

Master's Degree
International Project Management

**THE TRANSITION FROM A LINEAR FAÇADE TO A FAÇADE-AS-A-SERVICE (FAAS) MODEL
THE RESPONSIBILITIES OF THE FAÇADE SUPPLIER IN THE PLANNING PHASE**

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1 Introduction

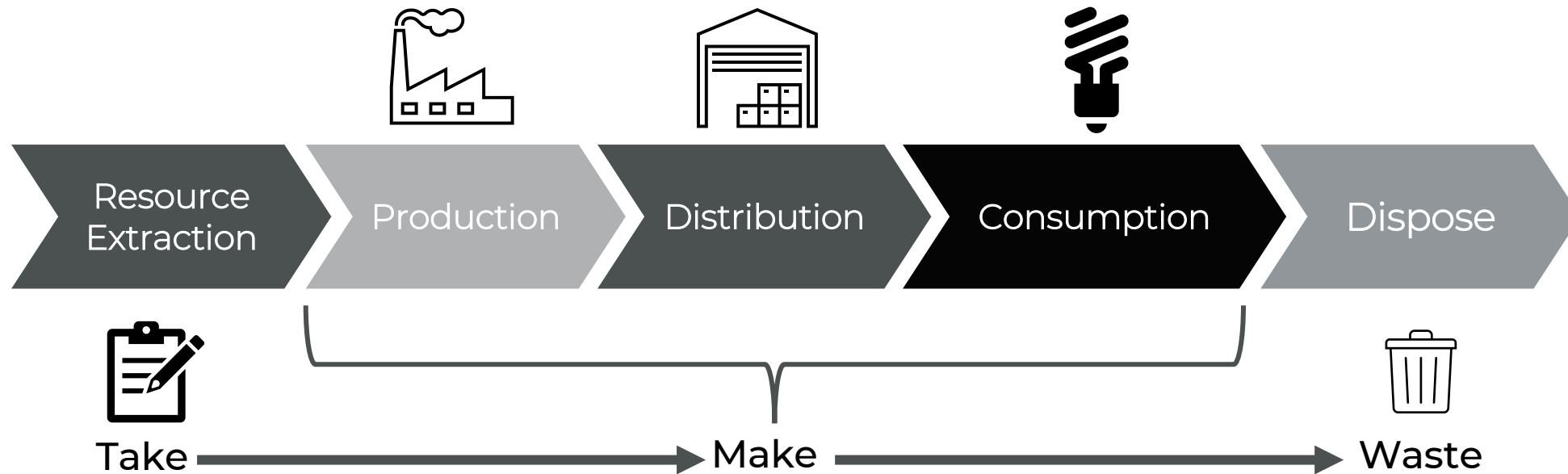
2 Literature

3 Methodology

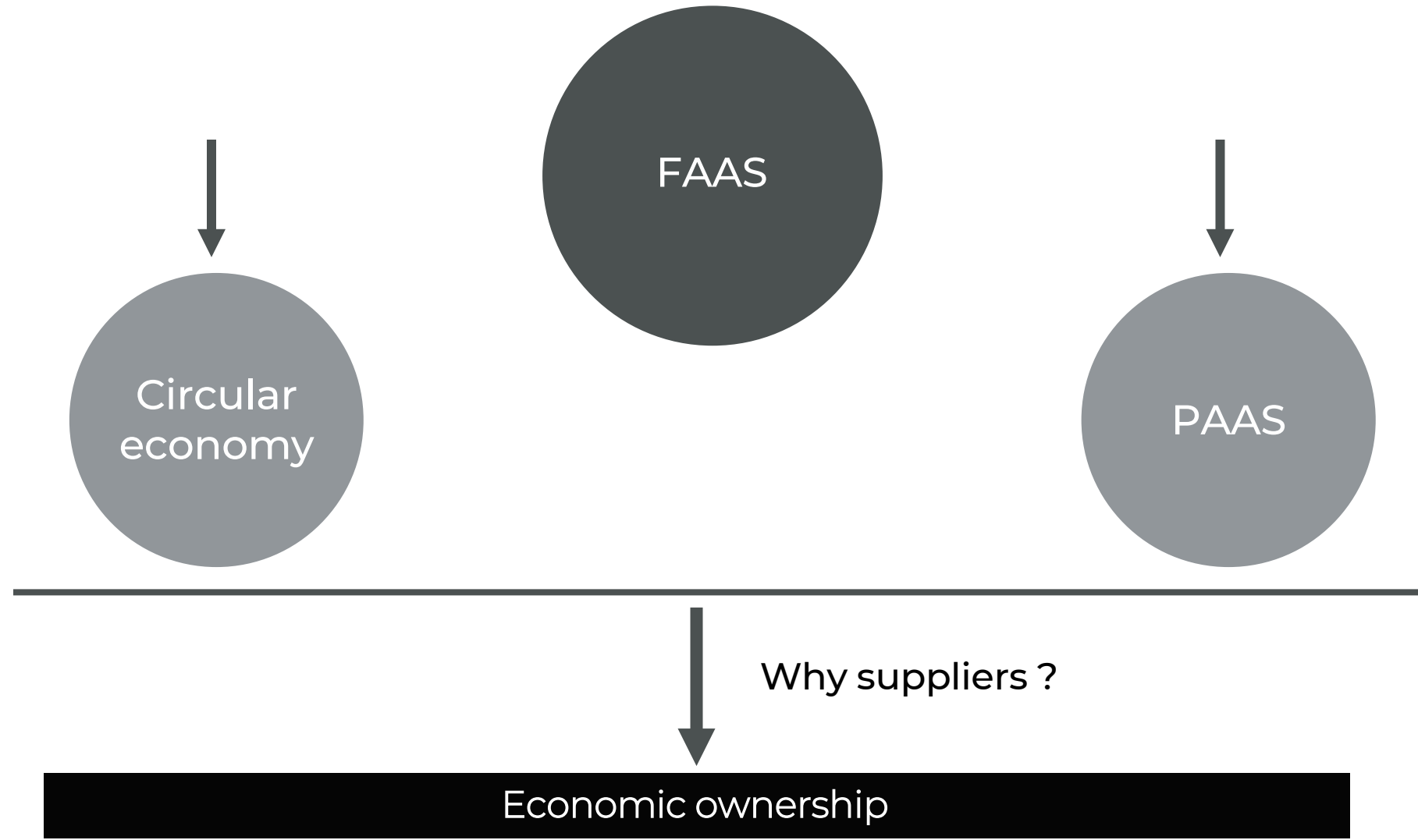
4 Findings /
Discussion

5 conclusion

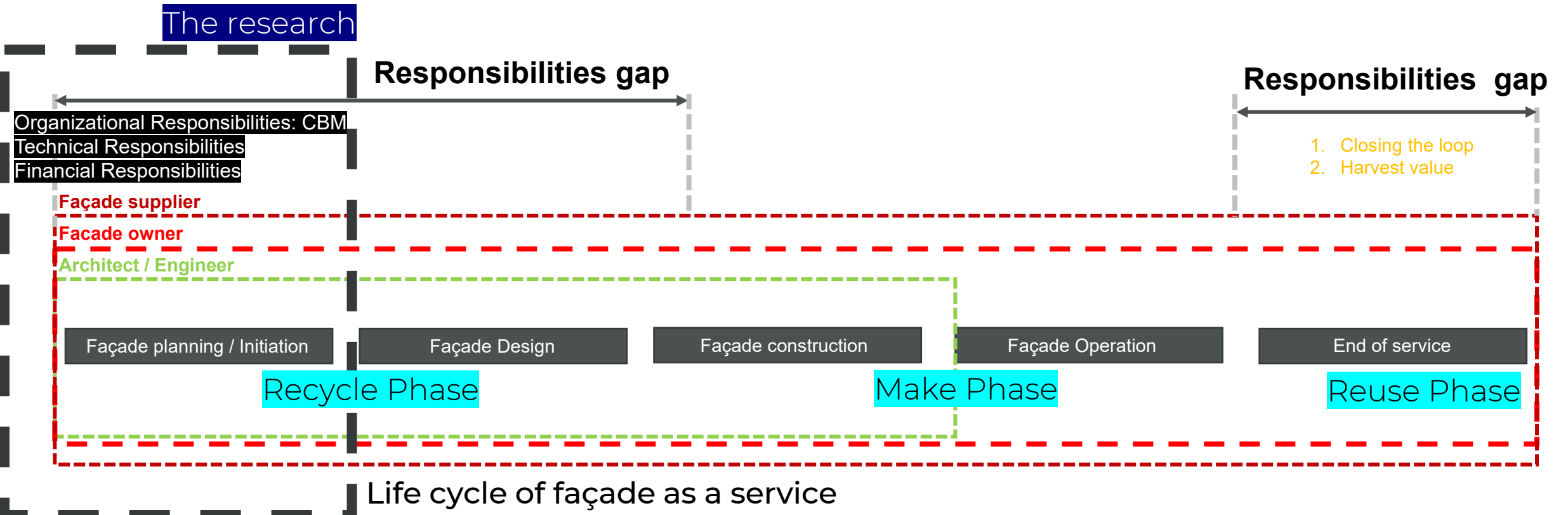
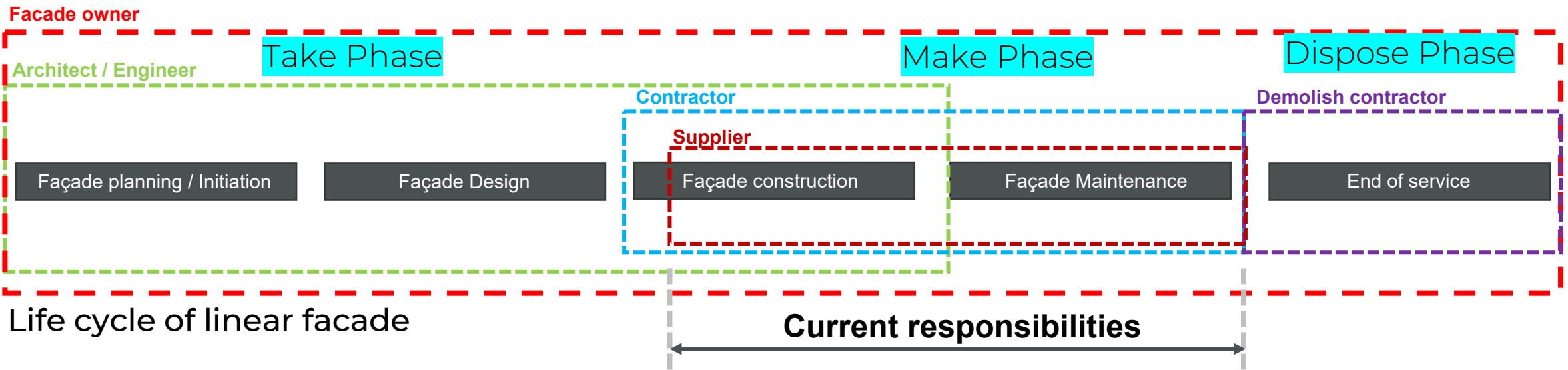
WHAT IS LINEAR FAÇADE ?



WHAT IS FAÇADE-AS-A-SERVICE ?



