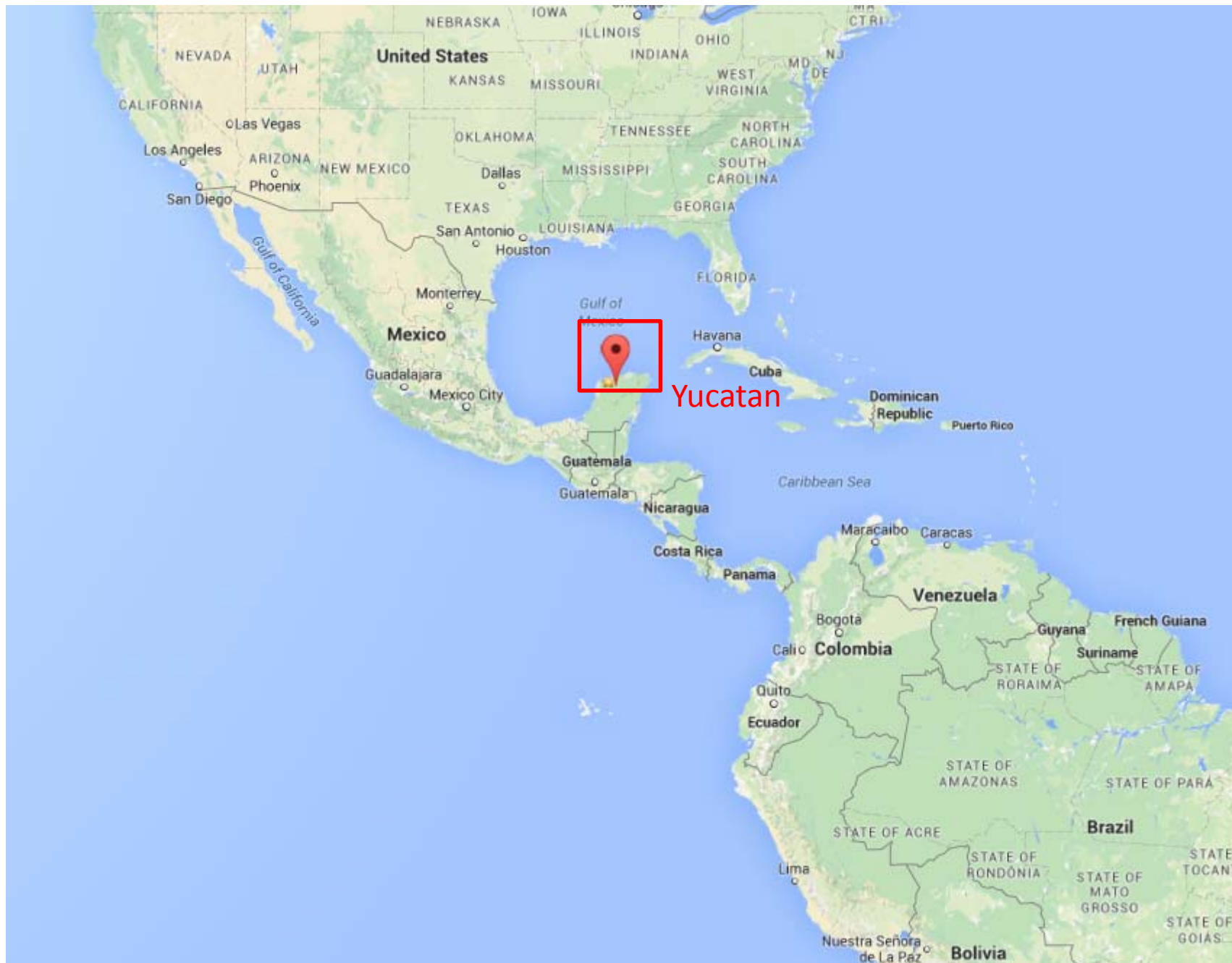
Smart Specialisation Strategy

Client: BIS



Client: Government