

A Framework for Understanding the Dynamic Nature of Value in Design and Construction

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Outline

- Introduction
- Research Scope & Methodology
- Value Theory
- Stakeholders Theory
- Multi-attribute Integration Framework
- Conclusion

Introduction

Construction

- Lean theory and practice

↓
LEAN

- TFV theory and applicability

↓
Value

- Concepts

Introduction

Delivering value in projects has been a major concern in the construction industry.

- Maximizing value delivery to the paying customer or the client;
- Encompassing the end customer or the user;
- Involving other stakeholders in the supply chain;
- Similar emphasis is expressed in the lean approach regarding the idea of maximizing value to different customers, the purchasers, users, and producers-representing the entities who deliver the system (Ballard et al. 2001).



(Retrieved from: www.venturesonsite.com 2018)



Problem Statement

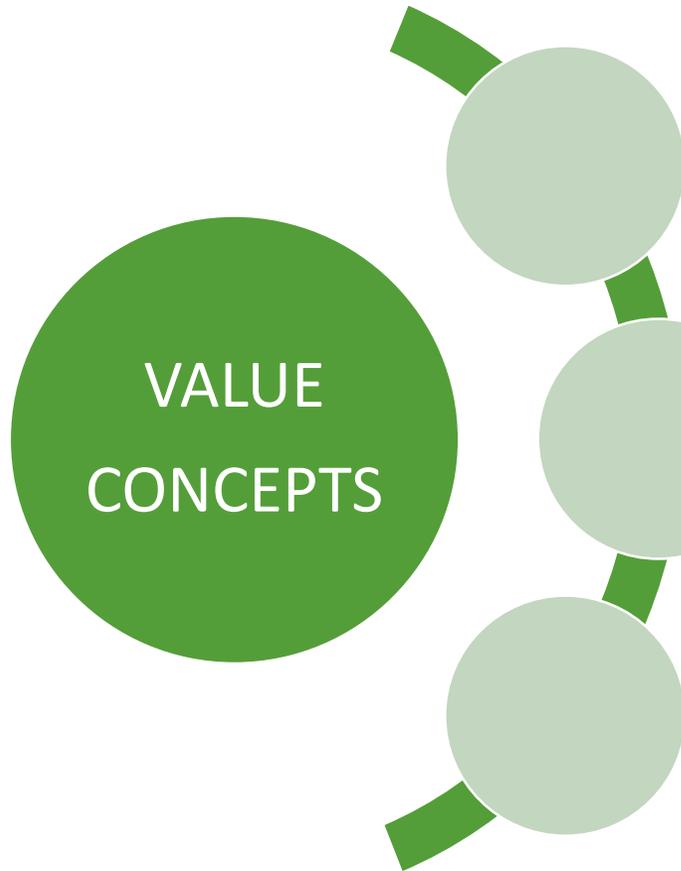
The problem in Delivering value

- The major struggle in the construction industry is **understanding project value** and its generation throughout the project phases. Koskela (1996) admitted that it is theoretically and conceptually hard to understand value generation during projects.
- Value is seen as **an ambiguous term** and it is still **not well communicated** (Salvatierra-Garrido et al. 2012).
- **Value conflicts** are found to be high in construction organizations leading to low commitment from internal stakeholders (Panahi et al. 2017).
- The literature is found to be **diverse** in connection with **value concepts** and complications.

This paper is at the level of diagnosis to understand the dynamic nature of value through understanding its concepts.



Problem Statement



- How many times have you heard about value concepts at the IGLC conference?
- What are the different contexts in which value concepts were used?
- How many times have you heard about the different factors that affect value delivery on projects?



Objective

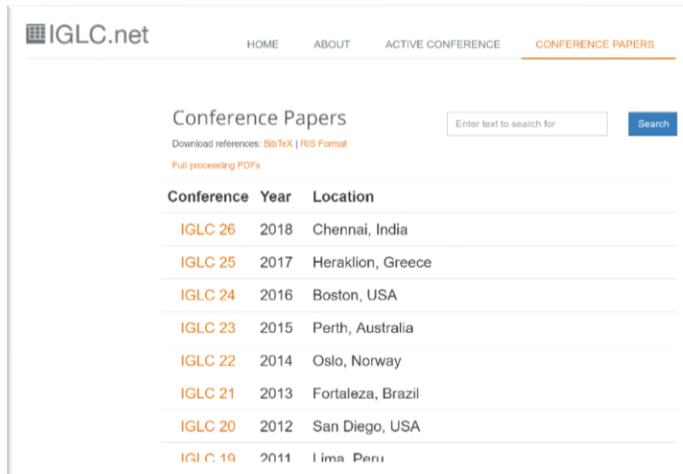
- The overall objective is to identify the **research trends** concerned with value in construction and indicate the **probable gaps in knowledge** as well as **suggesting areas** that need further investigation.
- **We aim to research the different attributes and the different models** presented in the body of knowledge. The research presented in this paper is a primary step towards a more in-depth analysis of value
- How can the identified factors be envisioned together and in relation to one another? through linking the ideas in **one coherent framework**.