WHAT IS THE PROBLEM ?



RESEARCH QUESTION ?

What is the opportunities and barriers for the transition from linear façade to façade as a service ?

Identify the current situation of circularity within façade construction

Successful implementation of PaaS in other industries

Circular business model.
Performance-based contract.

01

Organizational

Life cycle assessment.
Circular design strategies.

02

Technical

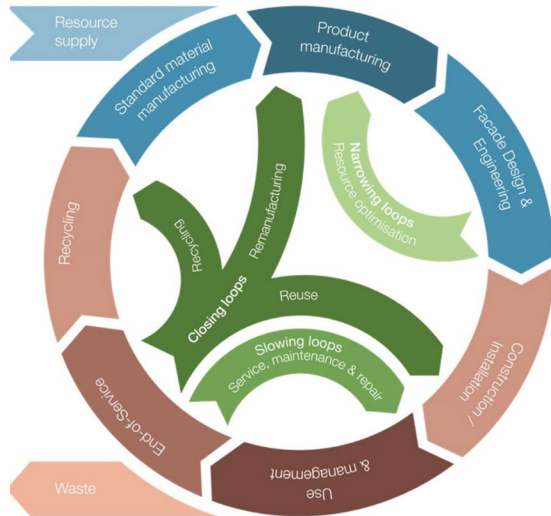
Financial

03

Cash flow revenue.
The shift from residual
value to harvest value.

