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A business model and business case development methodology and toolkit for regional decarbonisation utilising CCUS

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Introduction

- Presentation of a generic practice-based framework to enable facilitated engagement between public and private sector parties for the joint definition of business models and business cases which could be approved by their respective stakeholders.
- Based on experience of attempts at progressing CCS projects in Europe.

The Key Principles and Constituents

- Multi-disciplinary collaborative method for selecting business model preferences guided by systems thinking.
- Focused on public-private risk mitigation and management to identify and track critical investment barriers and major business risks.
- Part of a managed risk-centred approach repeated during project development with increasing detail.

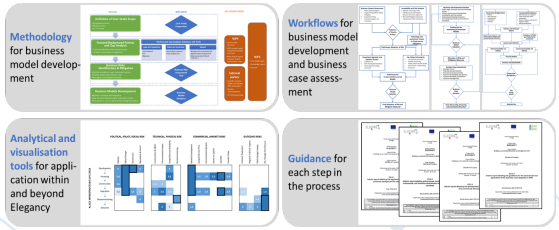


Fig. 1. ELEGANCY business model and business case development framework

Business Model Development

- Outcome is a number of commercial structures characterized by an allocation of risks and responsibility between public and private sector for the main components of system and business delivery.
- Differentiation between system and operational business model to address the need for an integrated multi-sectoral approach.
- System business model is designed 'top-down' to remove investment barriers, facilitate the development of end use markets, and allow businesses to deliver the system objectives in an integrated fashion.

4 distinct steps:

- Step 1: definition of scope of a particular H_2-CCS chain or CCUS network
- Step 2: focused market background review and gap analysis
- Step 3: business and investment risk identification and mitigation
- Step 4: business model development

Business Case Development and Assessment

- Derived from synthesis of best practice from private and public sector and supported by guidance and toolkit.
- Assessed at system and operational level using 6 structured business case dimensions.
- Iterative process with the business model development and adjusted throughout the project project development stages.



Fig. 2. iterative process of business case development

The ELEGANCY toolkit

- A collection of copyrighted excel spreadsheets to present and visualise complex data and facilitate dialogue and analysis between multiple private and public sector stakeholders.

Process step:	Available tools:	What is assessed?
1. Business Context	Market background assessment	Country context (macroeconomic, fiscal, climate policy), market players and interactions, business drivers
	Market failures analysis	Presence of market failures, extent of the market failures
	Policy and financial support gap analysis	Availability of relevant policies and financial support, level of policy implementation
	Policy needs heatmap	Demand intensity for relevant policies, gaps in policy coverage
2. Business Risk Identification & Assessment	Risk assessment	Investment barriers and business risks, impacts of the risk, quantification of the risks, mitigation measures
	Risk mitigation heatmap	Demand intensity for risk coverage, availability and types of risk mitigation measures, gap in risk mitigation coverage
3. Business Model Development	Business model selection	Business model drivers, potential business models at system and individual sector level, engagement and collaboration between public sector and private sector
4. Business Case Development & Assessment	Business case definition and assessment	Business case definition and assessment (strategic rationale, financial costs & benefits, economic value & benefits, commercial delivery, technical delivery, outcome management)

Fig. 3 Components of the business model and business case toolkit

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Conclusions

- Structured framework to develop business models and business cases created by applying systems thinking to the twin problems of resolving barriers to investment and determining the optimal cooperation between the public and private sectors when markets for low carbon products and services are immature or non-existent.
- Methodology and toolkit best used in a collaborative partnership between public and private sector.
- Flexible to adapt to decarbonization situations and objectives.
- Applied to a number of European regional case studies.

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References

- ELEGANCY Project: Publications. https://www.sintef.no/projectweb/elegancy/publications/
- ELEGANCY Project: Business Case Development Toolbox. https://www.sintef.no/projectweb/elegancy/programme/wp3/business-case-development-toolbox/
- ELEGANCY Project: UK Case Study H21 Business Case and Risk Reduction. https://www.sintef.no/globalassets/project/elegancy/deliverables/elegancy_d5.4.3_h21_business-case_risk_reduction_web.pdf