We aim at building a unified platform for future research endeavors



Research Scope and Methodology

1



IGLC.net

HOME ABOUT ACTIVE CONFERENCE CONFERENCE PAPERS

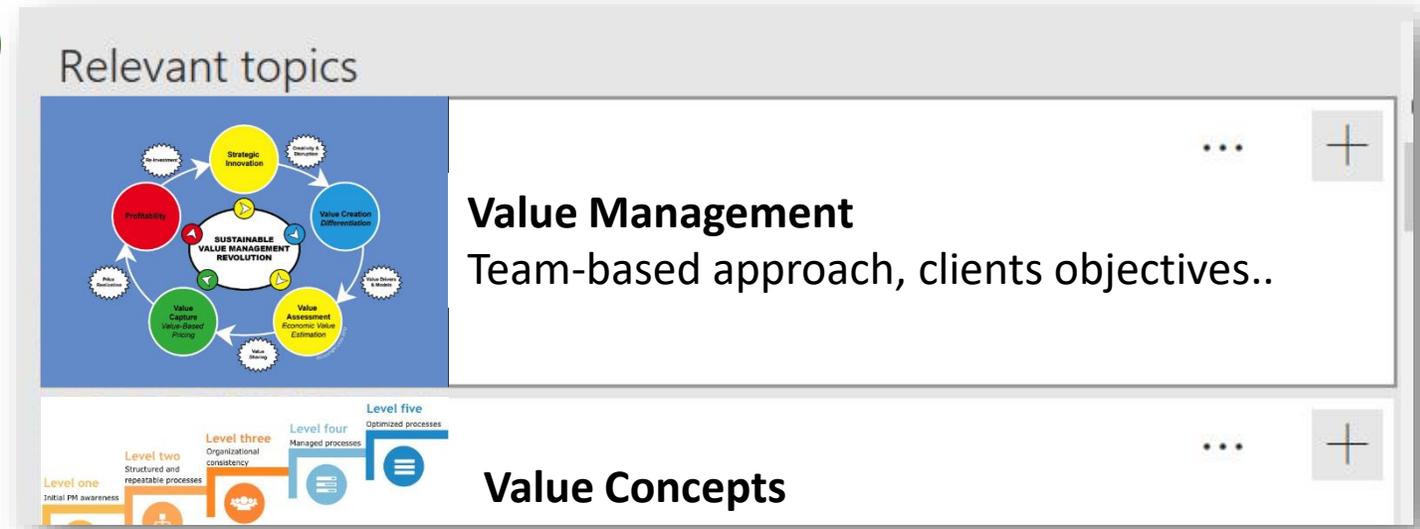
Conference Papers

Download references: BibTeX | RIS Format

Full proceeding PDFs

Conference	Year	Location
IGLC 26	2018	Chennai, India
IGLC 25	2017	Heraklion, Greece
IGLC 24	2016	Boston, USA
IGLC 23	2015	Perth, Australia
IGLC 22	2014	Oslo, Norway
IGLC 21	2013	Fortaleza, Brazil
IGLC 20	2012	San Diego, USA
IGLC 19	2011	Lima Peru

2



Relevant topics

Value Management
Team-based approach, clients objectives..

Value Concepts

Level one: Initial FM awareness
Level two: Structured and repeatable processes
Level three: Organizational consistency
Level four: Managed processes
Level five: Optimized processes

1. Collecting references from the IGLC conference papers and other google scholar papers from the fields of construction as well as fields of marketing and business discussing customers value and concepts related to value generation and enhancement;

2. Exploring and scrutinizing the papers and identifying the diverse topics included;

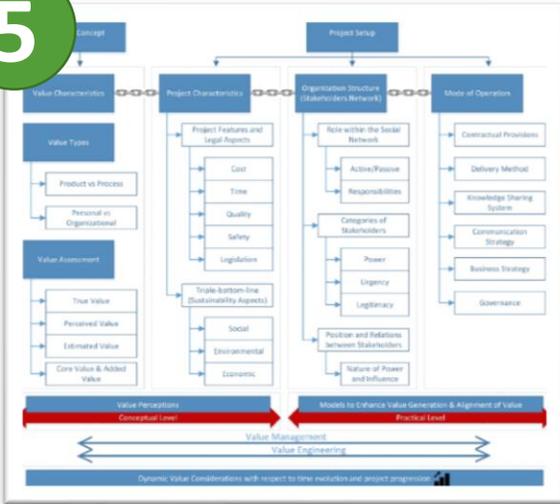
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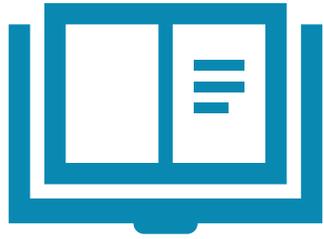
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5



3. Categorizing the references according to the topics and keywords identified;
4. Developing the framework based on the identified subjects; and
5. Making sense of the mapped topics and the framework by adding the different related dimensions in a logical manner based on the overall readings and on the experience of the authors in the construction industry.



VALUE-RELATED RESEARCH

WHAT'S OUT THERE?



Value Theory

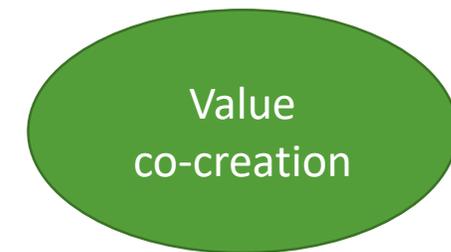
- Value is often defined as the understanding and achievement of the client's needs or the client's objectives (traditionally connected to: cost, time and quality) (Bertelsen and Emmitt 2005).
- Value is the result of an 'evaluative judgement' where values represent the basis for such judgement (Sánchez-Fernández and Iniesta-Bonillo 2007).
- In a project's context, the design and construction involve multiple stakeholders and parties; These were categorized into three entities: responsible stakeholder, impacted stakeholder, and interested stakeholder (Zhang and El-Gohary 2016).
- Project value is the result of negotiated and shared guiding principles to which all stakeholders shall subscribe (Thomson et al. 2003):

“When individuals collaborate to realize a common goal, projects are formed. A value system can emerge if values are expressed and shared between them”



Value Theory

- Having to agree on a common perspective of what the project value constitutes is explicitly faced with hurdles concerning:
 - ✓ Communication
 - ✓ Willingness to compromise
 - ✓ Position or authority of different stakeholders
 - ✓ Changing or evolving nature of value over time
- Ballard and Howell (1998) stressed on the role of the designer to clarify the effects of customer's desires (means), which could make an influence on their goals.