ORGANIZATIONAL RESPONSIBILITY

CIRCULAR DESIGN STRATEGIES



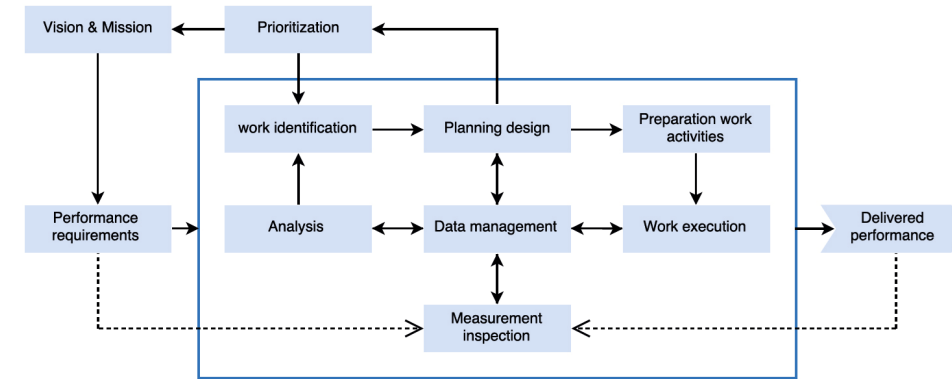
(Source: Azcarate-Aguerre et al., 2022).

- Narrowing loops**
1. Material reduction
 2. Energy reduction

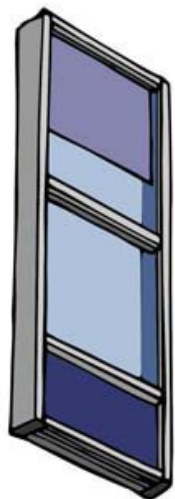
- Slowing Loops**
1. Design for standardization
 2. Design for easy maintenance and repair
 3. Design for upgrades + Adjustment

- Closing Loops**
1. Design for dis-, and re-assembly
 2. Design for recycling

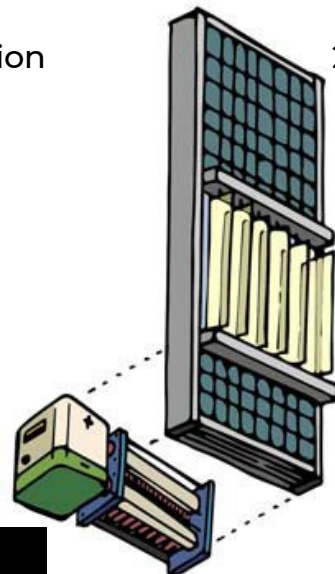
CIRCULAR DESIGN STRATEGIES



(Source: Schaeken, 2018).



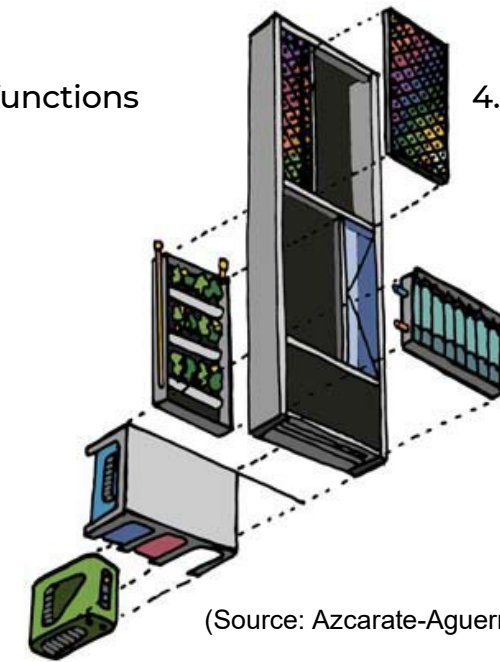
1. Basic Function



2. Energetic functions

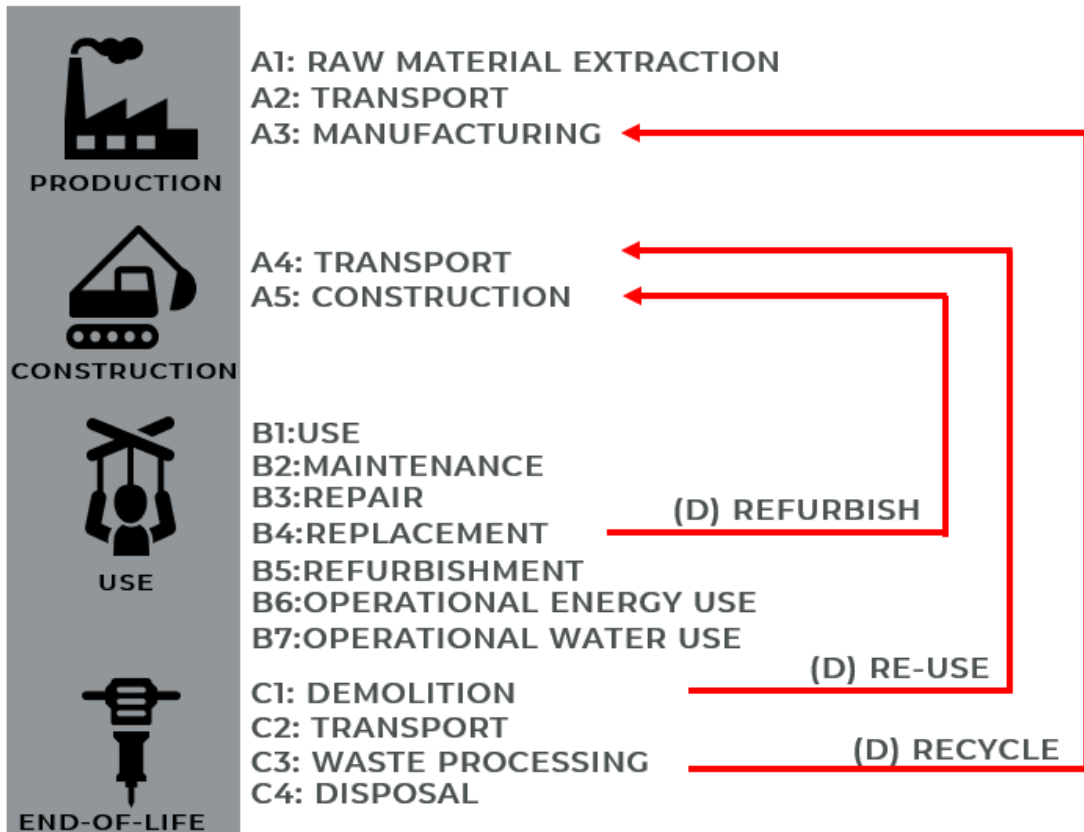


3. Supply functions



4. Advanced functions

TECHNICAL RESPONSIBILITIES



LIFE CYCLE ASSESSMENT (LCA)