of Yucatan, Mexico

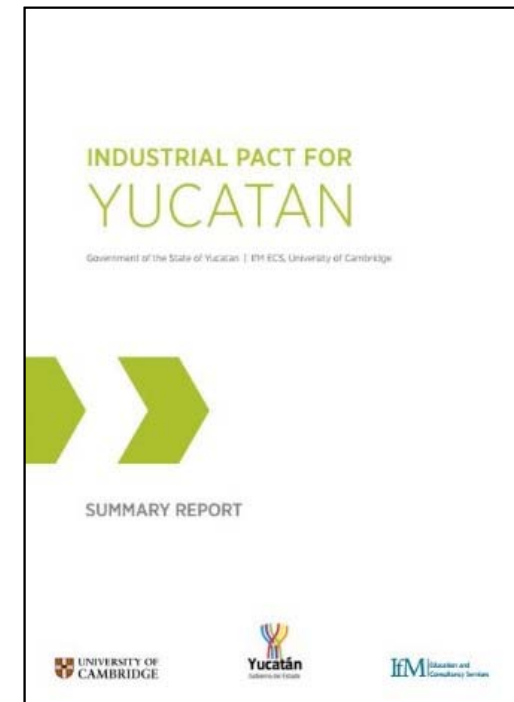
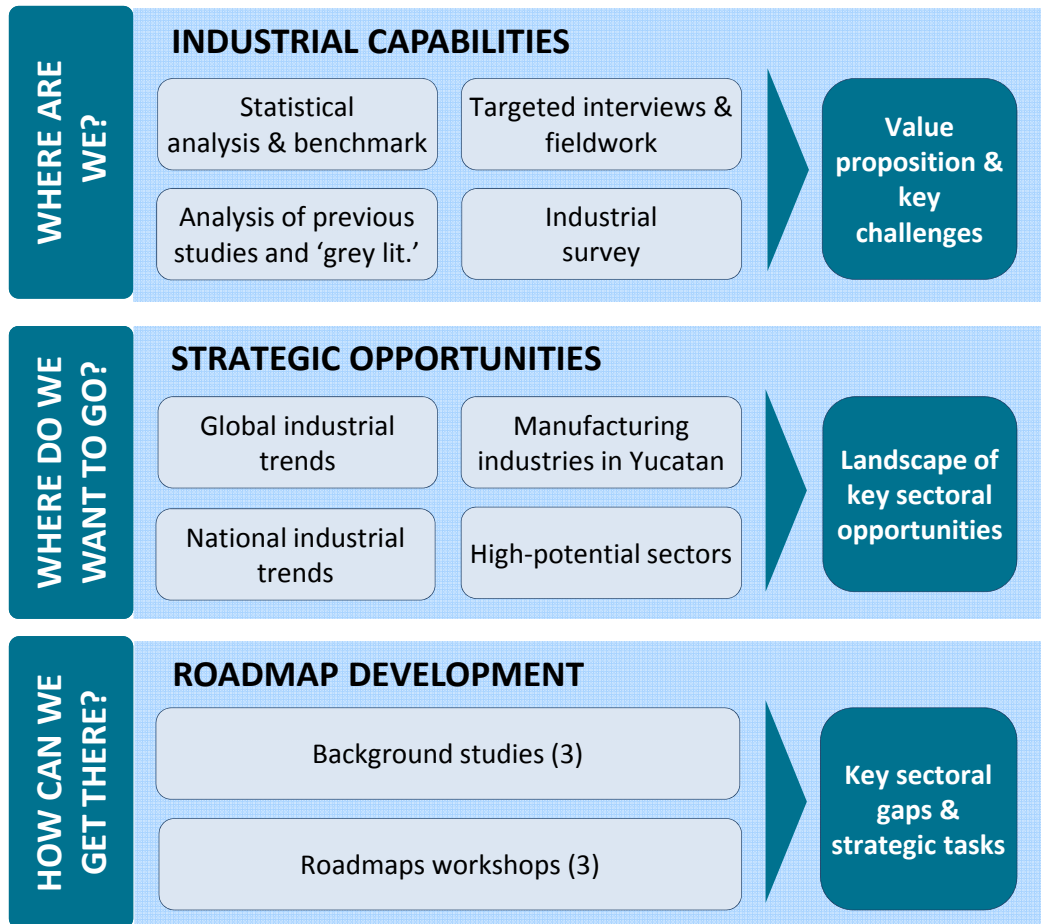




