INDUSTRIAL HEAT+POWER 12,13,14 OKT. 2021 BRABANTHALLEN

SUPPORTING INDUSTRY TO BE MORE EFFICIENT AND COMPETITIVE IN 2025

Project 6-25

Hoe ESCO partnerships kunnen bijdragen in de realisatie van CO2 reductie- en energie efficiency-projecten in de industrie

13 oktober 2021

Maarten van Werkhoven/TPA adviseurs, team Project 6-25
Victor Donselaar/Adven, partner Project 6-25

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KONINKLIJKE vemw Kenniscentrum en belangenbehartiger van zakelijke energie- en watergebruikers

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Aantrekkelijke business cases selecteren en financieren

Victor Donselaar/Adven, partner Project 6-25
Maarten van Werkhoven/TPA adviseurs, team Project 6-25

- Portfolio P6-25
- Barrières energy efficiency projecten
- Business case opbouw
- Beslisboom
- Publications P6-25
- Financiering via ESCO
- Praktijk voorbeelden, projecten

PROJECT 6-25

Portfolio of innovative impact solutions

Adaptive Programmatic Approach

Heat integration ICT (EMS, AI Etc) Drives Flexibility Separation	Baselining (pre) feasibility Integration Implementation Commissioning	Business case ESCO partnerships Performance guarantees Subsidies (Fastlane)

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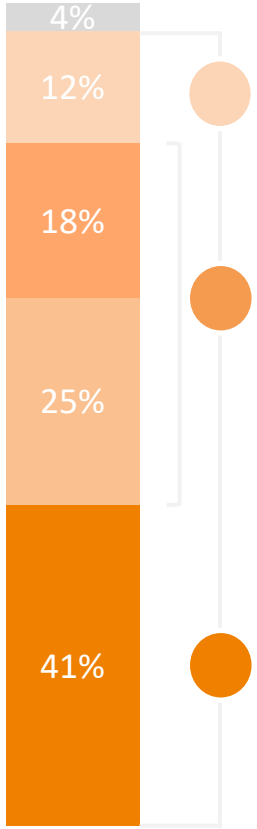
Barriers for realizing energy efficiency projects in the industry



- Complex to implement
- Lack of and availability of professional resources
- Other investments have higher priority

- CAPEX restrictions
- Off-balance vs on-balance
- Payback time
- Minimum financial project requirements
- Lack of confidence in cost-effectiveness

Sources: University Stuttgart; Marktconsultatie RVO Process Efficiency July 2020

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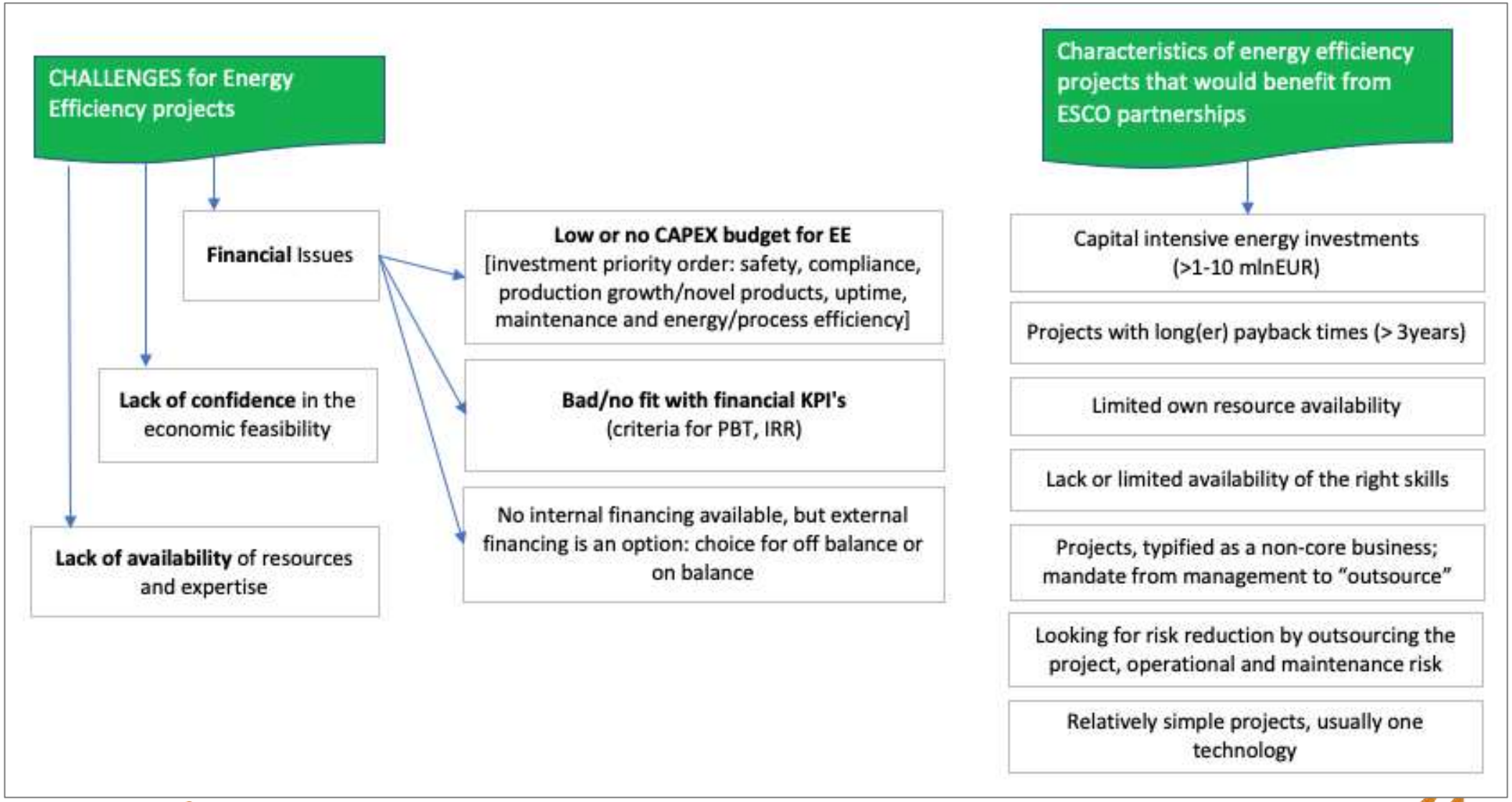
Challenges for energy efficiency projecten



