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Building Capabilities in Complex Environments

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Establishing the Key Pillars of Innovation Required to Execute a Successful BIM Strategy Within a Construction Micro SME in Ireland



Paper Title

Establishing the Key Pillars of Innovation Required to Execute a Successful BIM Strategy Within a Construction Micro SME in Ireland

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Patrick Carroll

Quantity Surveyor/Estimator

Lecturer in Quantity Surveying – Institute of Technology Carlow

MSc in Construction Informatics 2014-2017

Begun the BIM Journey approx. 3 years ago

Keen interest on the adoption of BIM within Micro SMEs and SMEs

Institiúid Teicneolaíochta Cheatharlach



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Presentation Content

- **Introduction**
- **Methodology Used**
- **The Importance of SMEs Locally & Europe**
- **Barriers for Entry for Micro SMEs to adopt BIM**
- **Key Elements to Construction Innovation**
- **The Enabling Factors & Key Pillars of Innovation Required for BIM**
- **Conclusion**



INTRODUCTION

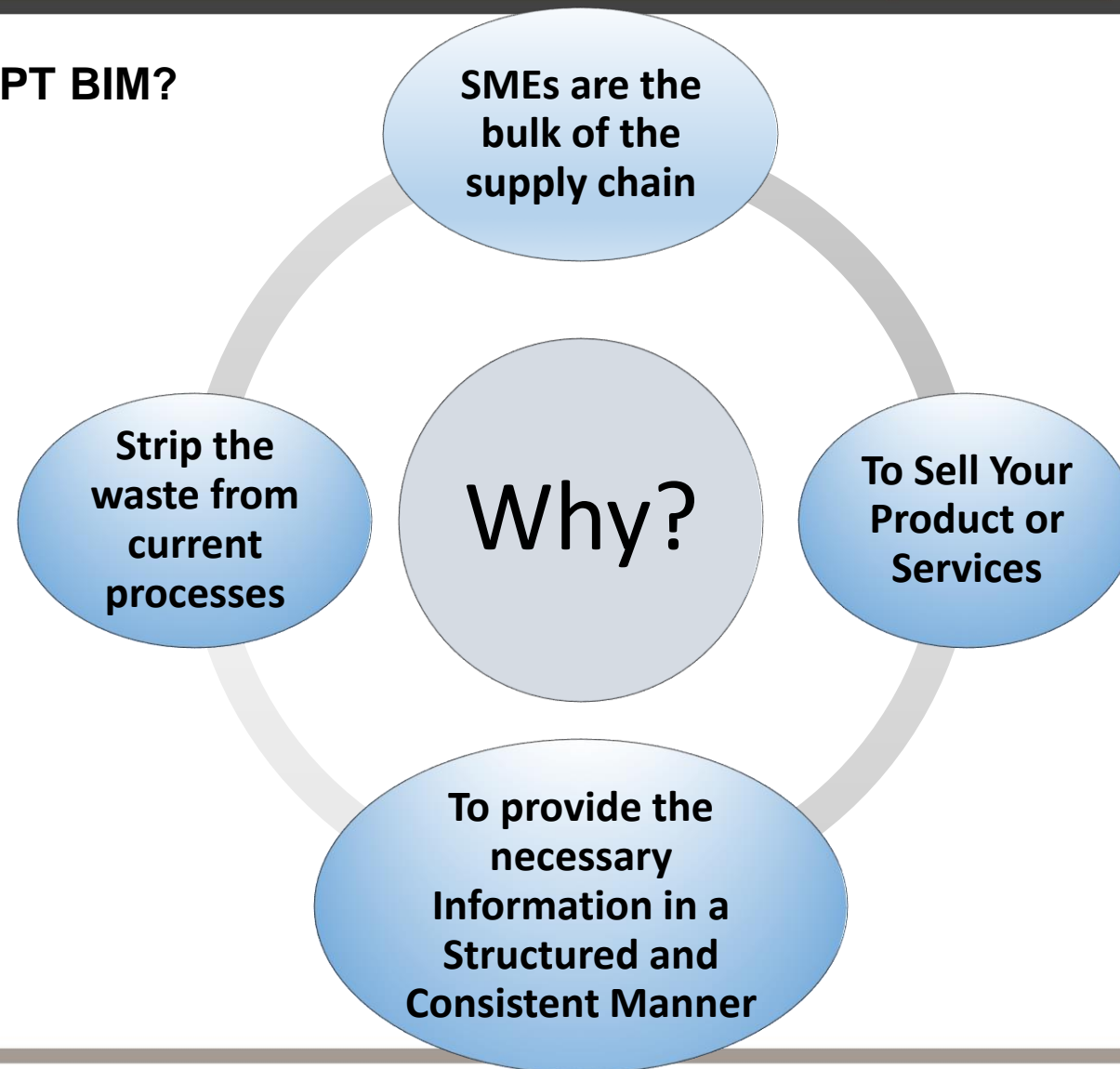
- Recent Resurgence of the Irish Construction Industry.
- There is a need for Construction Professionals to embrace new technologies & processes.
- Adapt out-dated, fragmented Work Methods.
- Adopt a new Collaborative approach through Building Information Technology.
- Building Information Modelling (BIM) is now seen as a core technology at a time of global transition towards an information revolution.
- With the ever increasing adoption of new technologies SMEs will now need to provide a service that incorporates innovative processes such as **BIM**

