

CONNECTIONS BETWEEN MASS CUSTOMISATION PRACTICES IN HOUSING AND LEAN PRODUCTION

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**Aim
of the
Paper**

to identify a set of Mass Customisation Practices in housebuilding, discuss their underlying concepts and principles, **exploring connections with Lean Production.**

The identification of common concepts and principles can support the definition of MC strategies for housing companies and also the adaptation of good practices to different organisational contexts.

Mass Customisation

is an **organisational strategy** that aims to **offer products that fulfill customers' requirements, potentially adding value, through flexible process and structure, with costs and delivery time similar to mass production** (Pine, 1993; Hart, 1995; Jiao, Ma, & Tseng, 2003; Fogliatto, da Silveira, & Borenstein, 2012)



MC
Strategy

Some **key aspects remain unexplored: practices** to deliver customized goods, and the definition of **decision categories** that form a strategy.

Connections
between MC
and Lean

Lack of discussion about the specific relationship between MC and Lean concepts and limited empirical evidence on how those connections can enable MC and ease the implementation of related practices.

Lack of prescriptive
research

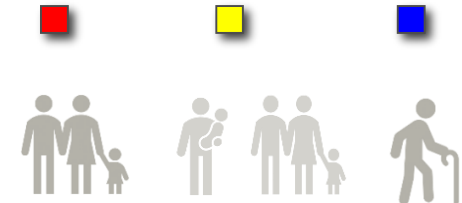
Development of
punctual solutions

Poor understanding
of the underlying
concepts

RESEARCH PROBLEM

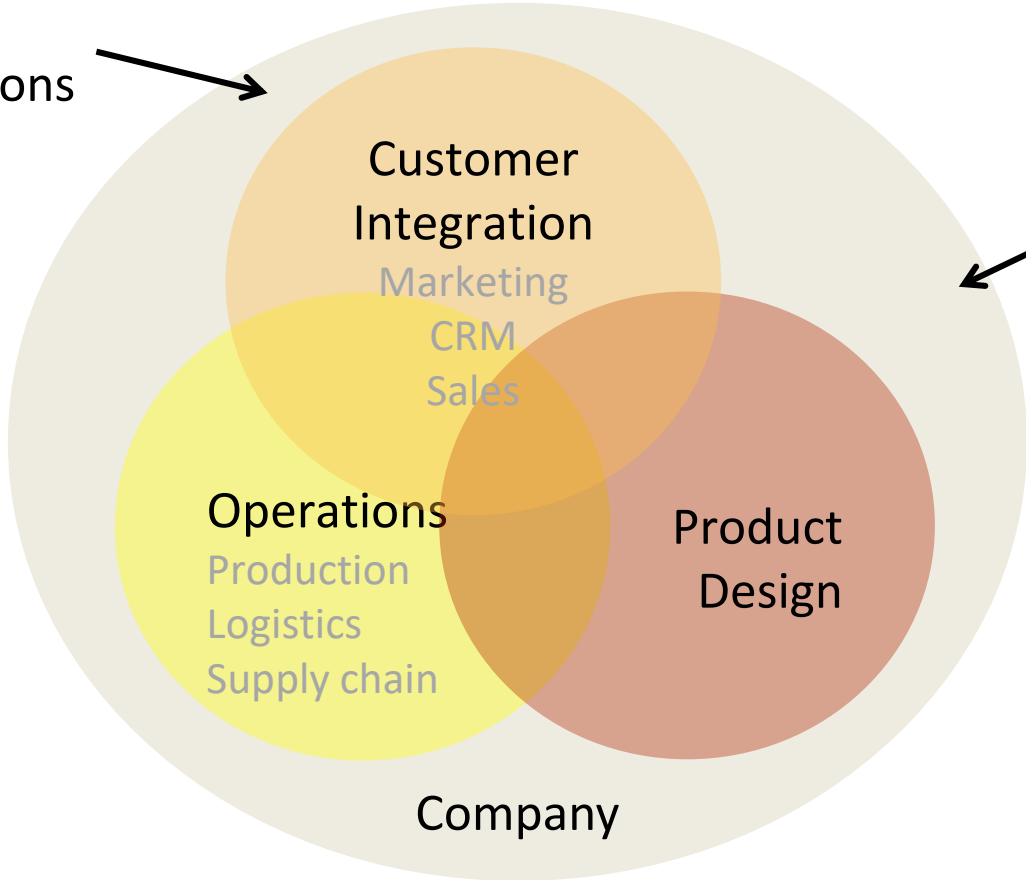
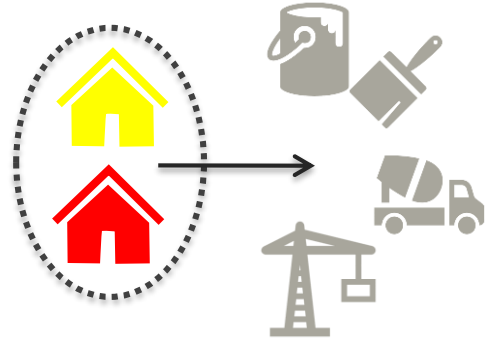
company context of MC