Business case - opbouw

1. Business case – key elements

Business Case

CAPEX
- Hardware
- Engineering / PM
- Contingency

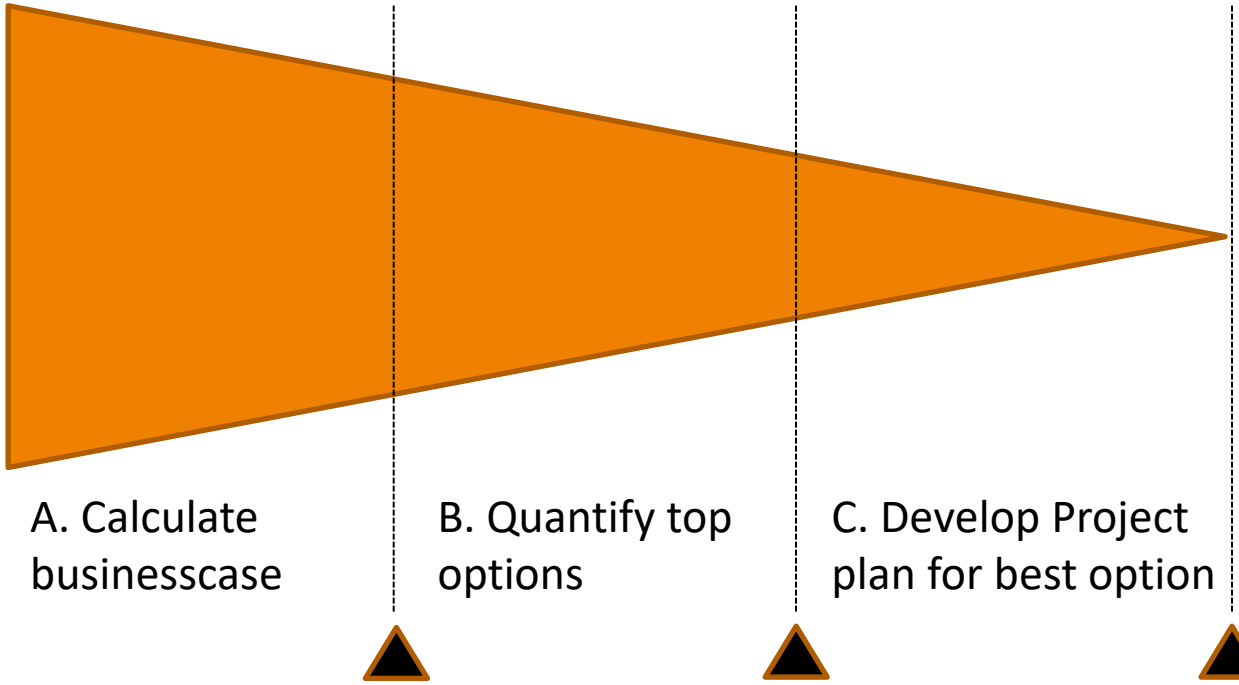
OPEX
- Utilities (+ CO_2)
- Maintenance / other