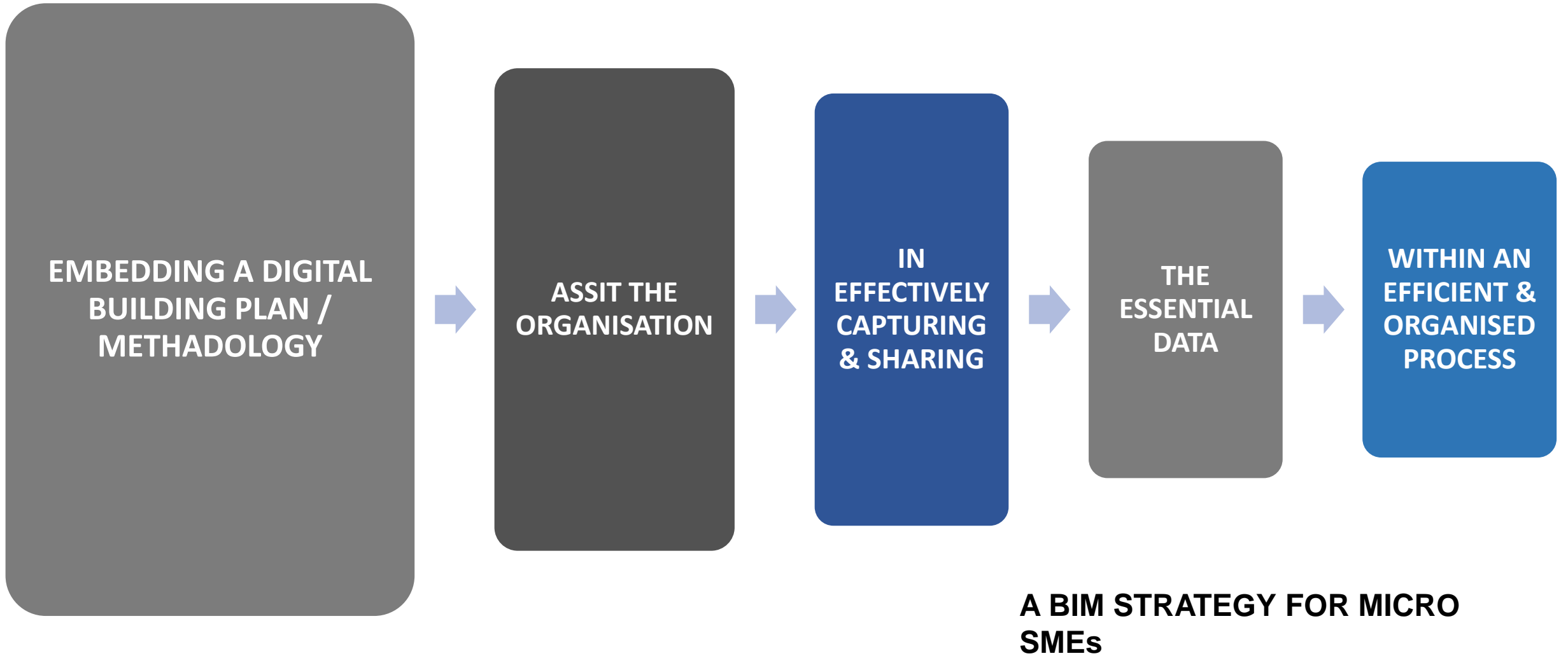


Innovation is the starting point for Micro SMEs in the Construction Industry if BIM adoption is to be **Successful.**



WHY DO SMEs NEED TO ADOPT BIM?







METHODOLOGY

Involved a **critical in-depth** desk top study

complimented with a **series of interviews** with Micro SMEs based within the Irish AEC Sector





Methodology

The Interviews examined **Attitudes**, BIM **Maturity**,
Experience and Organisation **Barriers** with respect to
the enabling factors of BIM Innovation for Micro SMEs



The Importance of SMEs in Ireland & Europe





SME

Employ fewer than 250 persons, annual turnover not exceeding €50 million

SMALL ENTERPRISE

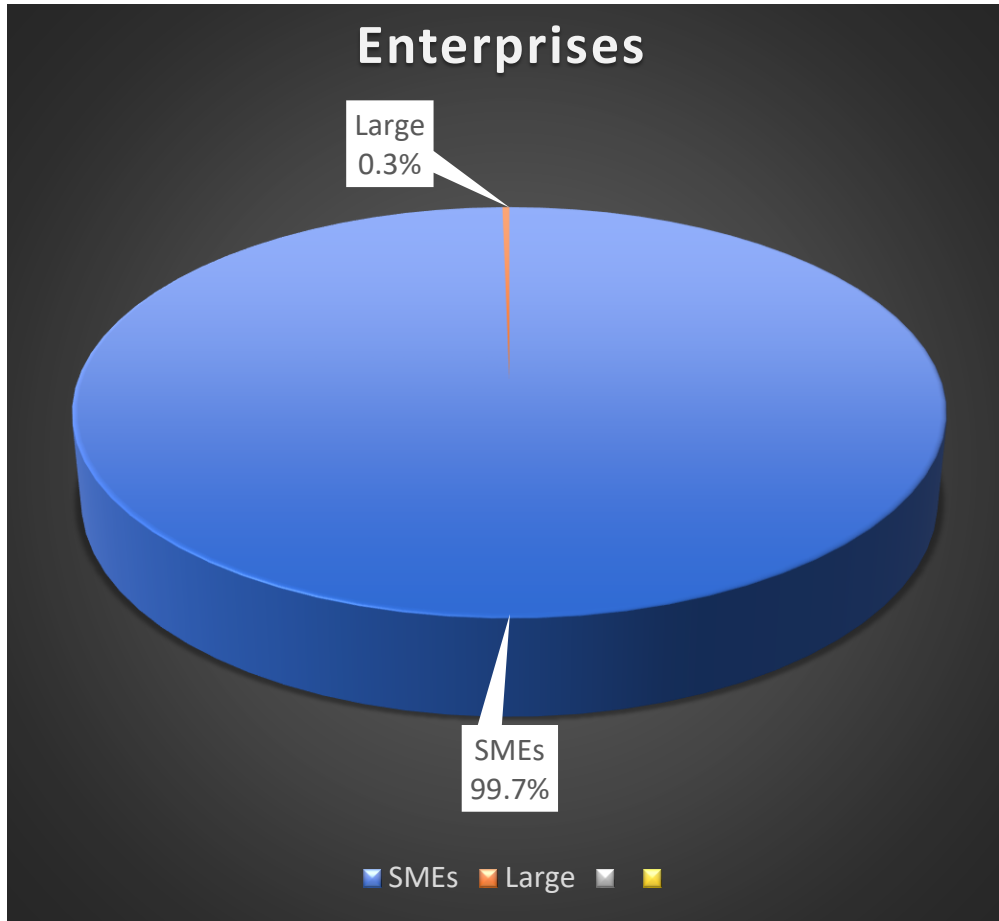
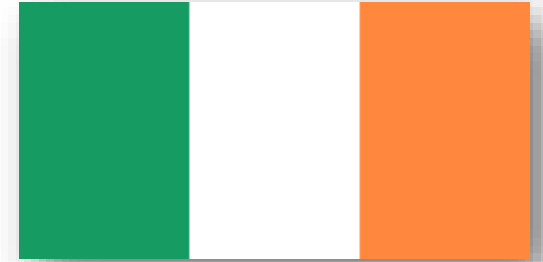
Employ fewer than 50 persons, annual turnover €10 million