Which are the customizable attributes and product variants?

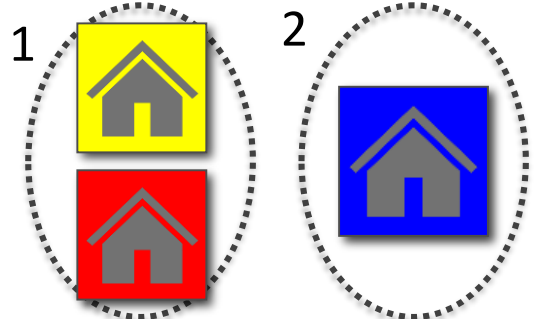


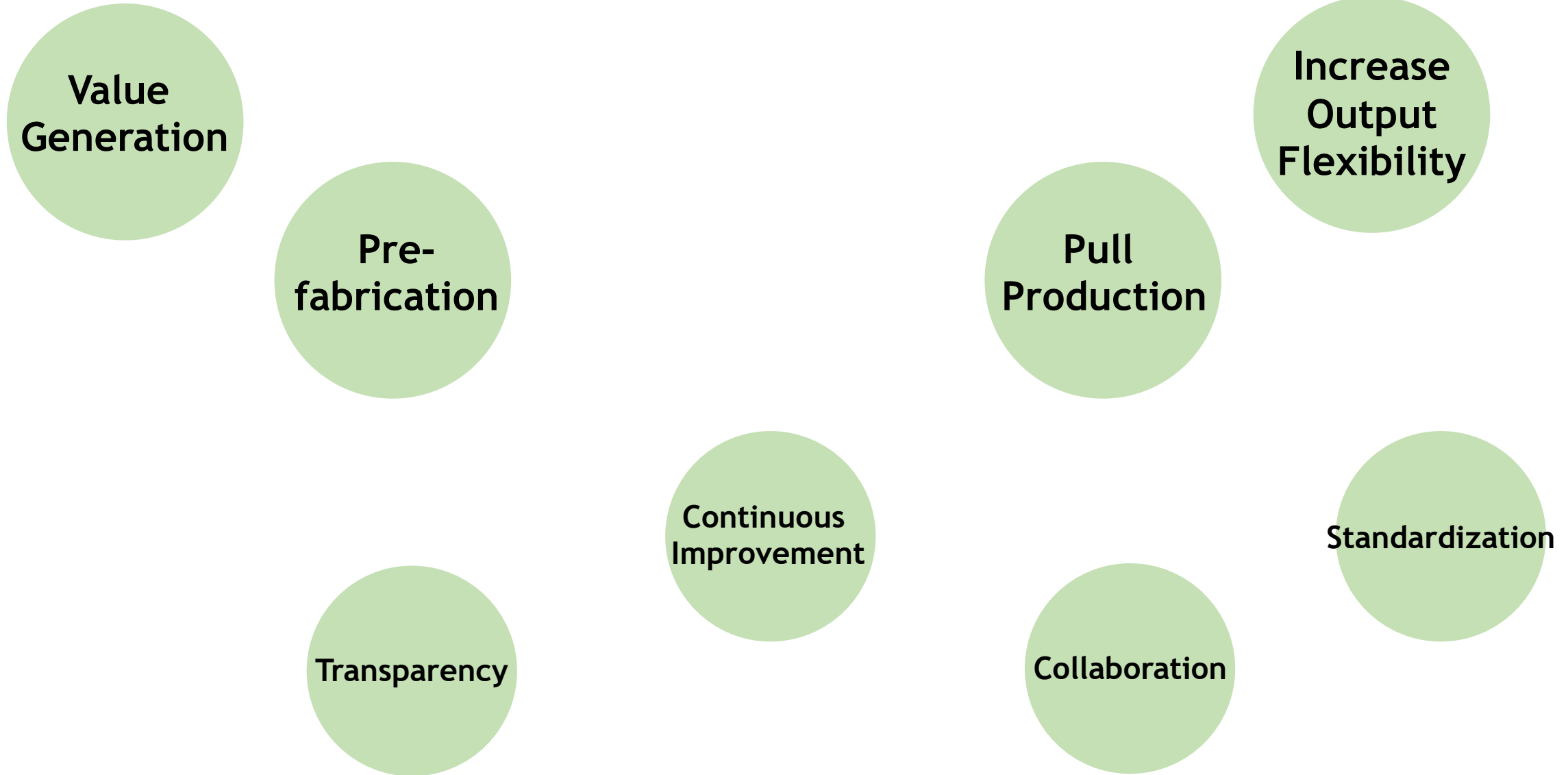
Customers

How will the product variants be produced and delivered?



How are these variants translated to product specifications?





**Design
Science
Research**

Understand the problem
and Identify Best practices
in the literature

Assess practices used in a
empirical study

Reflection about underlying
ideas and MC and Lean
relationship

Literature Review

Semi-structured
Interviews

Open Interviews

Direct
Observation

Document Analysis