Financing:
- In house (OPEX or CAPEX)
- Externally
  - ❑ Sale and lease back
  - ❑ Esco model
  - ❑ Loan / other

2. **CAPEX focus** (also applied for external financing)

Non-financial criteria:
- Essential replacement
- Compliance-driven
- Other, sustainability

Financial criteria:
- Payback time
- IRR
- NPV



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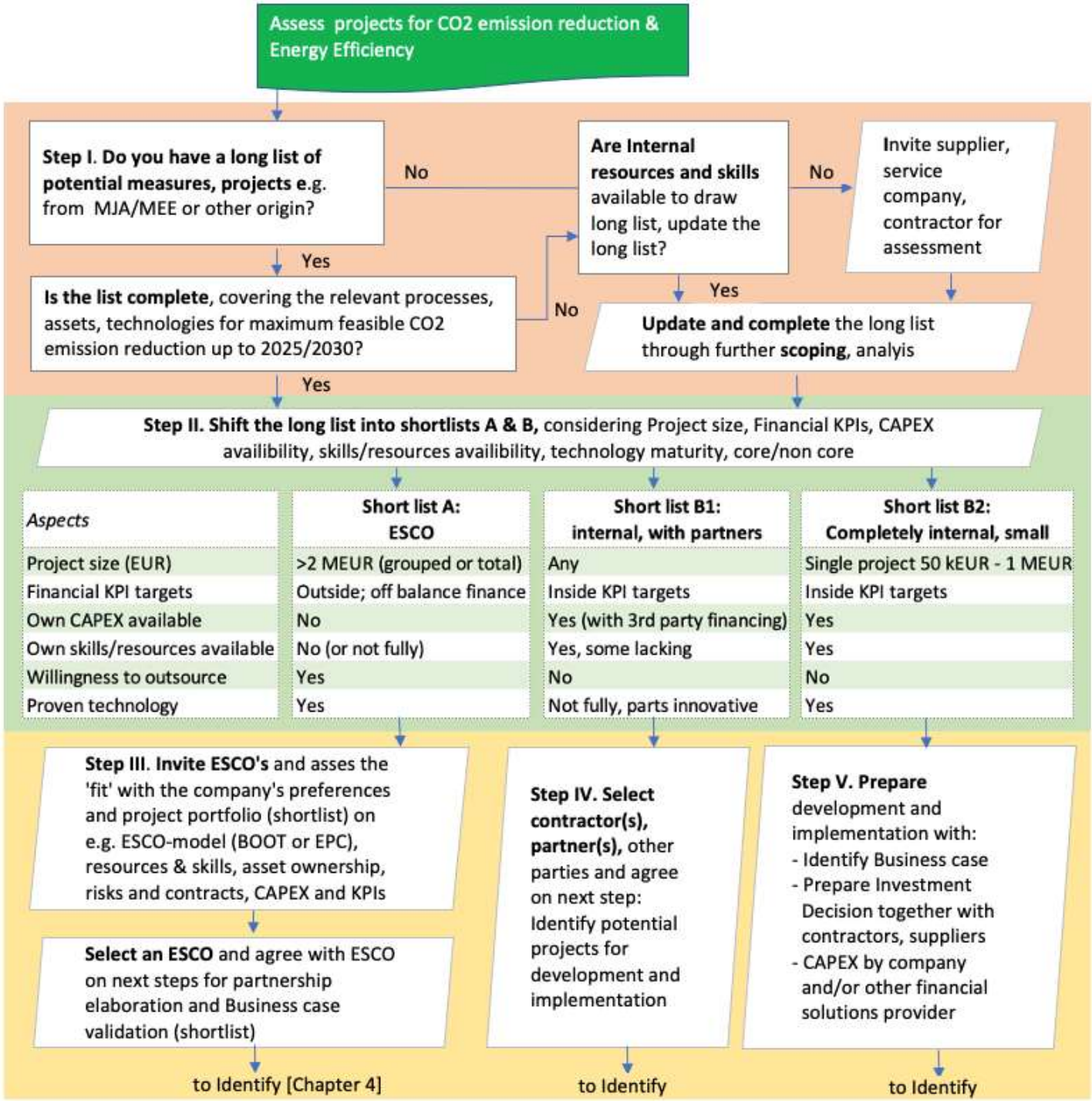
Decision Tree

How to choose and decide upon energy efficiency projects in relation to financing and partnerships



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Shifting Long list of potential Energy Efficiency projects