MICRO ENTERPRISE

Employ fewer than 10 persons, annual turnover €2 million



IMPORTANCE OF SMEs Within the Irish Economy

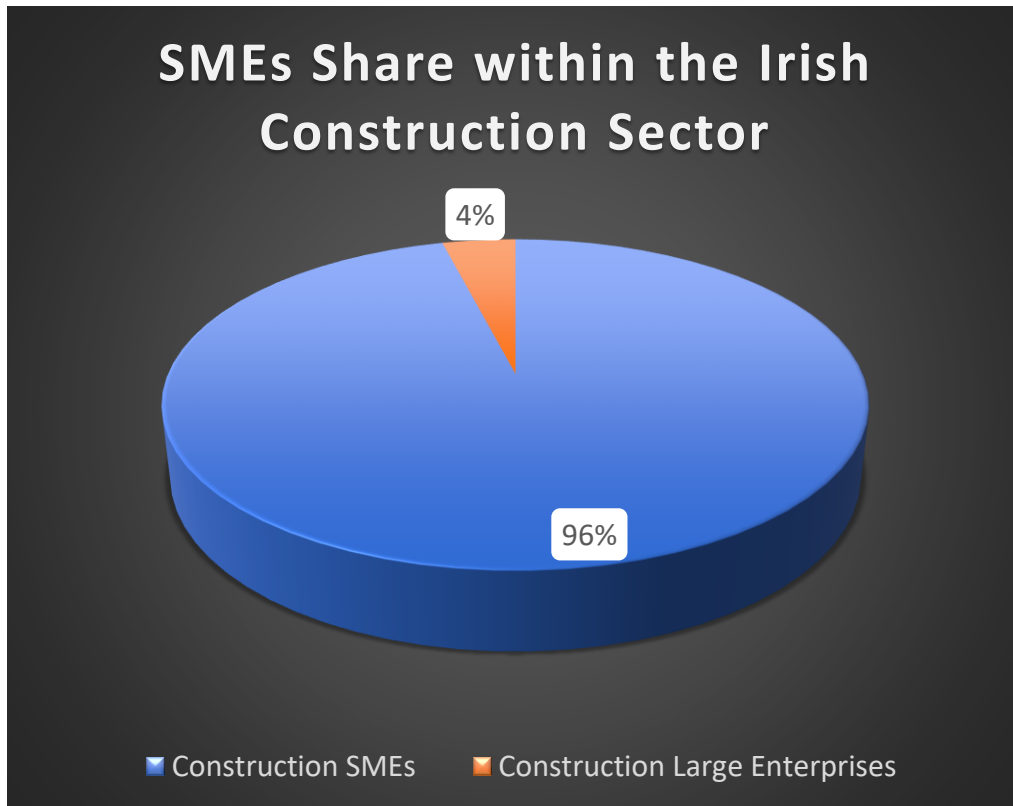


Office of Government Procurement

- SMEs account for 99.7% of all enterprises.
- 68% of all employment
- For every 1000 businesses within the Irish Economy 997 are SMEs
- 66% of Public Service Expenditure is directly with SMEs



BUSINESS DEMOGRAPHY = SME shares within the Construction Sectors



IRISH CONSTRUCTION SECTOR

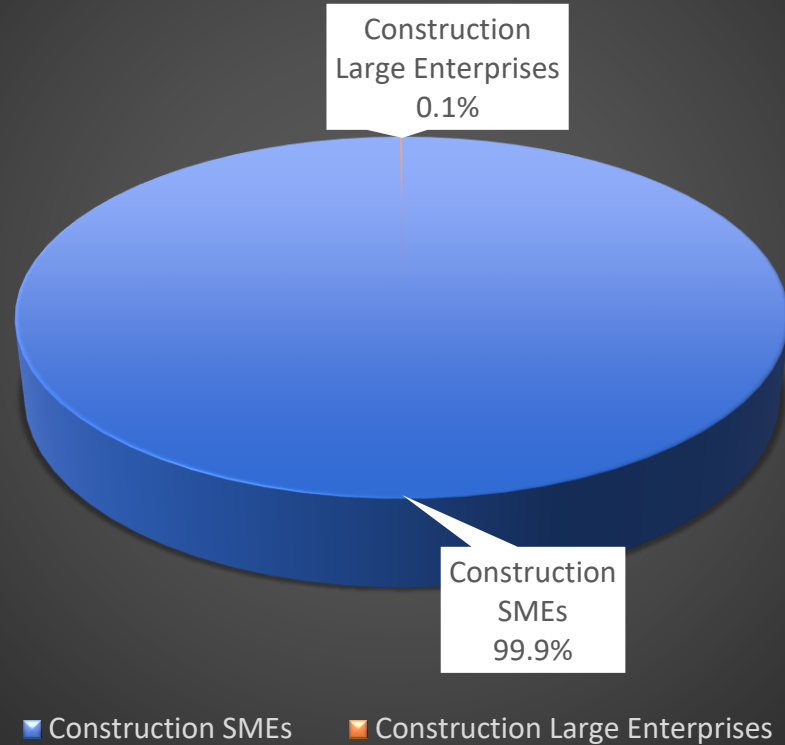
- 96% of Irish Construction Companies are SMEs
- Employing less than 10 employees
- From 2008 a trend has shown that medium to large sized companies have downsized.
- While Small New Enterprises with few employees has grown.



EUROPEAN CONSTRUCTION SECTOR



SMEs Share within the European Construction Sector



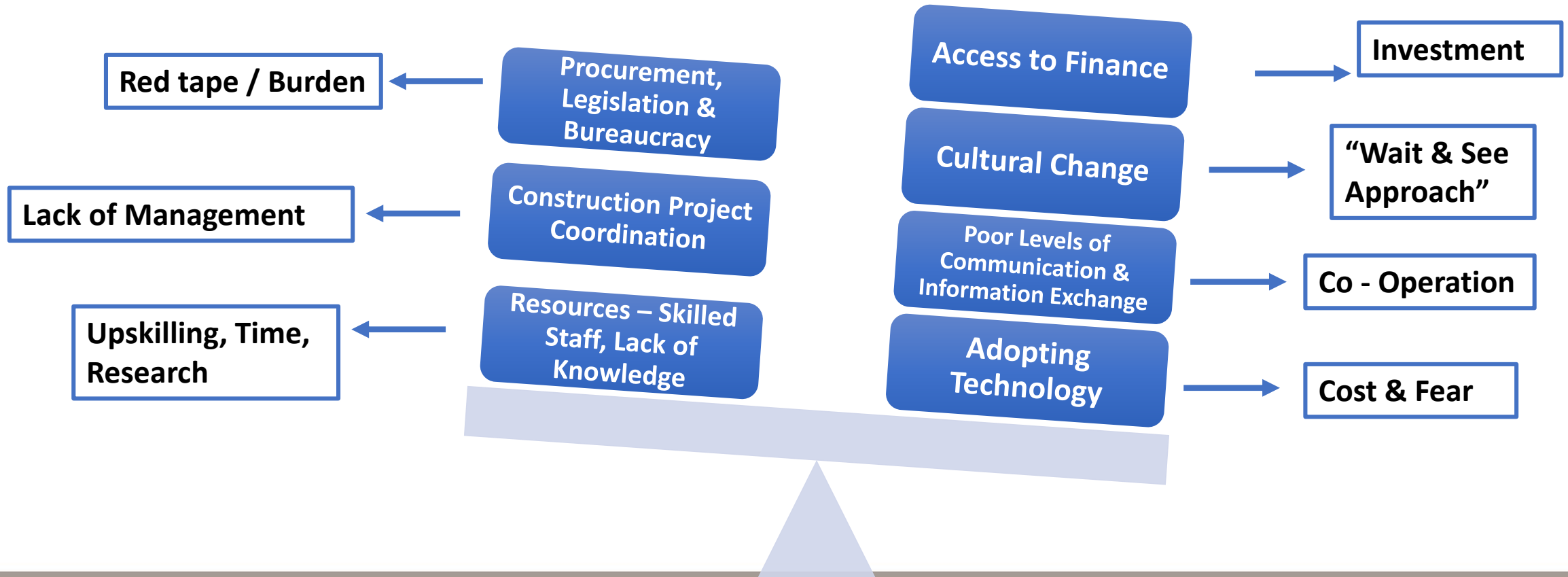
EUROPEAN CONSTRUCTION SECTOR

- 99.9% of The European Construction Sector is made up of SMEs
- These SMEs employ an average of 4 employees
- UK is similar & Canada