Yucatan

# Project overview

## PROJECT STRUCTURE

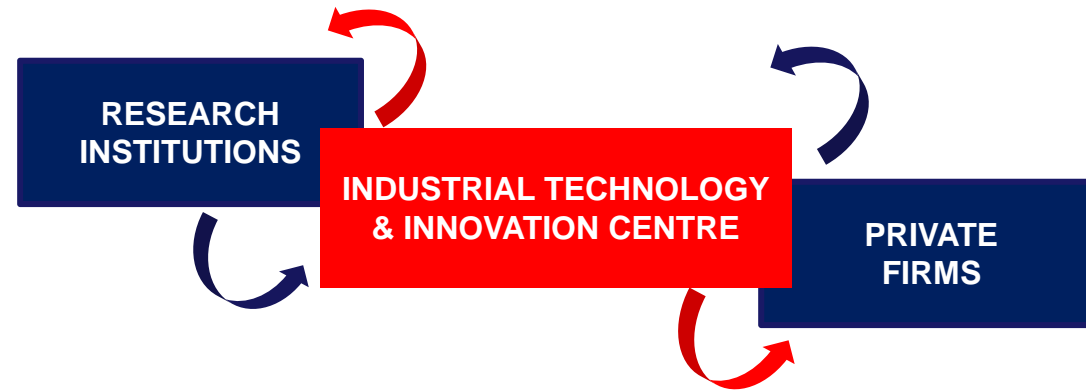


# Industrial Pact for Yucatan

	YEAR 1	YEAR 2	YEAR 3
<b>Improved linkages</b>	Survey of missing technical services	Strategy to develop missing services & collaborations	Development of missing services & collaborations
	Roundtables between researchers & industrialists	Establishment of collaboration projects	Completion of collaboration projects
	Monitoring and communication of federal funds for collaborative projects (e.g. CONACYT)		
<b>Technical training</b>	Survey of types and levels of training missing (inc. on-the-job training)	Implement new ad-hoc training mechanisms & initiatives (e.g. retired industrialists)	
	Develop apprenticeship programmes with dual training in educational institutions and firms		
	Communication strategy about existing training subsidies		
<b>Intelligence for business</b>	Analysis of Cambridge report and roadmaps	Additional roadmaps	Roadmap update
	Identification of key areas for market studies (in priority areas)	Commission selected market studies & dissemination	
	Task force (govt.-academia-industry) to gather industry intelligence	Publish annual reports on main challenges, opportunities and needs of Yucatan's industries	
<b>Investment incentives &amp; finance</b>	Increase of existing promotion budget		
	Communication strategy on existing sources of funding and incentives (both internal and external)		
	New investment promotion strategy based on training incentives		
<b>Infrastructure upgrade</b>	Promotion of current investments among industrial community		
	Strengthen communication with federal government to attract infrastructure investment		
	Strategy to attract foreign funds for industrial infrastructure (including Tech. & Innovation Centre)		
<b>State promotion</b>	Comprehensive State Shelter Strategy		
	Active participation in industry fairs and other industry fora		
	Strengthen communication with external stakeholders (ProMexico, SE, Embassies, etc.)		

# Establishment of Technology & Innovation Centre

As a result of the project, the State of Yucatan is currently evaluating an investment in a new Technology & Innovation Centre



**Mission: “Develop the human, intellectual & industrial capital in Yucatan”**

Access to  
expertise

Workforce  
Training

Technical  
services

Access to  
equipment

Focus on needs of manufacturing industries in Yucatan

Capitalise on existing experience to access funds

Sustainable funding model



## Shared vs. directly managed EU funding programmes



- **ESI Funds:** €454 billion + over €180 billion leverage in 456 national /regional and 79 Interreg programmes via grants, financial instruments, public procurement, trans-nat. cooperation, feasibility studies, administrative capacity building, tech. assistance ...

→ Cohesion Policy: ERDF (incl. ETC), ESF, Cohesion Fund: € 350 billion,

→ EAFRD: €95.6 billion, EMFF: €5.7 billion



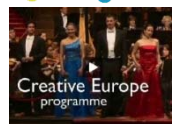
- **Horizon2020** for mostly transnational research and innovation projects, incl. non-EU, grants, financial instruments...: €79.4 billion



- **COSME** for SME competitiveness, financial instruments, business support services, etc.: € 2 billion



- **Erasmus+** for students, teachers, pupils mobility + training: €14.5 bn



- **Creative Europe** for culture & creative sector; grants, fin.instrument: €1.4 billion



- **CEF: Energy** (€4.7 bn), **Transport** (€24.05 bn), **Telecom: Digital service platforms** (€0.97 bn) for EU wide e-government platforms to roll-out e-ID, eProcurement, electronic health care records, ("Digital Service Infrastructures") ; € 170 mil. for broadband activities



- **LIFE programme** for environment and climate, incl. financial instruments: € 3,4bn



- **Prg. for Employment and Social Innovation ("EaSI"):** € 0.92 bn

Etc.