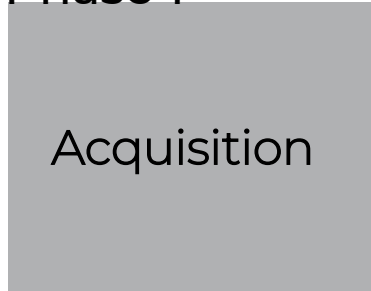
<p>MODULARITY</p>	<ol style="list-style-type: none"> 1. Reduce operation & maintenance 2. Slow assets depreciation 3. Increase assets value and boost market competitiveness
<p>DESIGN FOR DISASSEMBLY</p>	<ol style="list-style-type: none"> 1. Ease dismantling for façade components 2. Split products into its elemental components 3. Facilitating maintenance, repair, reuse and recycling
<p>DESIGN FOR ADAPTABILITY</p>	<ol style="list-style-type: none"> 1. Able to fit the growing demands of user 2. Optimize reusability 3. Maximizing façade's value

CIRCULAR DESIGN STRATEGIES

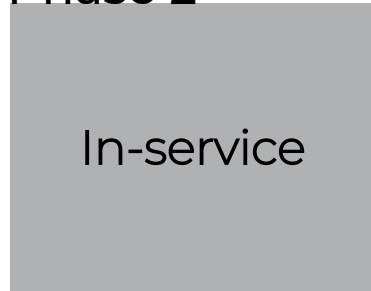
FINANCIAL RESPONSIBILITY

The four-stage service model

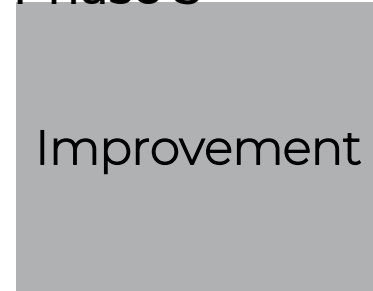
Phase 1



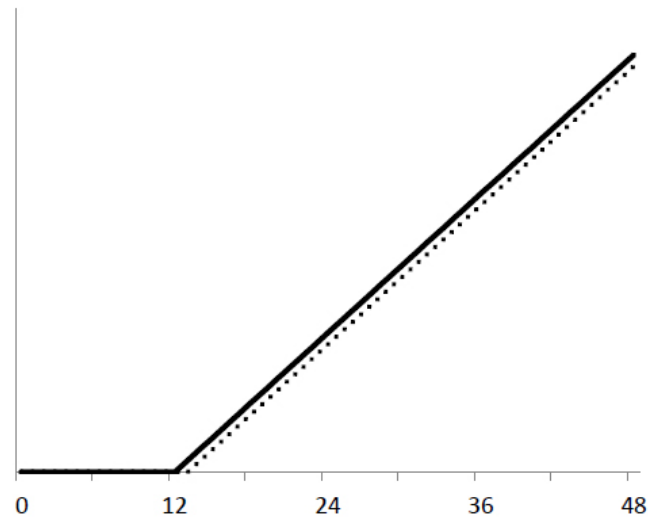
Phase 2



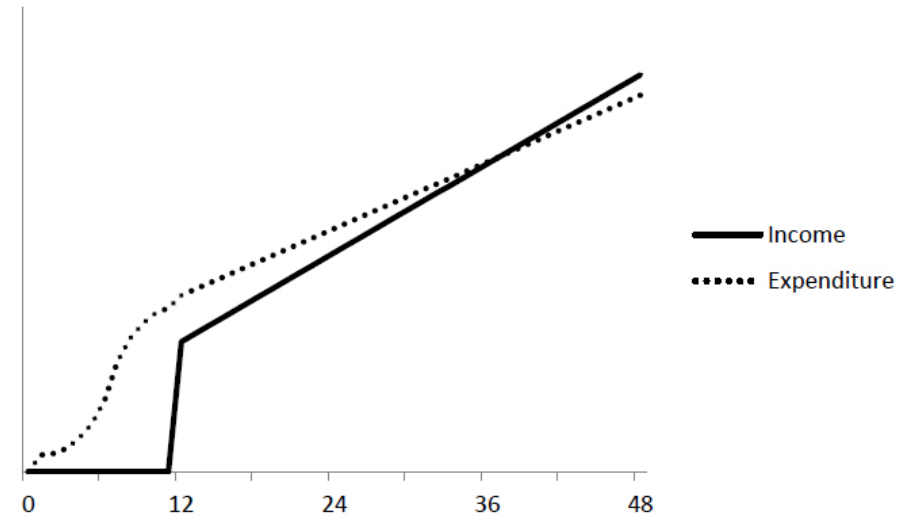
Phase 3



Phase 4



Client's cash flow in PBC

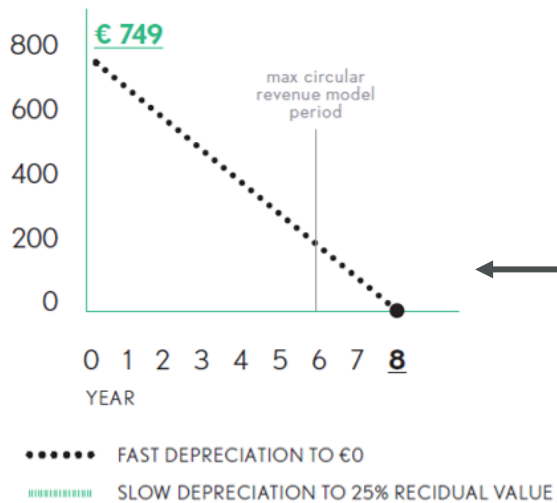


Contractor's cash flow in performance-based contracting

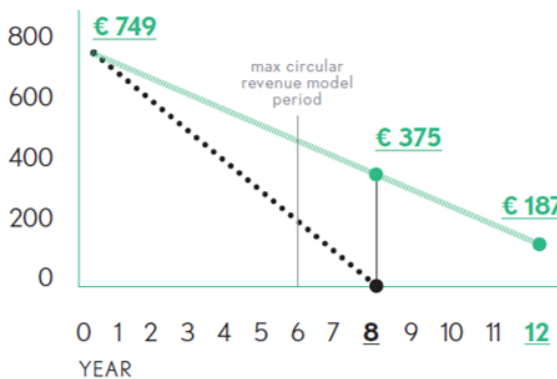
(Source: Hughes & Kabiri, 2013)