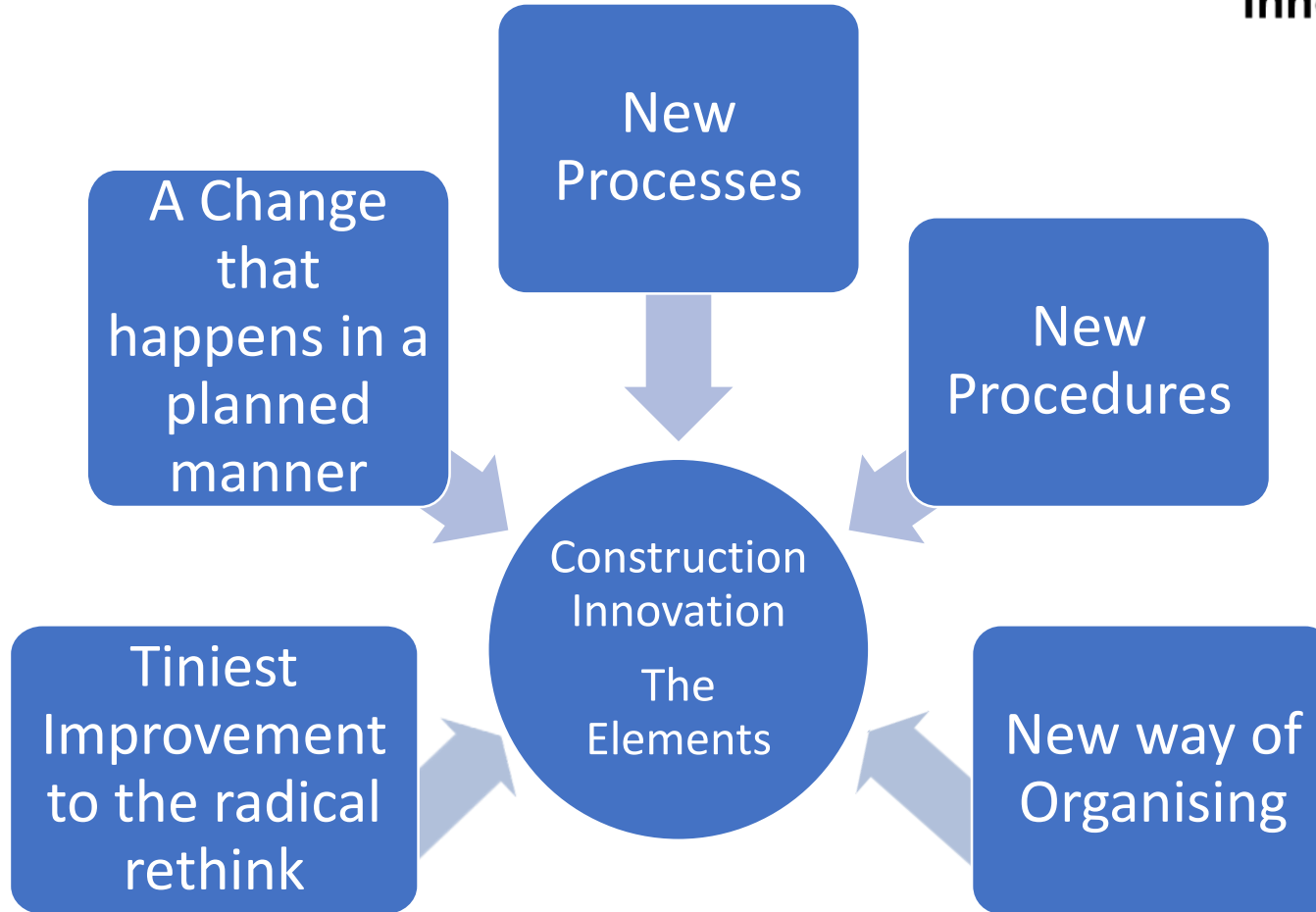
Construction SMEs Experiences

Barriers & Challenges to Innovating BIM





Key Elements to Construction Innovation



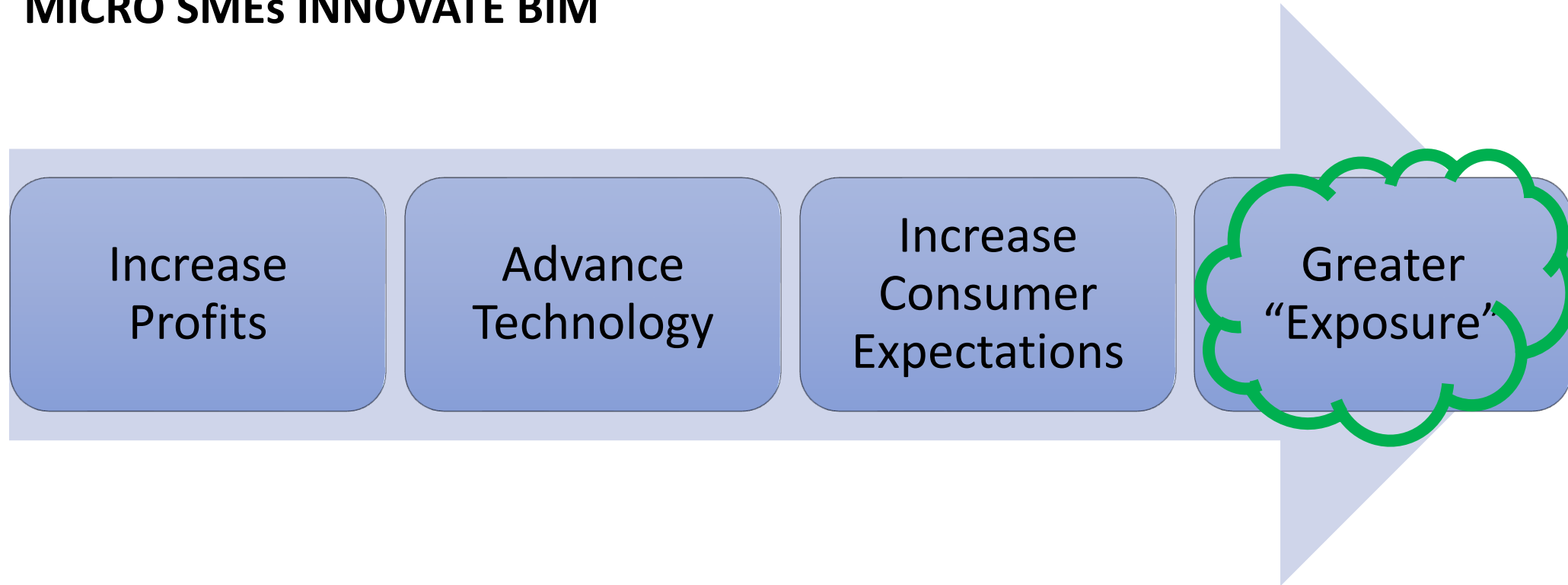


Key Elements to Construction Innovation

Innovation within an organisation is the **starting point** to the **implementation** of BIM with **key factors** and the **enablers** of innovation **critically** required by those who wish to **innovate**.