Shift the long list into shortlists A & B, considering Project size, Financial KPIs, CAPEX availibility, skills/resources availibility, technology maturity, core/non core

Aspects	**Short list A: ESCO**	**Short list B1: internal, with partners**	**Short list B2: Completely internal, small**
Project size (EUR)	>2 MEUR (grouped or total)	Any	Single project 50 kEUR - 1 MEUR
Financial KPI targets	Outside; off balance finance	Inside KPI targets	Inside KPI targets
Own CAPEX available	No	Yes (with 3rd party financing)	Yes
Own skills/resources available	No (or not fully)	Yes, some lacking	Yes
Willingness to outsource	Yes	No	No
Proven technology	Yes	Not fully, parts innovative	Yes

Phases & steps in the development of BCs

Phases and Tasks
in the development of
energy efficiency business
cases in an ESCO
partnership / P6-25

Phases
pre-Identify
Identify (Feasibility)
Develop (Conceptual & Basic)
Implement (Detail, Purchasing, Commissioning)
Operations **Maintenance** **Future changes**
Asset transfer (optional)

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Phases & steps (1/2)

Phases and Tasks
in the development of energy efficiency business cases in an ESCO partnership/P6-25

Phases	Item/Task	Document(s)
pre-Identify	Long list, e.g. from EED audit	(Non Disclosure Agreement)
	Re-assessed long list	
	Short list of potential measures	(± 30-50% CAPEX)
Identify (Feasibility)	Agree on project team	Non Disclosure Agreement
	Business Cases validation	
	Agree on time/cost coverage: feasibility, no cure no pay, extended payment	
	Analysis and (conceptual) design	
	List of validated Business Cases	Letter of Intent or
	Agree on ESCO model & partnership	Joint Project Agreement (± 20-40% CAPEX)
Develop (Conceptual & Basic)	*Tailor made concept per business case*	
	Conceptual engineering	eg PFD, Process Flow Diagrams
	Basic engineering	eg P&ID, Process&InstrumentsDiagrams
	Extra validation	
	Supplier selection	
	Contractual model	
	Operational model, Resources: in-house, ESCO	
	Final application for subsidy	
	Defining busines case's CAPEX & OPEX	Final Investment Decision (± 10% CAPEX)

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Phases & steps (2/2)

Phases and Tasks
in the development of energy efficiency business cases in an ESCO partnership/P6-25

Phases	Item/Task	Document(s)
Implement (Detail, Purchasing, Commissioning)	Detailed engineering design Construction time, cost Construction permits Infra connection, site (soil)	
Operations **Maintenance** **Future changes**	Safety and compliance environmental Insurance, operation Maintenance Monitoring, metering, inspections Environmental measurements Legislation, governmental measures Force majeure	
Asset transfer (optional)	From ESCO to industry At agreed price and terms	If any, depending on actual ESCO-model, on/off balance, and more

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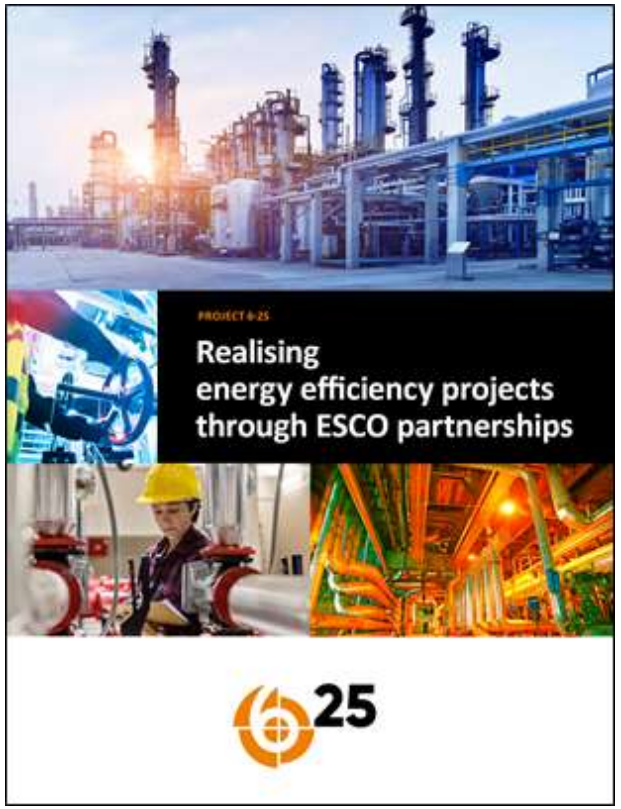
Whitepaper on ESCO partnerships

Download: www.6-25.nl



Decision Tree on ESCO partnerships

Analyse & Prioritize EE Business Cases

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Want to take part?