## Example projects: Smart Specialisation

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### **The issue**

- Regional priorities too generic, copy-paste, 'miracle industries'
- Strategies not connected to economic & innovation structures / local assets
- Little attention to translation of knowledge to industry

### **Therefore...**

- Difficult to tell regions apart
- Difficult to assess potential of funds
- Lack of 'synergies' in funding



# What is Smart Specialisation ?

- = evidence-based: all assets
- = no top-down decision, but dynamic/entrepreneurial discovery process inv. key stakeholders
- = global perspective on potential competitive advantage & potential for cooperation
- = source-in knowledge, & technologies etc. rather than re-inventing the wheel
- = priority setting in times of scarce resources
- = getting better / excel with something specific
- = focus investments on regional comparative advantage
- = accumulation of critical mass
- = not necessarily focus on a single sector, but cross-fertilisations





## Example projects: Smart Specialisation

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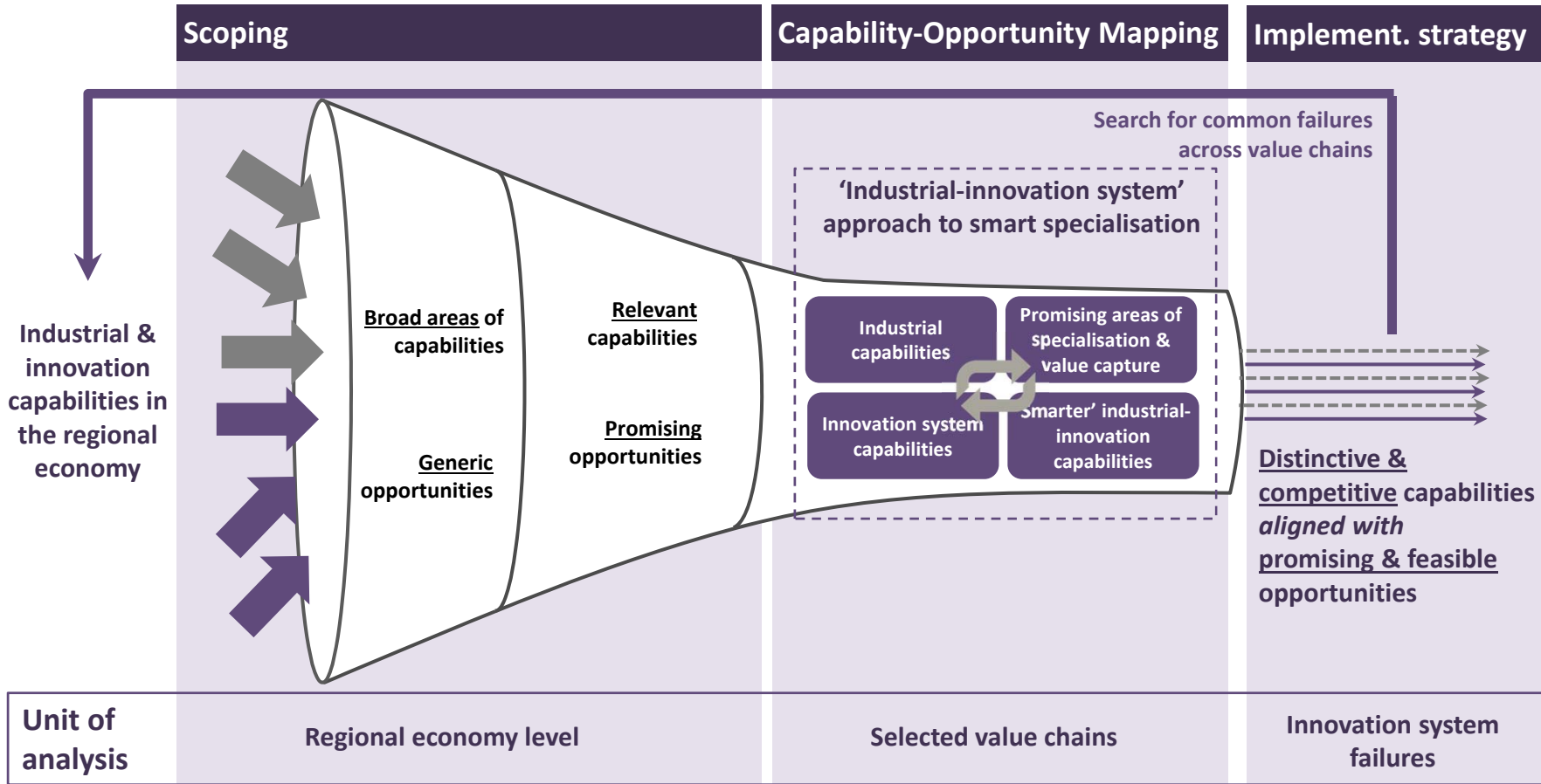