REASONS WHY CONSTRUCTION MICRO SMEs INNOVATE BIM

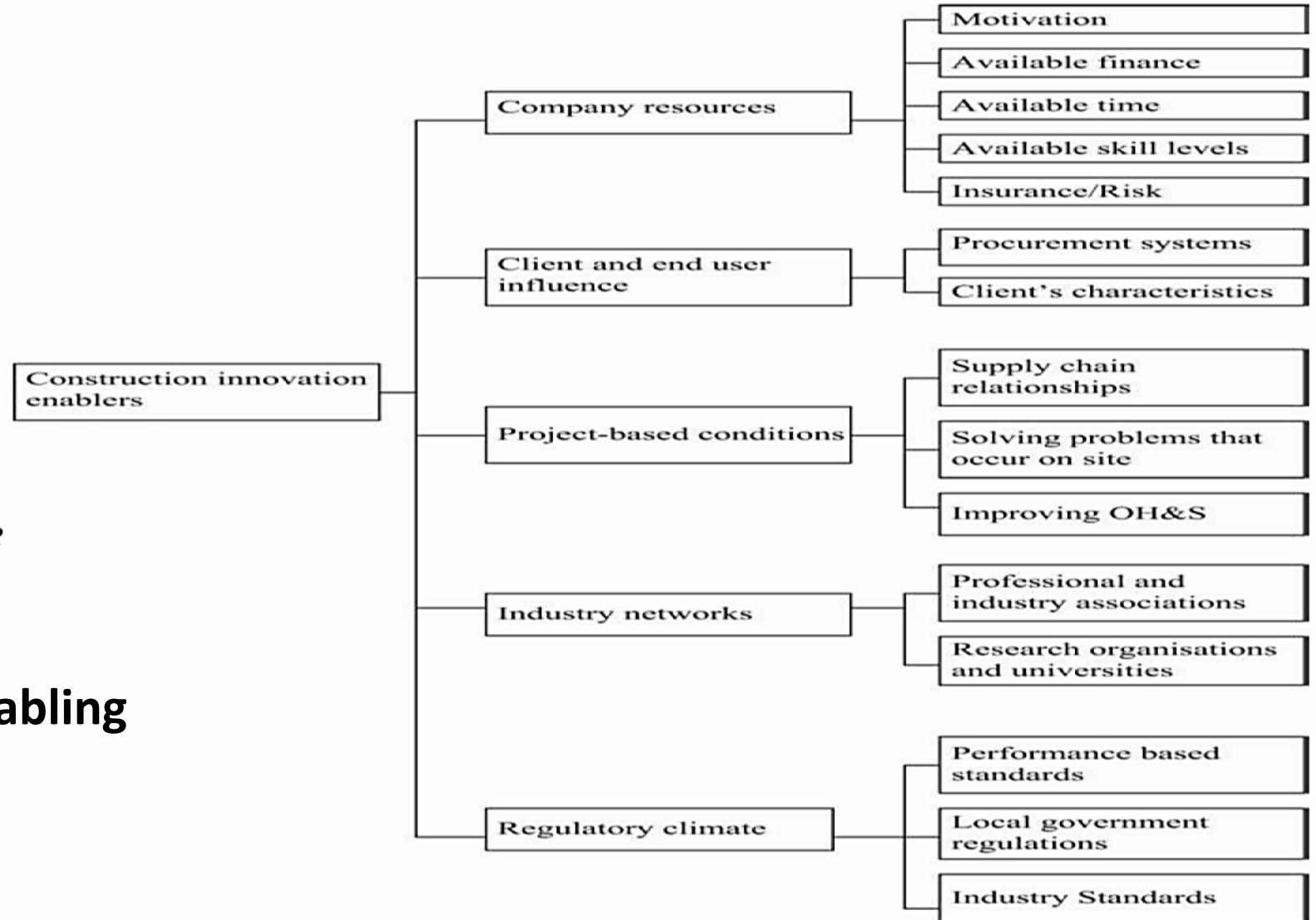




KEY PILLARS OF INNOVATION REQUIRED

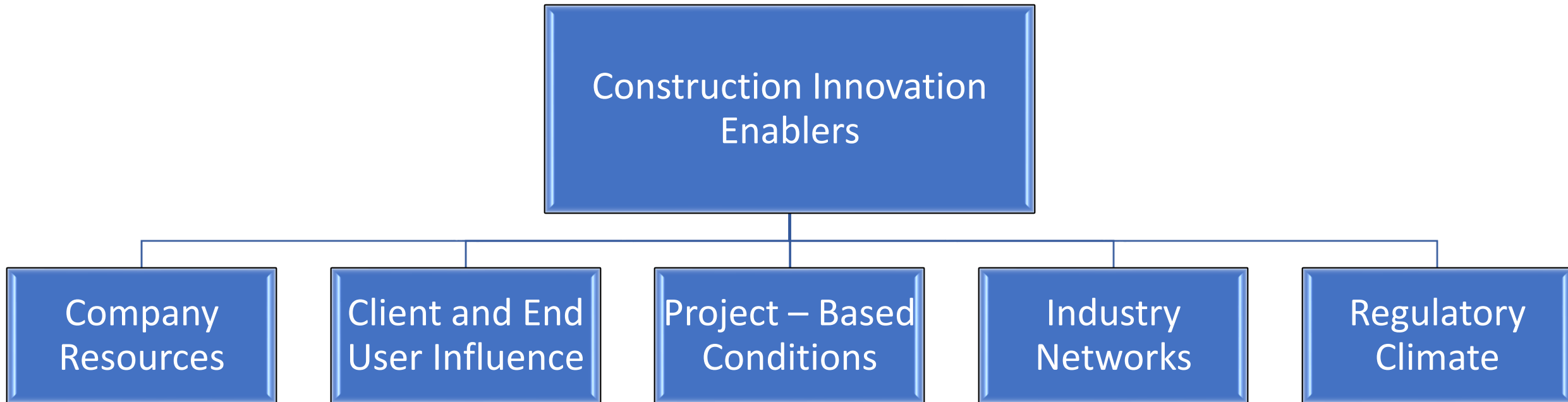
Hardie et al identifies and formulates construction innovation in a value tree (2011) An Australian Perspective.