(Rozenes and Cohen 2017)



Stakeholders Theory

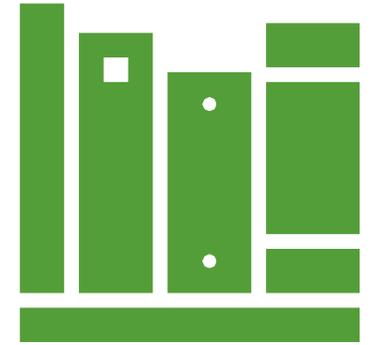
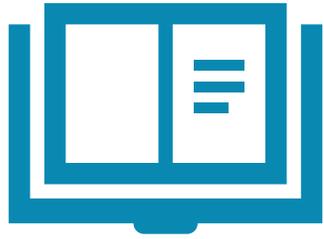
- Donaldson and Preston (1995) elaborated on the stakeholders theory stressing on its core concept which is **acknowledging** the fact that **each stakeholder has ‘diverse interests’**, thus, it is a moral obligation to have a “mutually supportive framework”.
- Stakeholders are said to have hidden ‘**reservoirs of power**’ that they exercise during their interactions within the social network (Bourne and Walker 2005).
- Researchers have suggested several methods to address this engagement through project management approaches:

Stakeholders Impact Index
(stakeholders’ influence)

(Olander 2007)

Critical Success Factors (CSF)
“managing stakeholders with social responsibilities”

(Yang et al. 2009)



VALUE-RELATED RESEARCH

HOW CAN THESE INFO
BE COMPILED ?

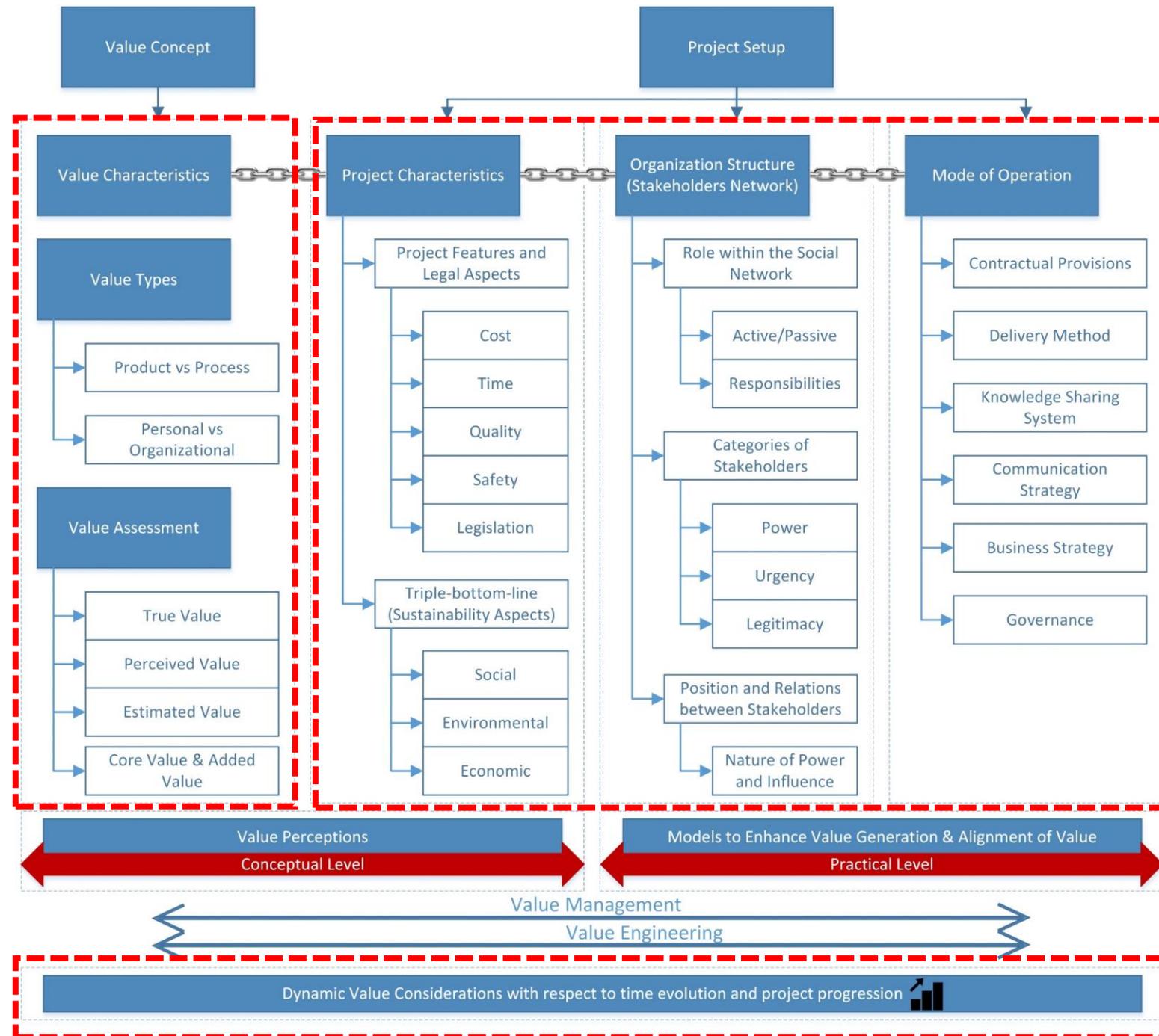


Multi-attribute Integration Framework

- A conceptual framework is “*an interconnected set of ideas (theories) about how a particular phenomenon functions or is related to its parts. The framework serves as the basis for understanding the causal or correlational patterns of interconnections across events, ideas, observations, concepts, knowledge, interpretations and other components of experience*” (Svinicki 2010, p.5).
- The framework developed is considered a visual mapping for the broad topics interfering with value perceptions, generation, and enhancement.