Discussions with the stakeholders

List of MC practices and
Decision Categories

Diagnosis of applied MC practices,
identification of improvement
opportunities
Recommendation of best practices

Refinement of MC decision
categories and Establishing
relationship with Lean
concepts

RESEARCH METHOD

SOURCES OF EVIDENCE

OUTCOMES

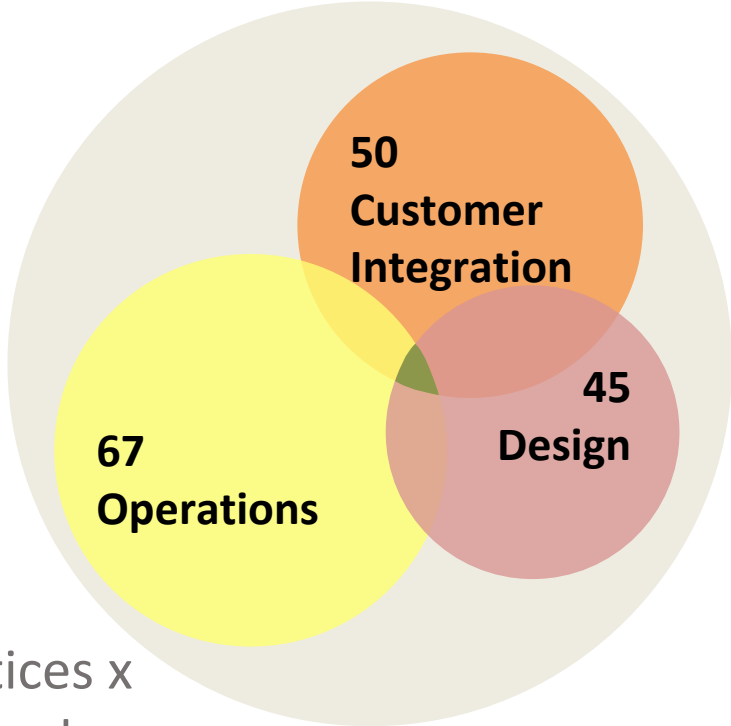




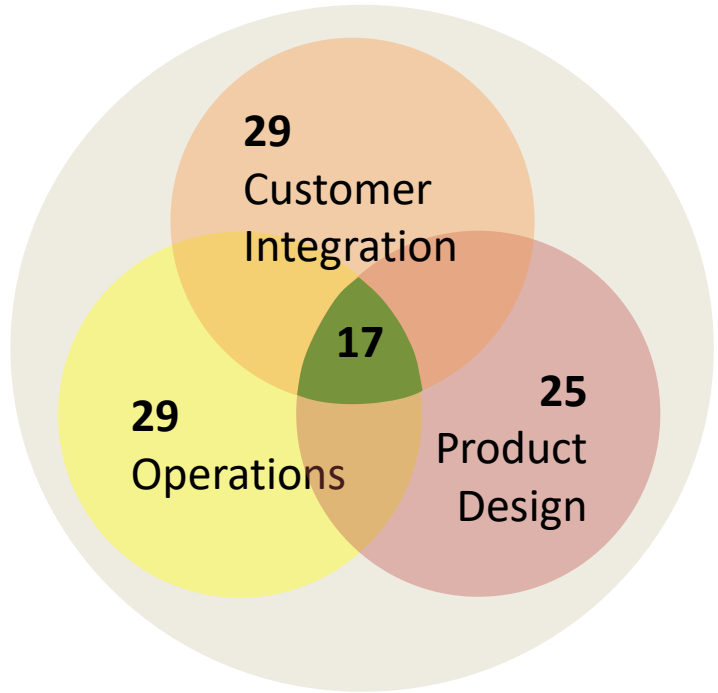
Activities, methods, tools, techniques, processes and their combination used **to support the development of a task or problem solving** in the organisational context.