This Value Tree Identifies Enabling Factors of Construction Innovation



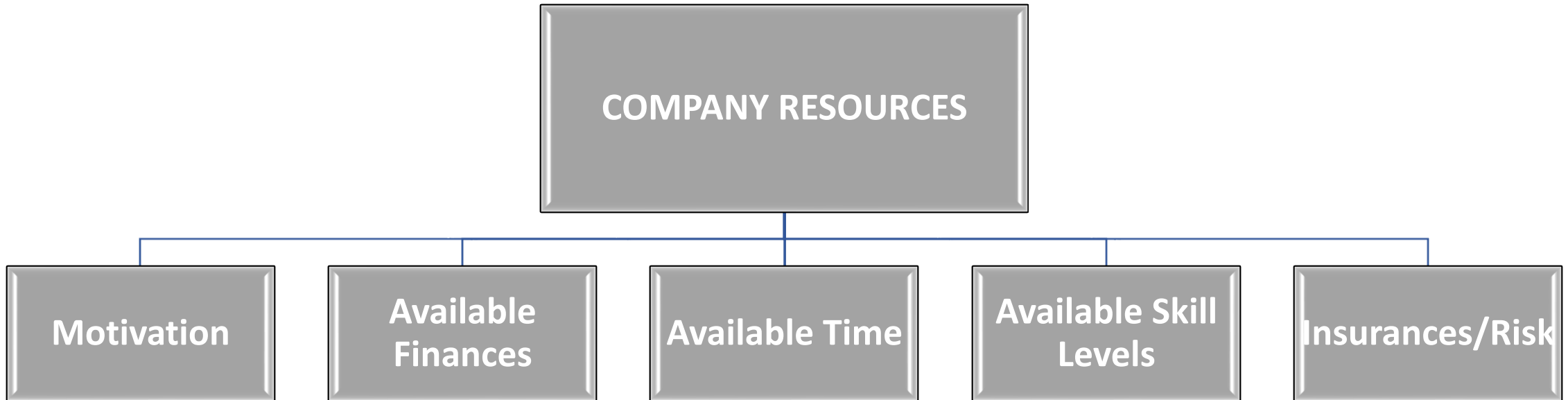
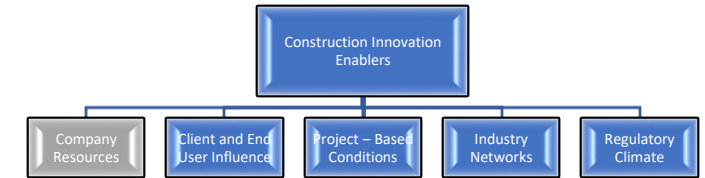


KEY PILLARS OF INNOVATION REQUIRED



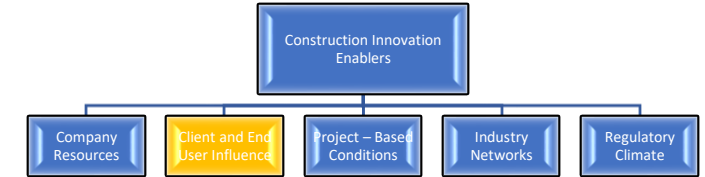
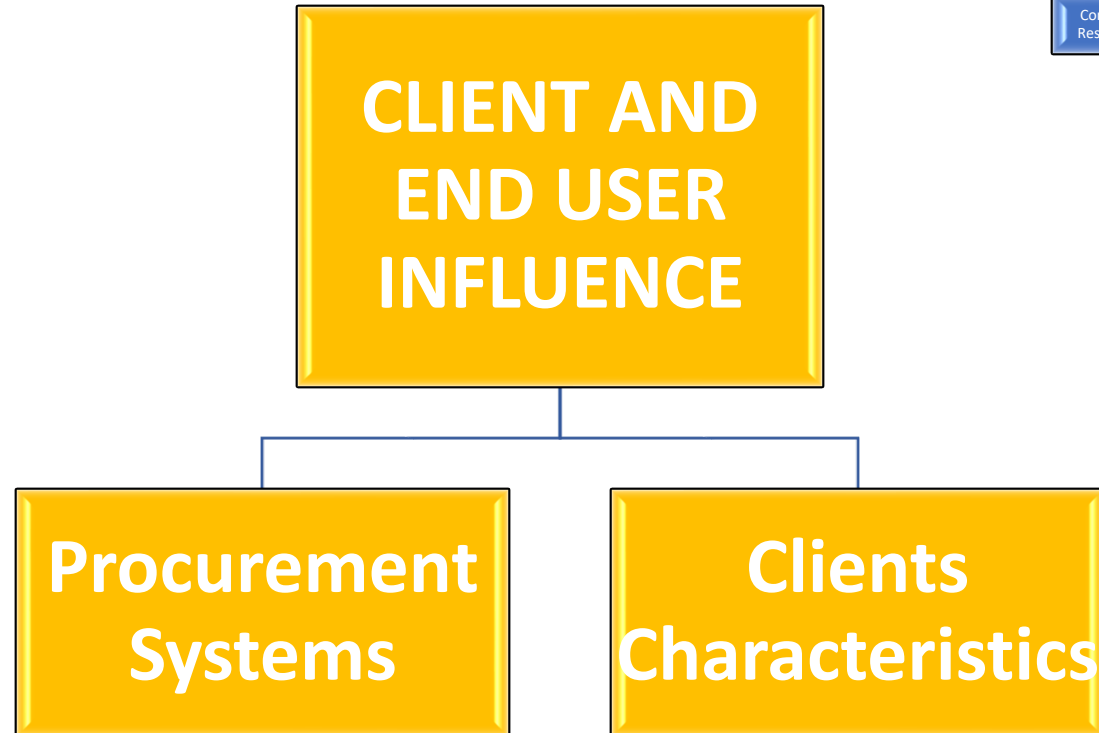