A



B

Multi-attribute Integration Framework

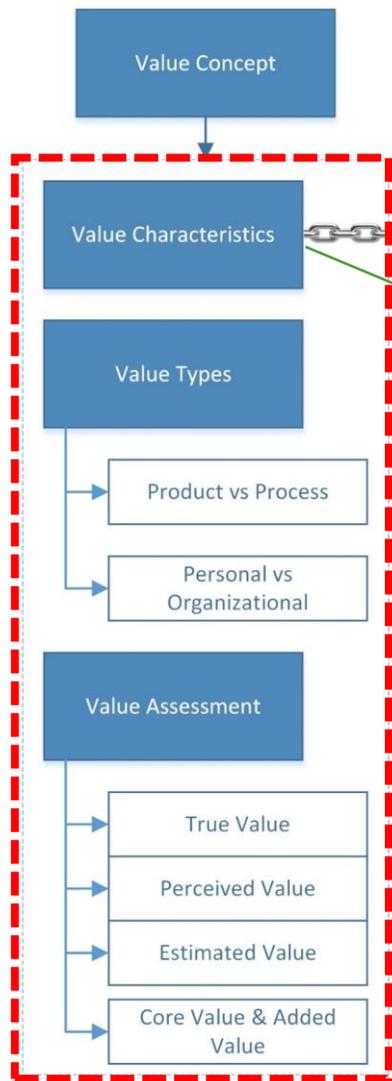
A Value Concept

B Project Setup

C Dynamic Value

C

A



Value Concept

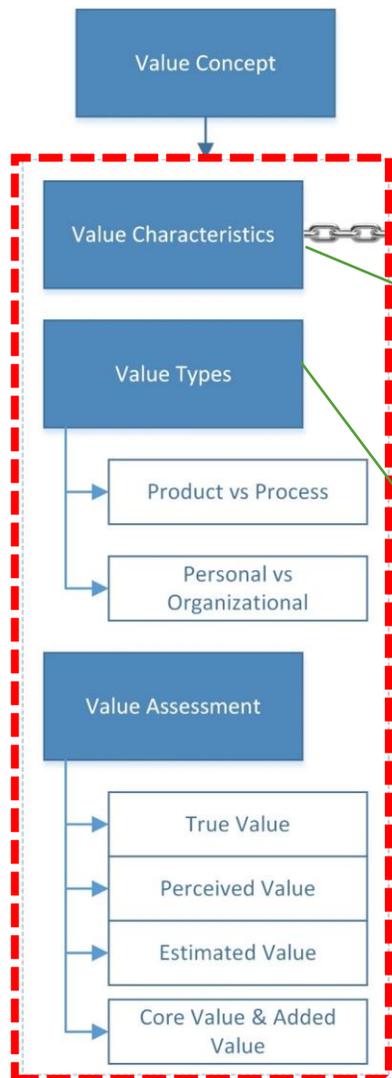
Value Characteristics

First, the research delves into recording *Value Characteristics* which is observed to be a hot topic and a path to understand the 'ambiguous' concept (Barima 2010).

Value is argued to be

- (1) a subjective judgement due to the interference of human personal interest,
- (2) an objective measurement when considering and comparing alternatives as to which is more valuable,
- (3) a context-dependent matter,
- (4) a dynamic issue as it changes over time,
- (5) information-dependent, and
- (6) instrumental for projects (Thyssen et al. 2010).

A



Value Concept

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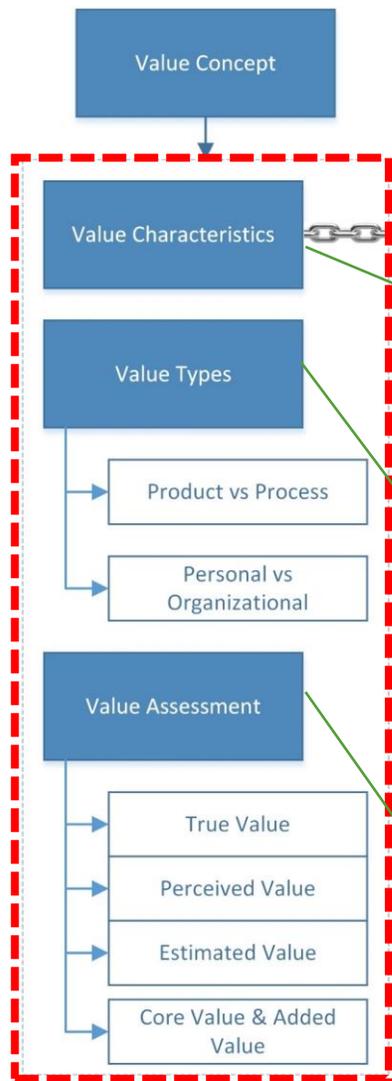
Value Types

Second, researchers examined *Value Types* in construction projects, and the most common terminology found is differentiating between product value and process value.

Process value represents both soft values (e.g. resolving conflicts, better communication) and hard values (e.g. adhering to budget and time requirements).

Product value represents the built facility or the project with respect to firmness, commodity, and delight, or the Vitruvian values (Emmitt et al. 2005).

A



Value Concept

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Value Types

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Value Assessment

Third, value on projects need to be evaluated so that management practices could take place effectively.