THE SHIFT FROM RESIDUAL TO HARVEST

“Current depreciation model ”



“Circular depreciation model ”



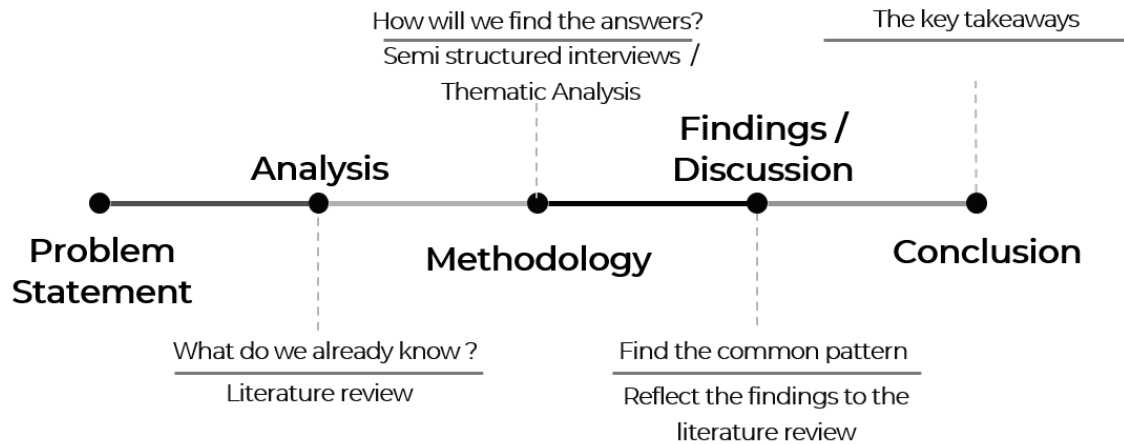
Depreciation ←



→ Structure of the contract



METHODOLOGY



- Step 1** **Transcription**
- Step 2** **References**
 - "Circular economy, It's a new economy. So, we need to look on the new way to our business"
-Interviewee 2- (B31)
 - "It's a different approach how we have a whole business works, right? Yeah. So, everything has to change, starting with our attitude. It's different set of responsibility."
-Interviewee 9- (K5)
 - "I think, it may be an opportunity, as a business, this facade as a service and will make things more efficient."
-Interviewee 5- (E31)
- Step 3** **Coding and themes**
Business Expansion
- Step 4** **Putting the themes into a category**
Opportunities

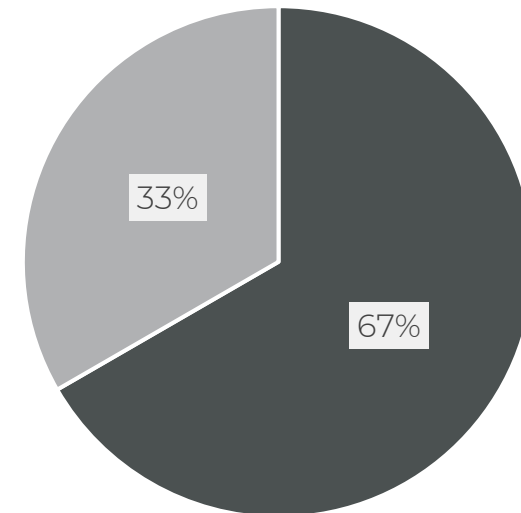
Data analysis process (Source: the author).

FINDINGS

Opportunities	Barriers
<ol style="list-style-type: none">1. Business expansion for the suppliers.2. Remanufacture for material Scarcity.3. Win-win situation4. Retain the Value of the façade.5. Stabilized cash flow.	<ol style="list-style-type: none">1. High initial investment2. No market's demand3. Long Term Involvement4. Uncertainty5. Ownership mindset

PaaS has been successfully implemented in various sectors.