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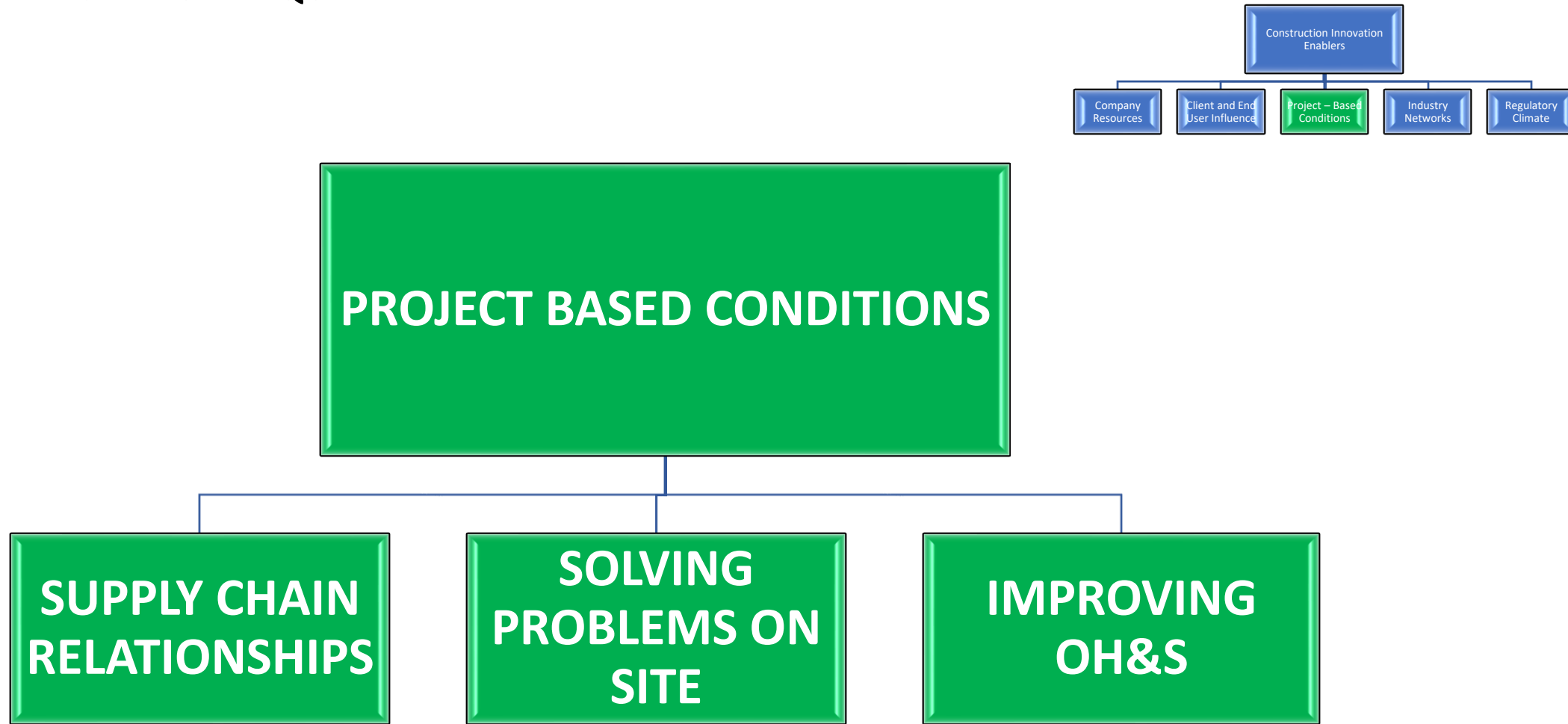


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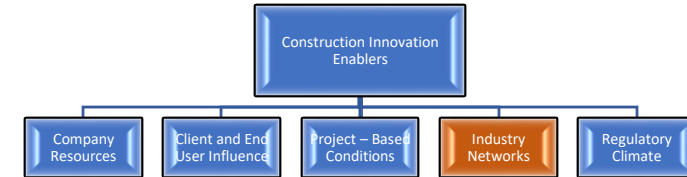
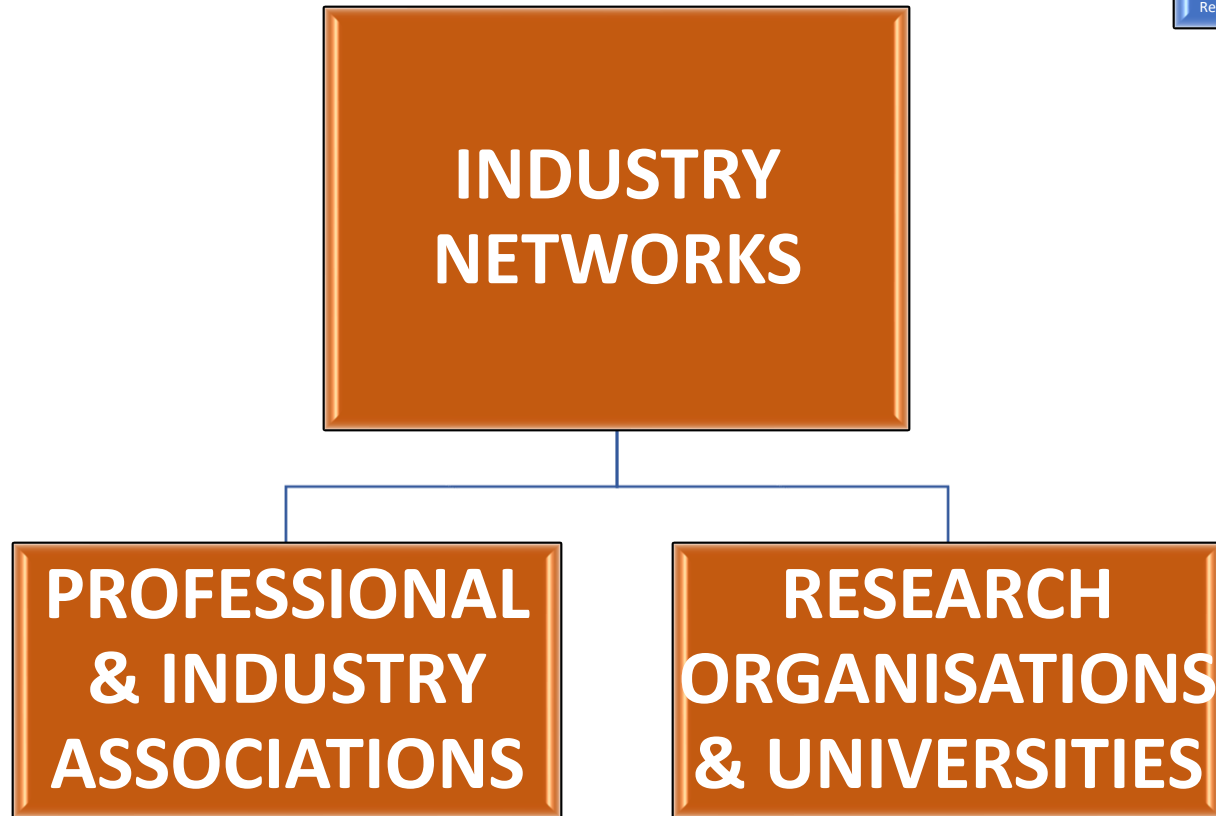