True value, Perceived value & Estimated value

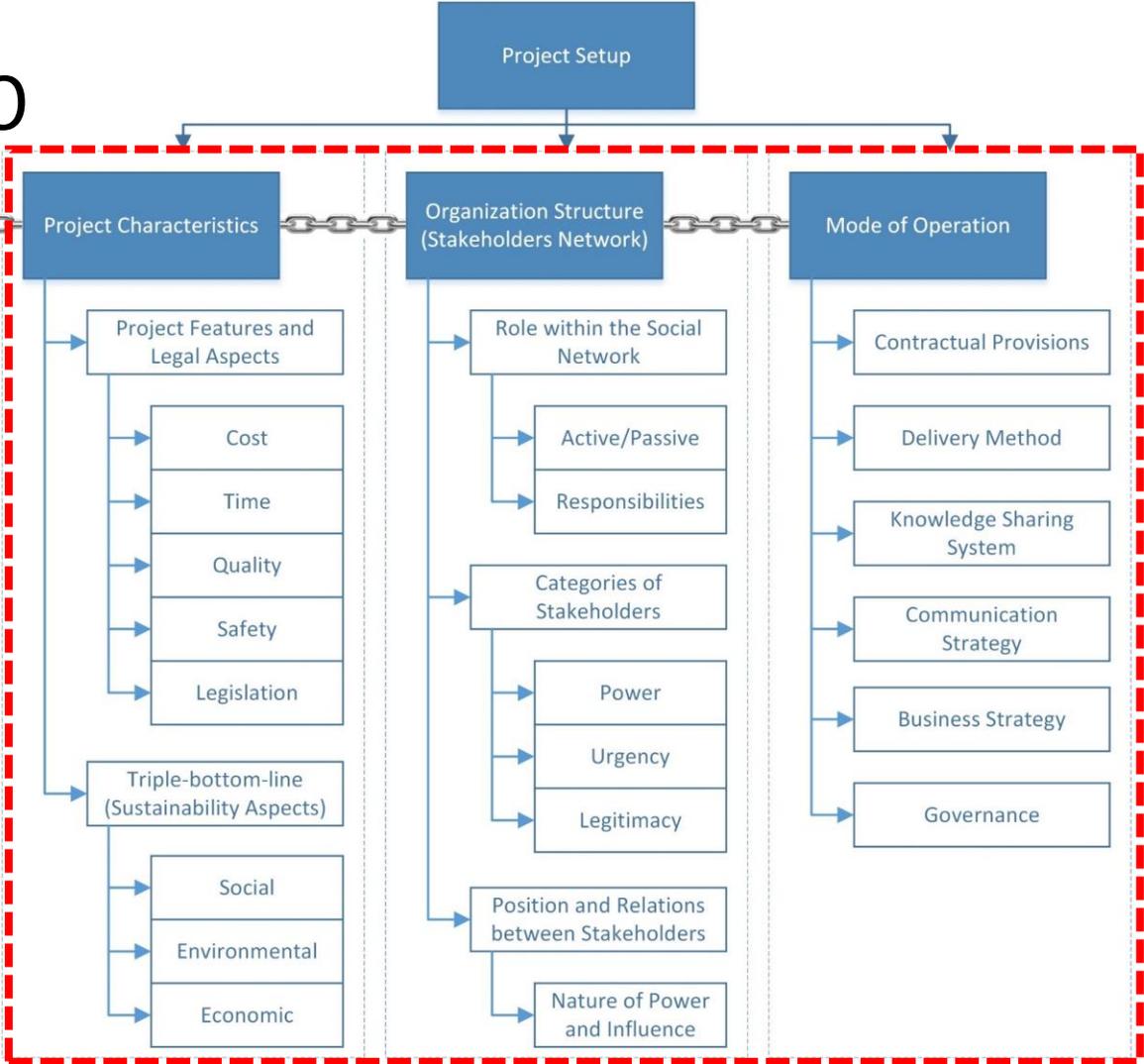
(Drevland et al. 2018)

Core value & Added value

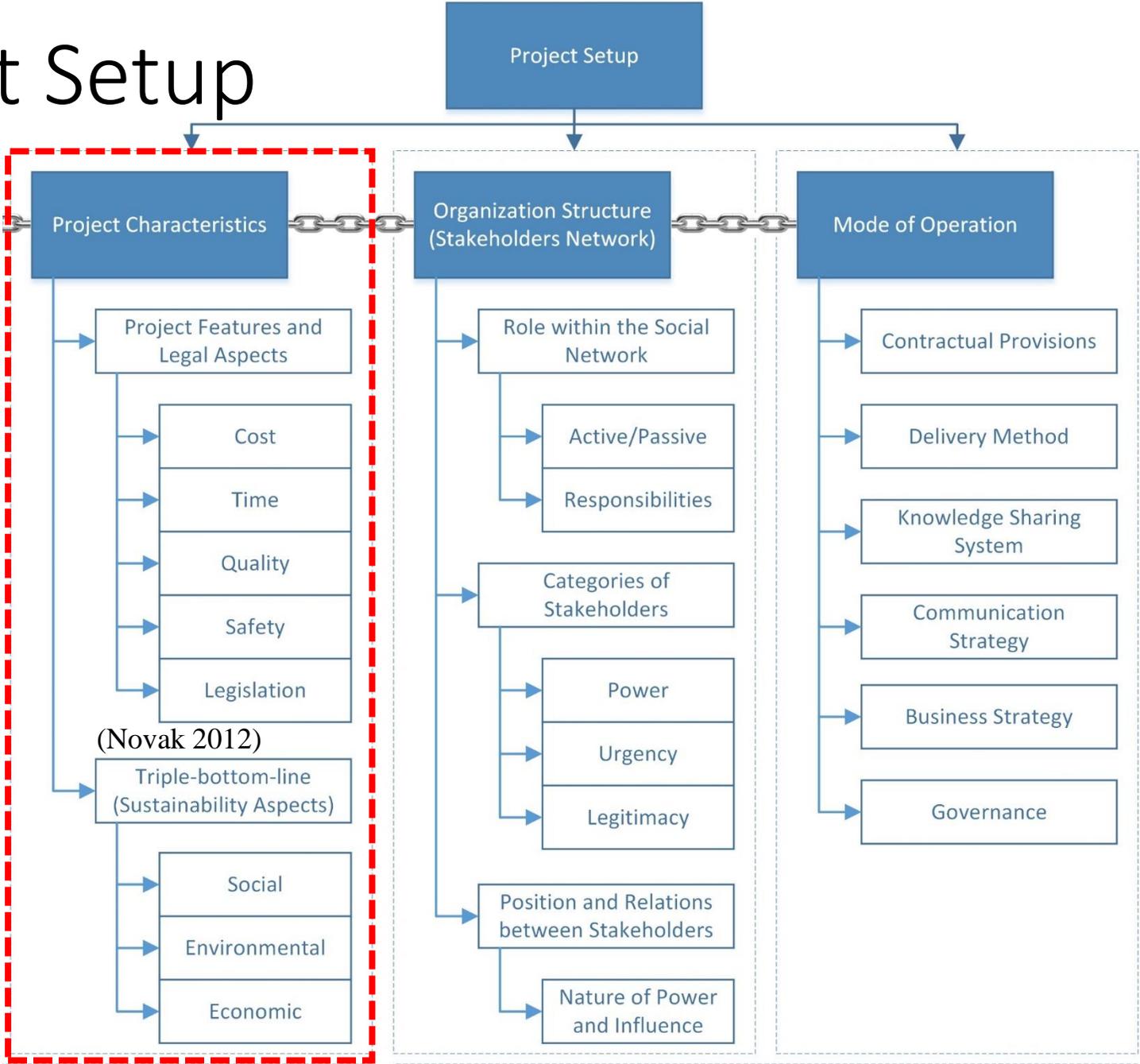
(Salem Khalifa 2004)