33% Opportunities / 67 %
Barriers



FINDINGS / DISCUSSION

1

Opportunities &
Barriers

Interviews analysis



2

PaaS Case study

Lessons learnt from
successful
implantation



3

Rethink the supply
chain

Collaboration is the
key



4

Incremental
transition

Incremental
change not a
radical change



5

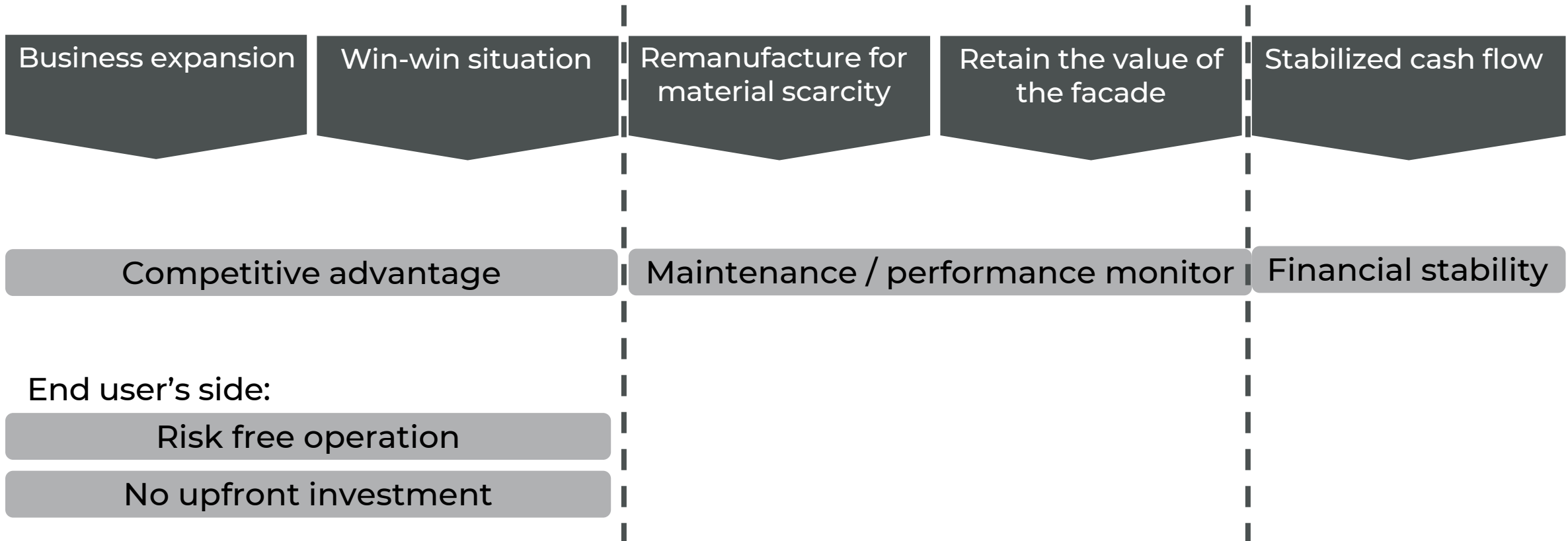
SPVs

Bankability and risk
mitigation



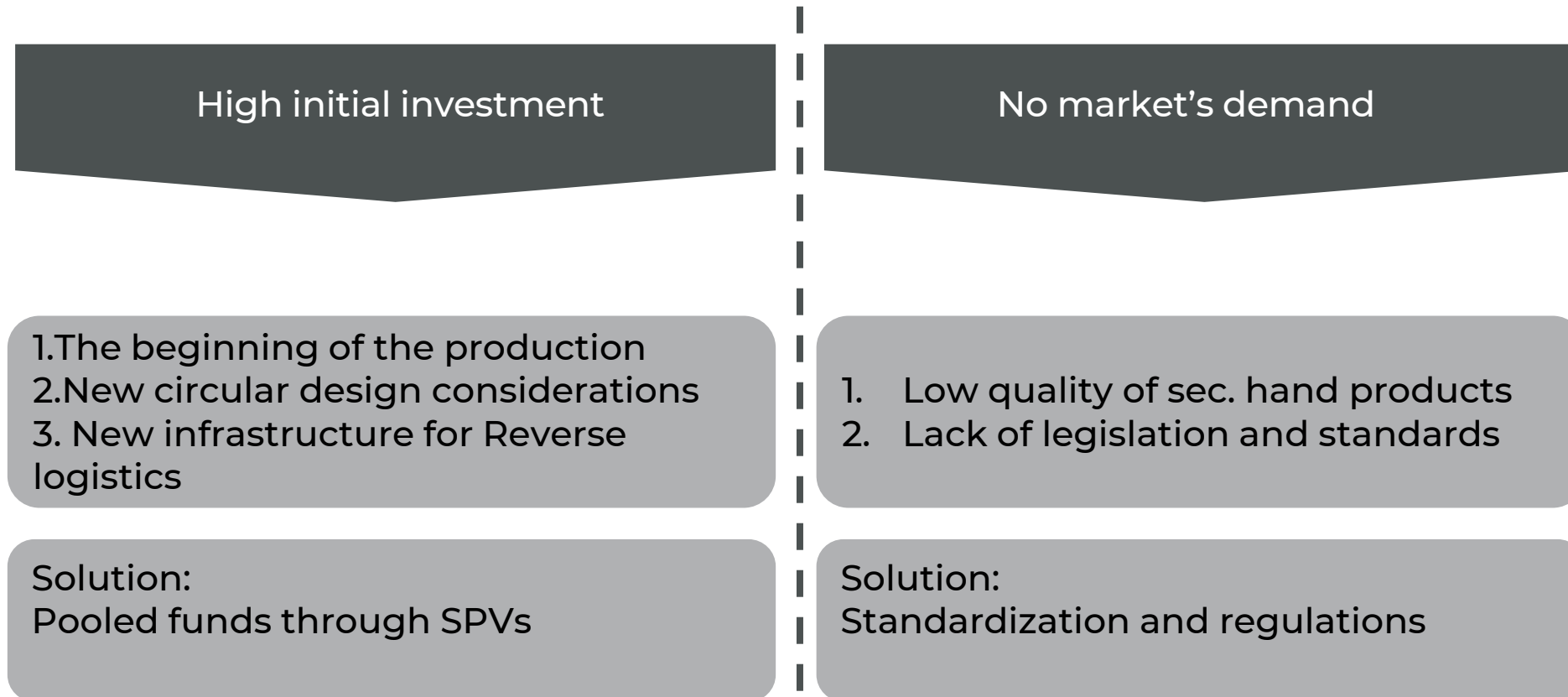
1. OPPORTUNITIES & BARRIERS

Opportunities



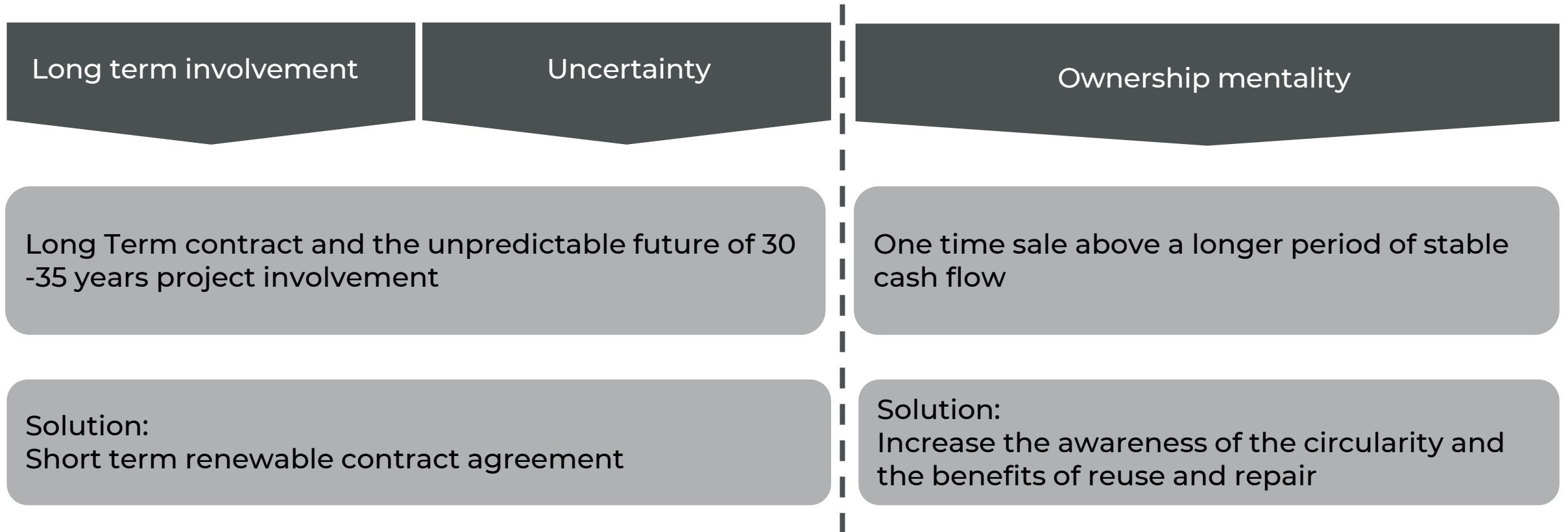
1. OPPORTUNITIES & BARRIERS

Barriers

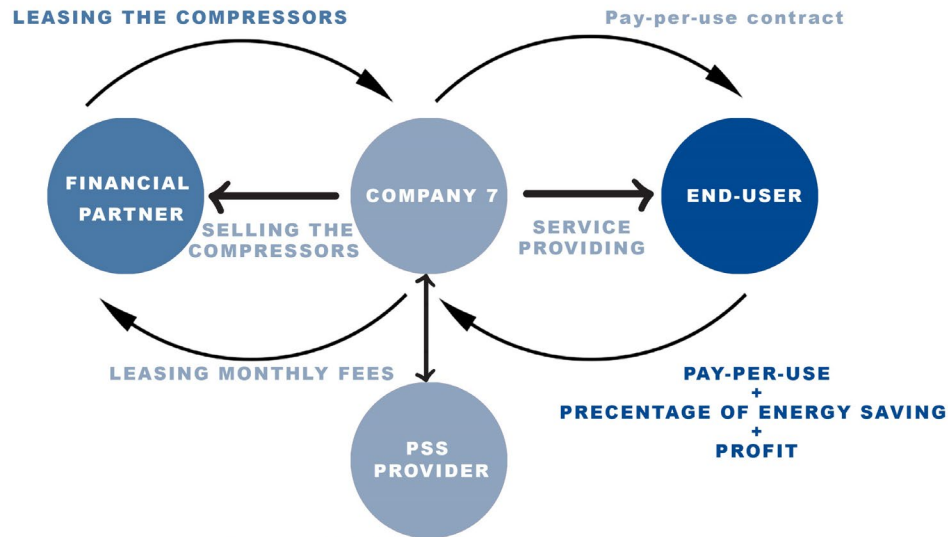


1. OPPORTUNITIES & BARRIERS

Barriers



2. PRODUCT-AS-A-SERVICE (CASE STUDY)



- Responsibilities:**
1. Remotely performance monitor
 2. Maintenance / Service