KEY PILLARS OF INNOVATION REQUIRED



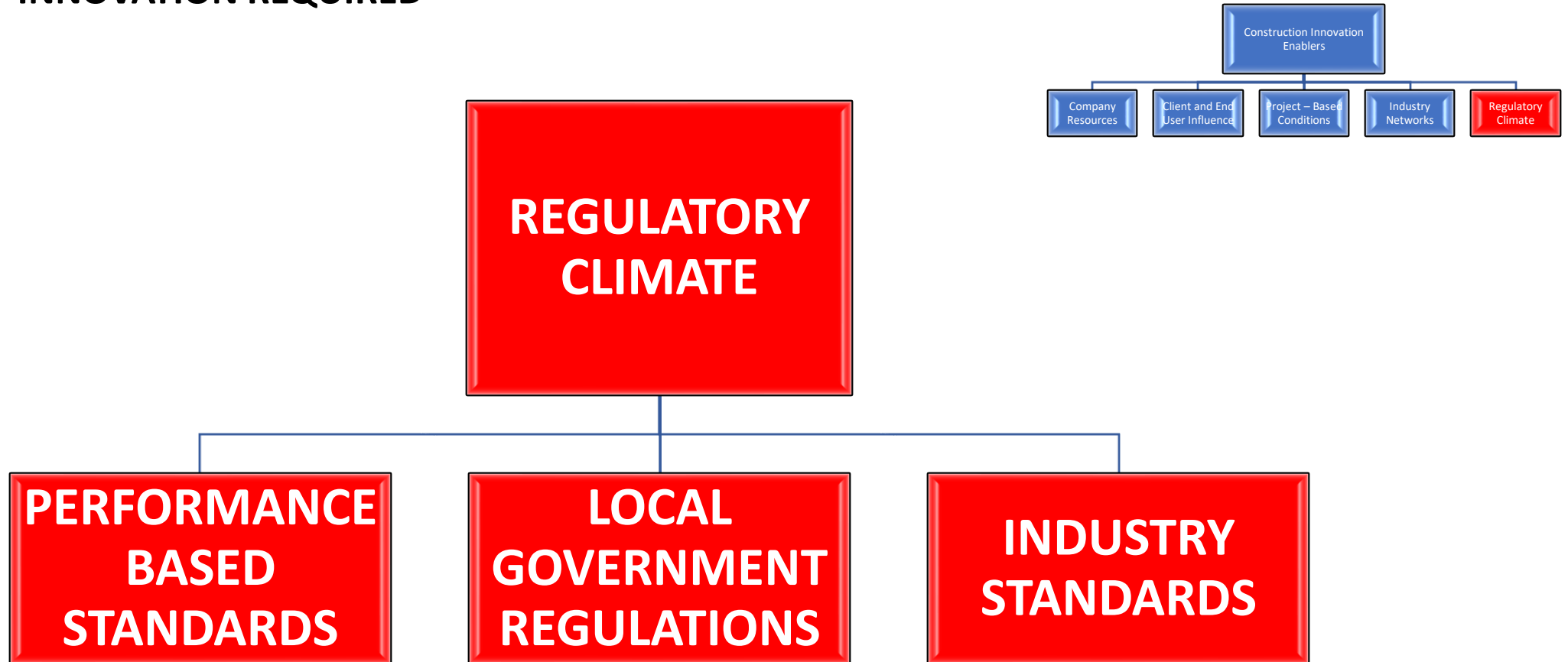


KEY PILLARS OF INNOVATION REQUIRED





KEY PILLARS OF INNOVATION REQUIRED





The Results & Needs

SMES Must be
open to Change

Communication
From Top Down

Motivation of
Directors

Irish
Government to
Mandate

Financial
Incentives



SMEs Adopting BIM

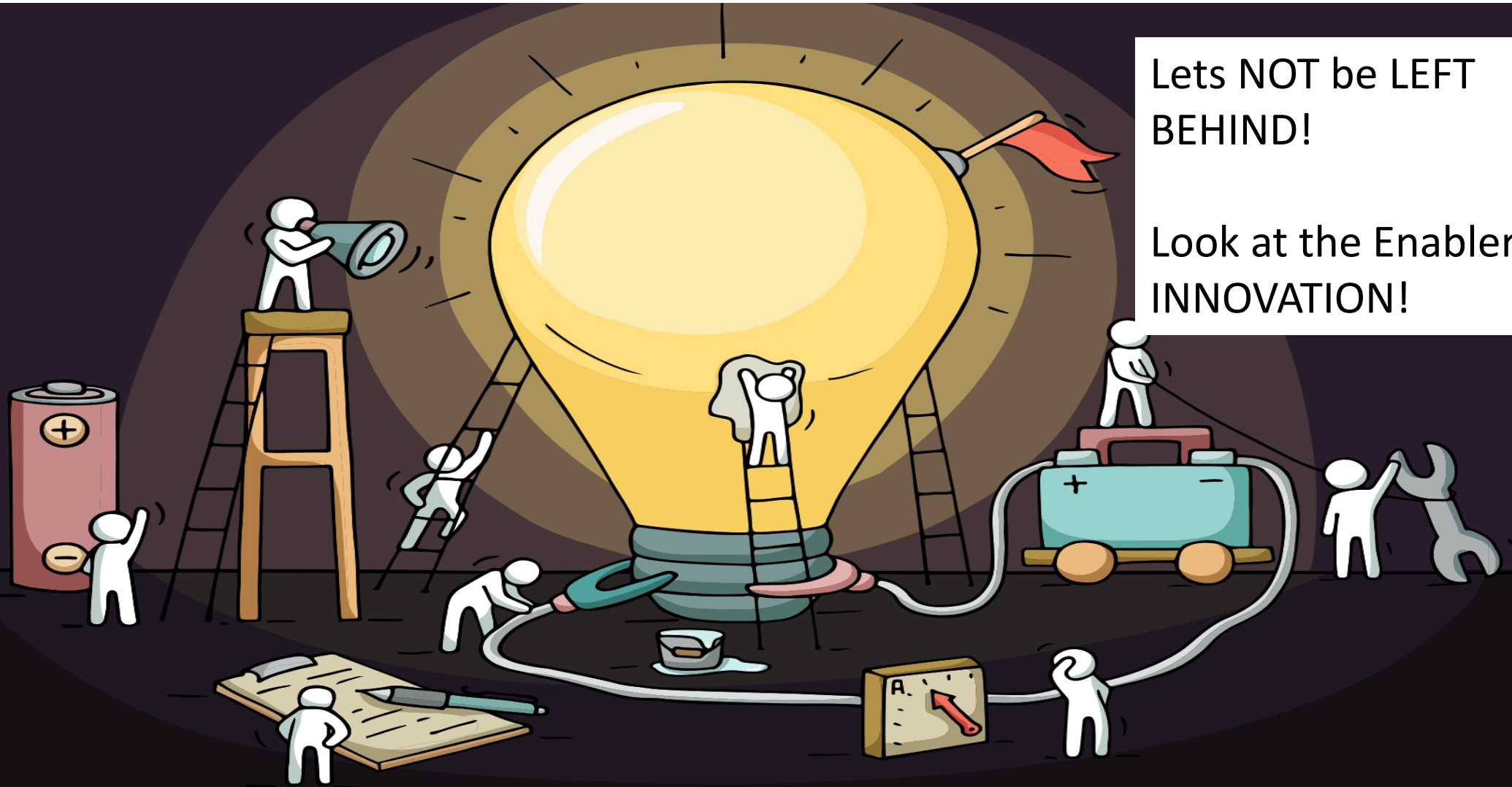
“must be SME friendly if it is to trigger deep innovation in BIM”

www.ebc-construction.eu



Lets NOT be LEFT
BEHIND!

Look at the Enablers of
INNOVATION!





CONCLUSION

Competition can arise **unexpectedly** from anywhere, which means that firms can no longer be **over-confident** about their **market** shares and their **competitive** positions (Ngowi, 2001).

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Thank you

Patrick Carroll