Project Setup

B



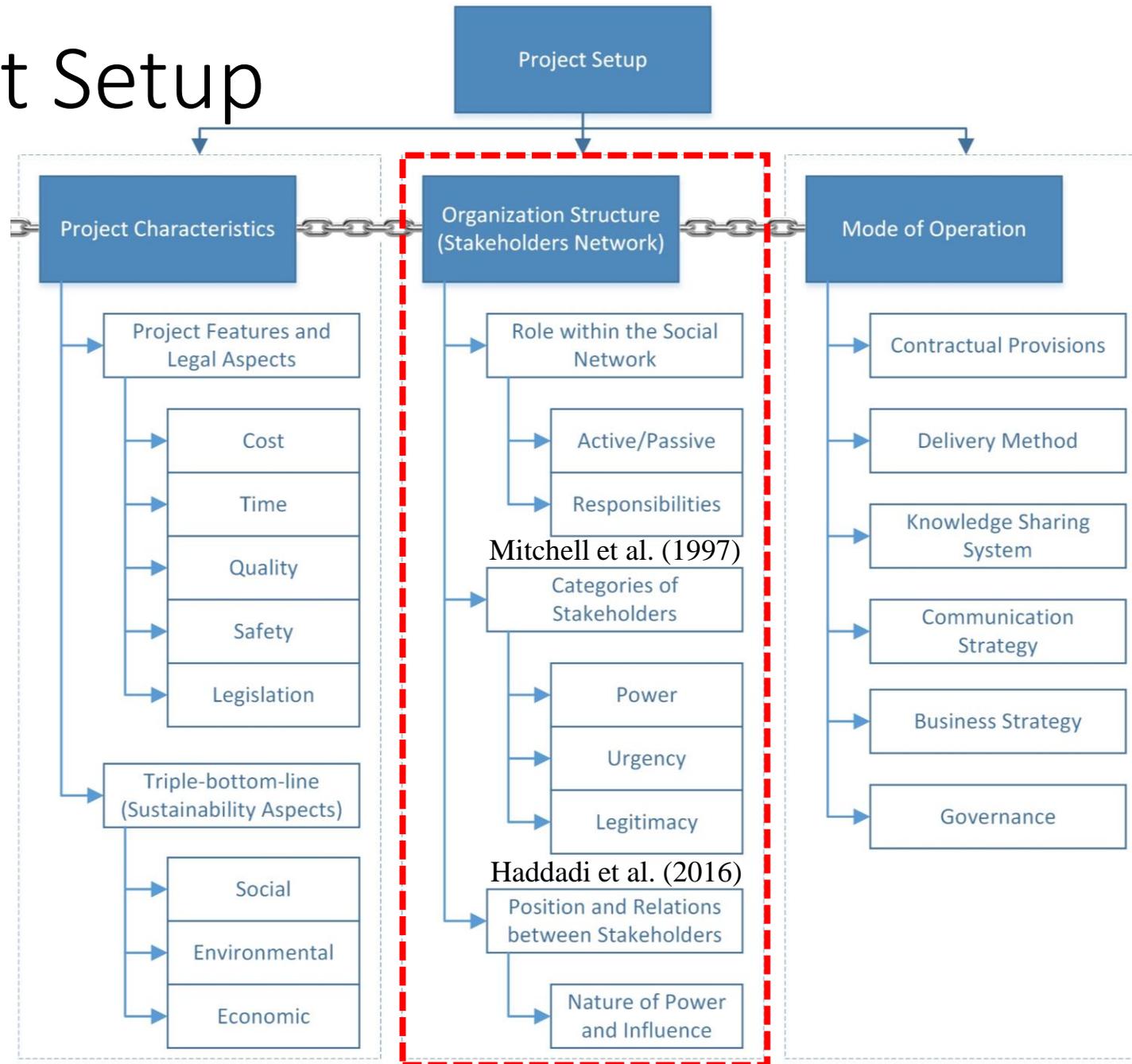
Project Setup



B

Project Characteristics are associated with the project features that are normally set at the beginning of every project.