 3. Spare-parts providing if it is needed

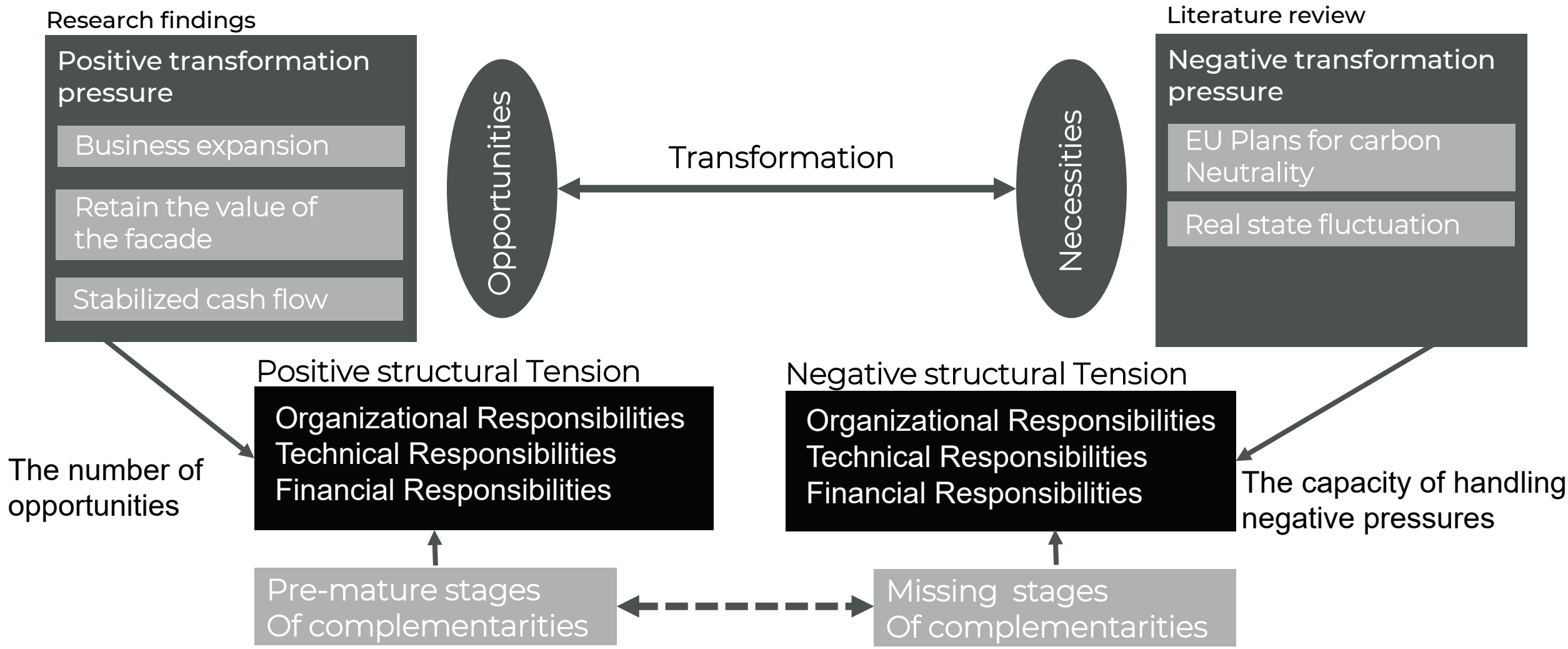
- Client's Opportunities**
 - No initial investment
 - No operational risk / avoiding unnecessary maintenance
 - Access to cutting-edge technology
- Supplier's Opportunities**
 - Steady cash flow
 - Enhancement of the products through performance monitor
 - Avoid balance-sheet-extension through the financial partner
- Bankruptcy scenarios**
 - Client's Bankruptcy: Standardized product so it can fit any client
 - Supplier's Bankruptcy: The financial partner lease the product to another Service provider.
- Contract agreement**
 - Follows IFRS (International financial report standards)
 - 12 months contract renewable to avoid having the asset on their balance sheet