### The project

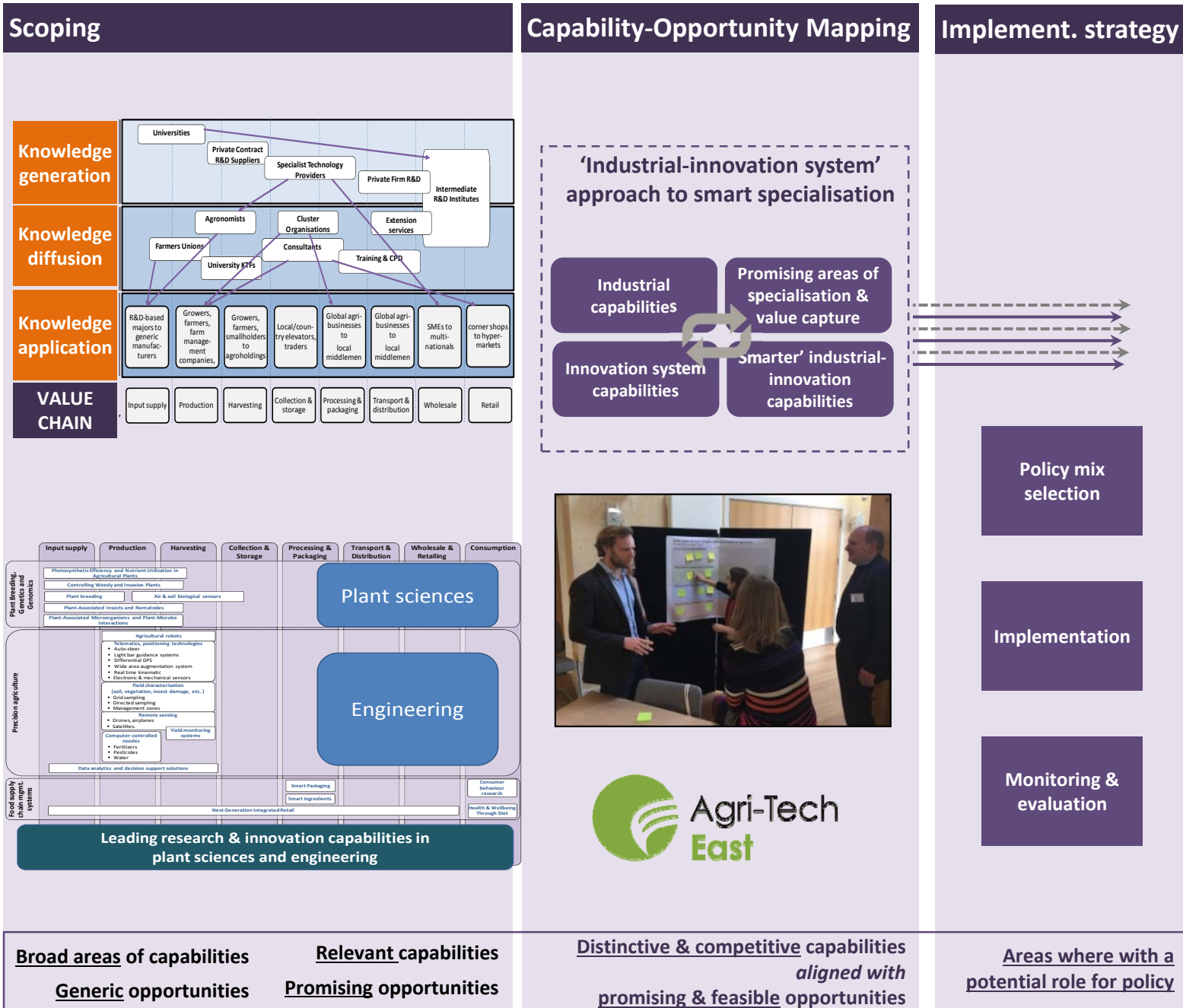
- The UK Department for Business, Innovation & Skills (BIS) commissioned Policy Links to develop a pilot process for better 'Smart Specialisation'
- Case study: Agri-tech industry
- **Detailed characterisation of industrial and innovation capabilities**
- Statistical analysis, interviews, workshops, benchmarking



# An 'industrial-innovation system' approach to smart specialisation



# An 'industrial innovation system' approach to smart specialisation





Contact:

- Dr Carlos López-Gómez, Head of Knowledge Transfer, [cel44@cam.ac.uk](mailto:cel44@cam.ac.uk)
- Dr Eoin O'Sullivan, Director of the Centre for Science, Technology & Innovation Policy (CSTI), [eo252@cam.ac.uk](mailto:eo252@cam.ac.uk)