Project Setup

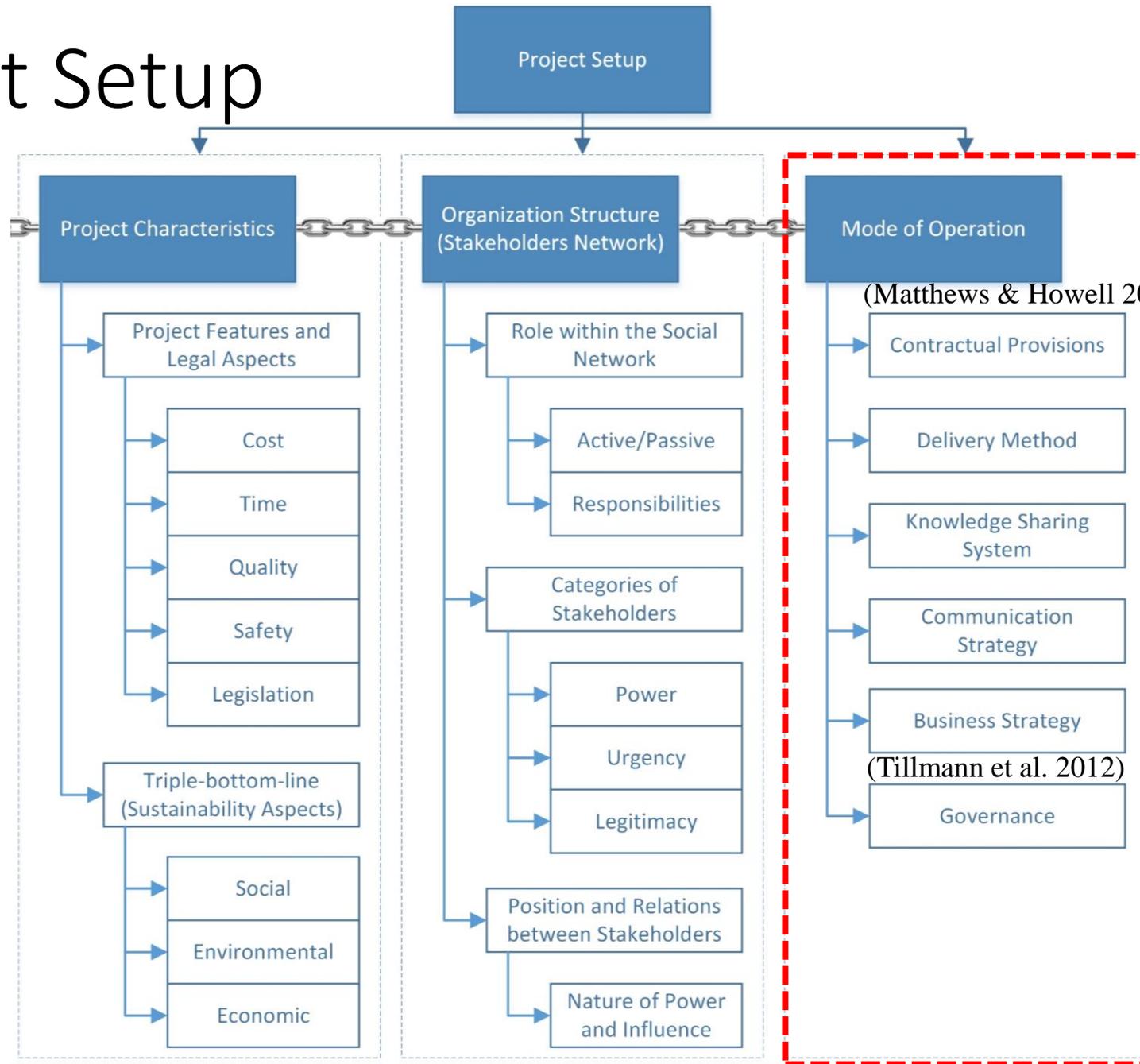


B

Organization Structure is a fundamental category that reflects on the stakeholders' important role in value creation and enhancement.

Not all stakeholders take an active role in the project to maximize value and some are passive recipients of value (Drevland et al. 2017).