Financial model

Lessons to be applied to facades construction

- Facades: Modularity and standardization
- Suppliers: Façade with performance oriented
- Partnership: Financial partnership

3. INCREMENTAL TRANSITION TOWARD FAAS



4. RETHINK THE SUPPLY CHAIN

Suppliers can collaborate in a variety of ways with other stakeholders:

End user

Learn about their preferences and requirements and design solutions accordingly

Authorities

Ensure adherence to rules and regulations concerning the circularity

Environmental groups

Manufacturing process are safe for the environment

Material provider

set up a closed-loop material systems

Banks /
Financial institutions

Provide financing solution for the supplier especially in the production phase

Demolition
Companies

Changing their roles from demolition the façade to harvesting and reusing the façade

5. BANKABILITY AND RISK MITIGATION

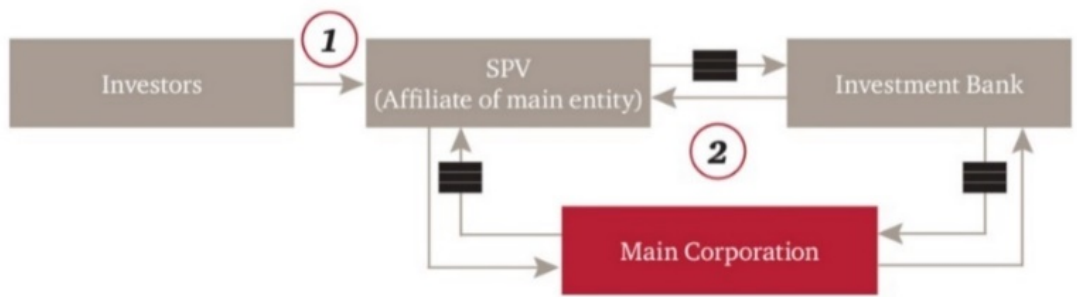
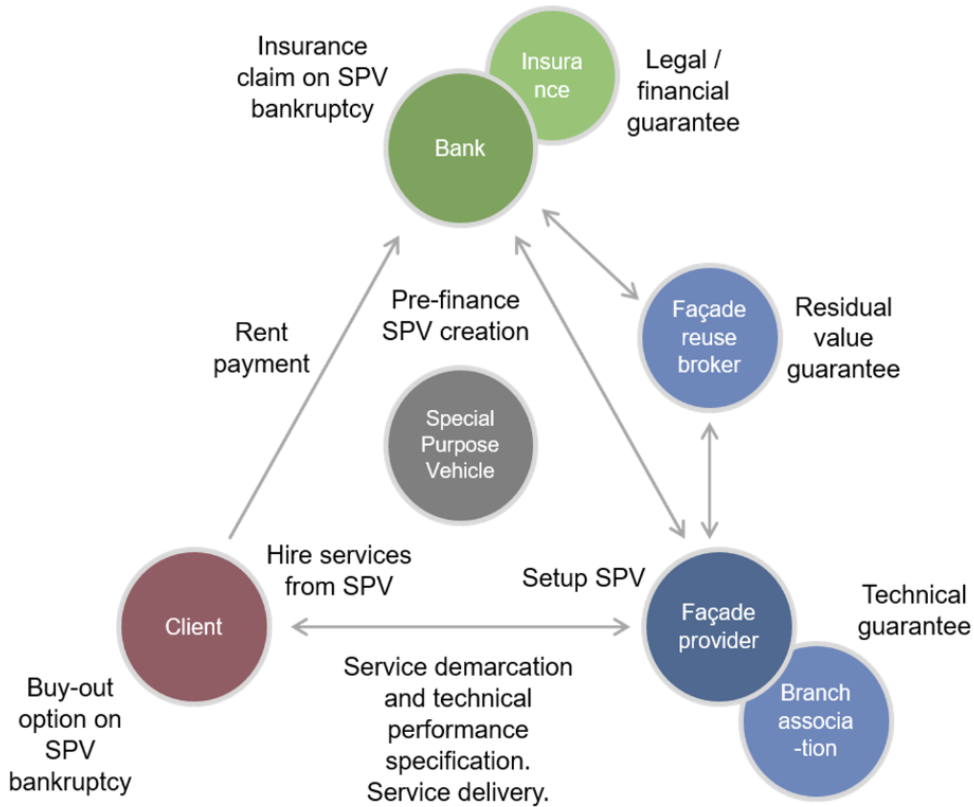


Figure 25. Typical structure of SPVs (Source: PWC, 2011).

SPVs as a financial solution for FaaS transition
(Source: climate-kic, 2020)



REFLECTION

CONCLUSION

(1) Opportunities and barriers FaaS

Most of the suppliers see it as a risky project.

The main concern for FaaS is a financial and legalization part.

FaaS hasn't been commercialized

(2) Circularity in Façade construction

Circularity still doesn't not exist in Façade construction

Product as a service in other sectors

Modularity and standardization

Service has a higher margin than one time Sale.

Financial collaboration is a must

THANK YOU !

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