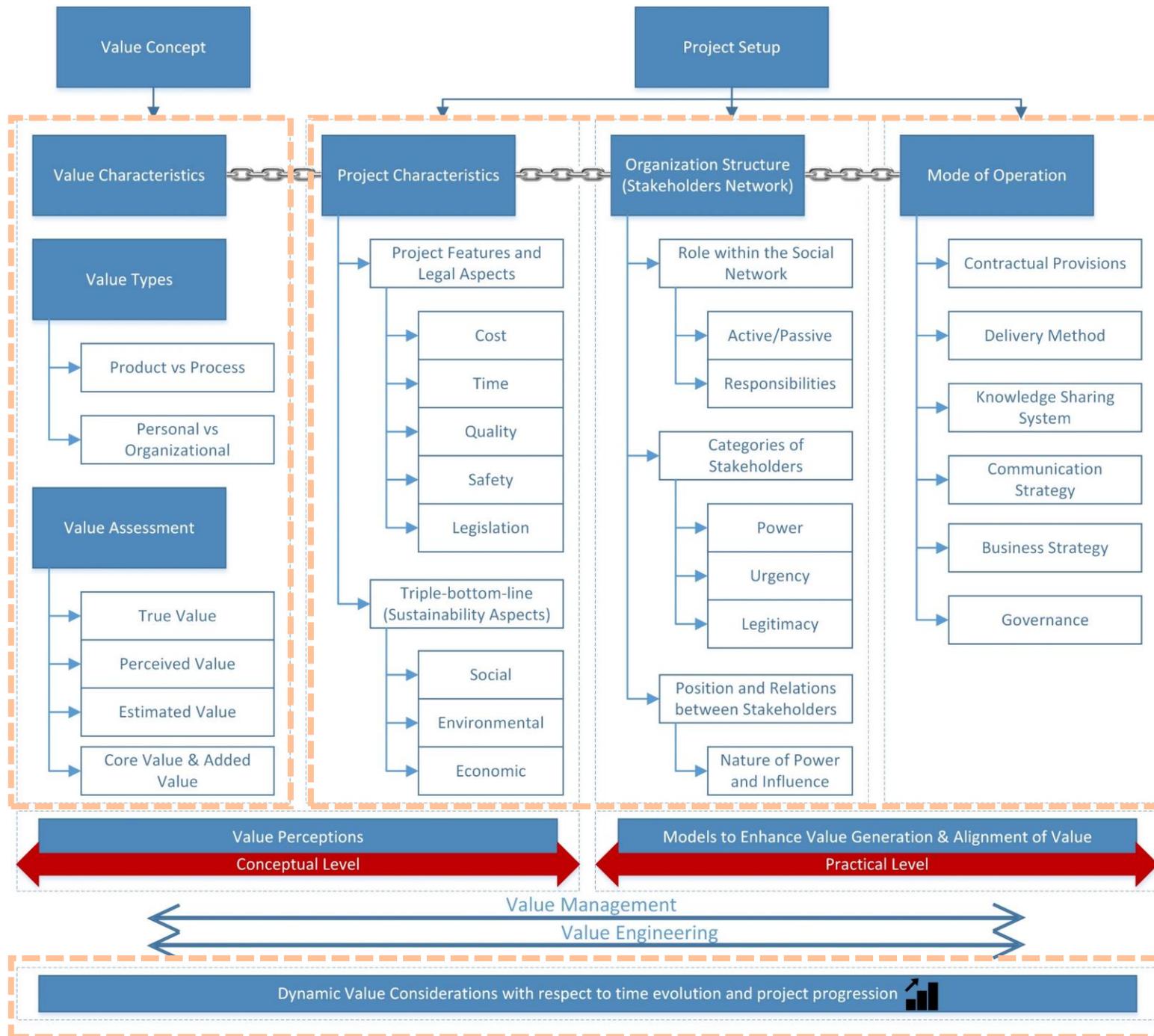
Project Setup



B

The *Mode of Operation* is the third core aspect that has a direct effect on enhancing value generation on projects. The delivery method, the contractual provisions, and the knowledge sharing system are basic drivers when it comes to value delivery.

A



B

Multi-attribute Integration Framework

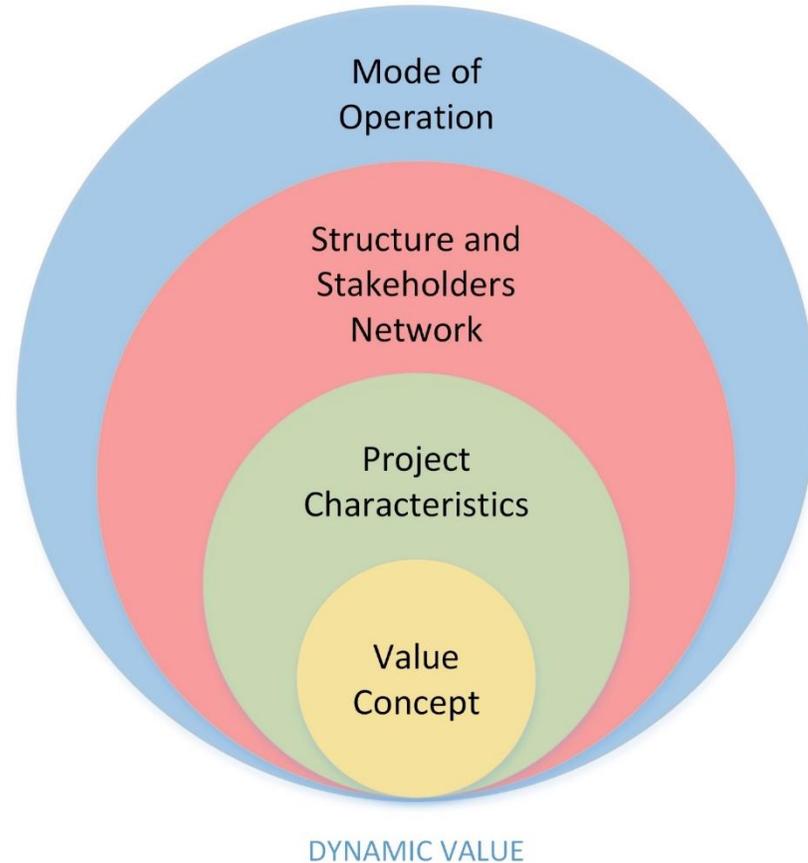
Tackling:
Value Models
Practical vs. Conceptual Level

Value Management
Value Engineering



C

Dynamic Value



- The aforementioned factors and attributes are not constant and might **change with time**.
- The value concept and the three main categories of the project setup are **subcategories of one another**.
- Any **potential change** in any of the categories would **affect other factors** in other categories.
- Construction processes are described as **emergent and highly dynamic systems** in an emergent setting with a complex-emergent customer organization (Bertelsen and Emmitt 2005).



Conclusion

- The value concept has been **gaining momentum** in construction specifically in the lean construction industry.
- A synthesis of the encountered topics within the literature resulted in a **conceptual framework** for understanding the diverse categories and attributes in regards to value generation, communication and enhancement.
- The framework helps in establishing a **shared understanding** about the concepts, factors, and aspects addressing value in design and construction.
- Certain gaps were observed on the practical level mainly regarding enhancing project value based on the collective attributes. Therefore, **project management practices** need to cater for the different factors within the organization structure and the mode of operation.



THANK YOU