130 Identified Practices



Practices x Functional area



Refined Practices x Functional area

**Assessment
and
Feedback**

The need to define approaches to assess demands for customisation to establish a solution space and to evaluate the delivered product after occupancy. It is necessary to establish how is this information will be used to feedback product development.

**Communication
of MC
information**

Practices that promote transparency and continuous improvement, by making relevant customisation information available to stakeholders

**Customer
interaction
and
relationship**

Definition of approaches for customer interaction along the product configuration process and the development of a relationship with customers to achieve loyalty

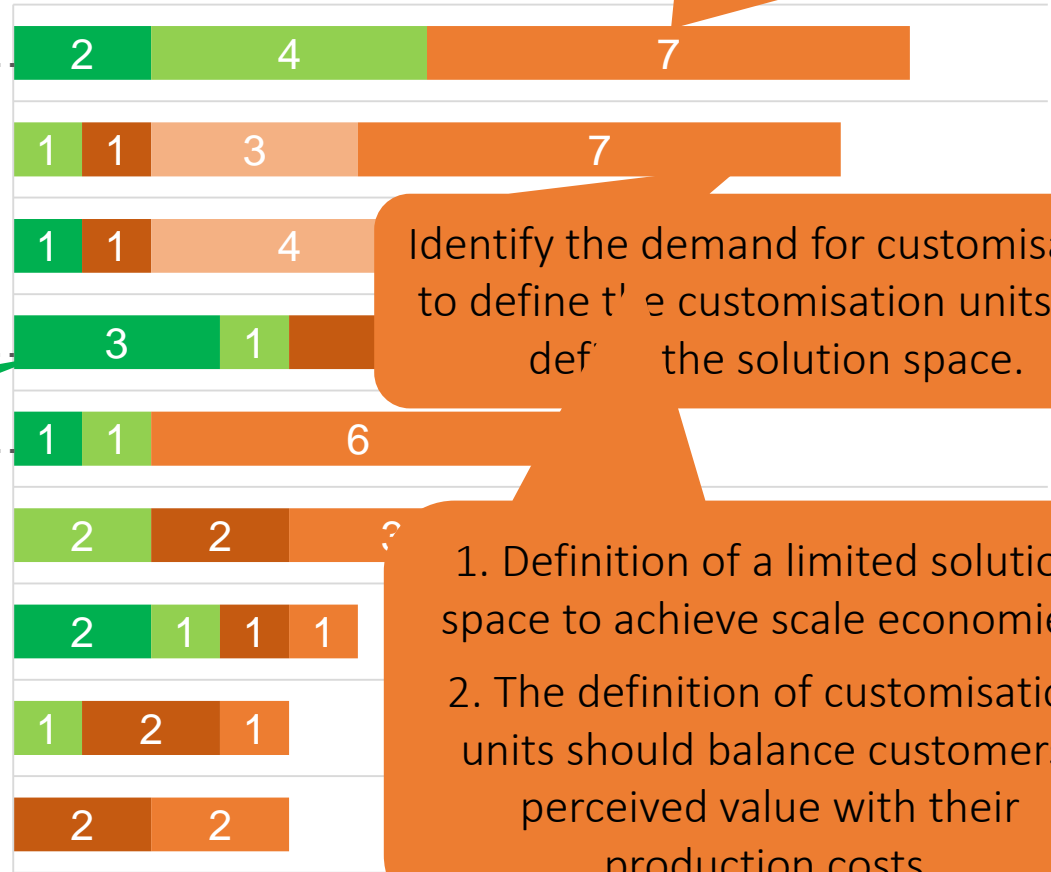
ASSESSMENT OF THE PRACTICES

Degree of Implementation



1. Promotion of Customer-Product interaction by visiting a prototype with the main customization units available
2. Establish a conversation between customers and architects to guide product configuration

Devise a communication channel to collect and share data about customers' configuration order, monitor its evolution and ease communication within departments



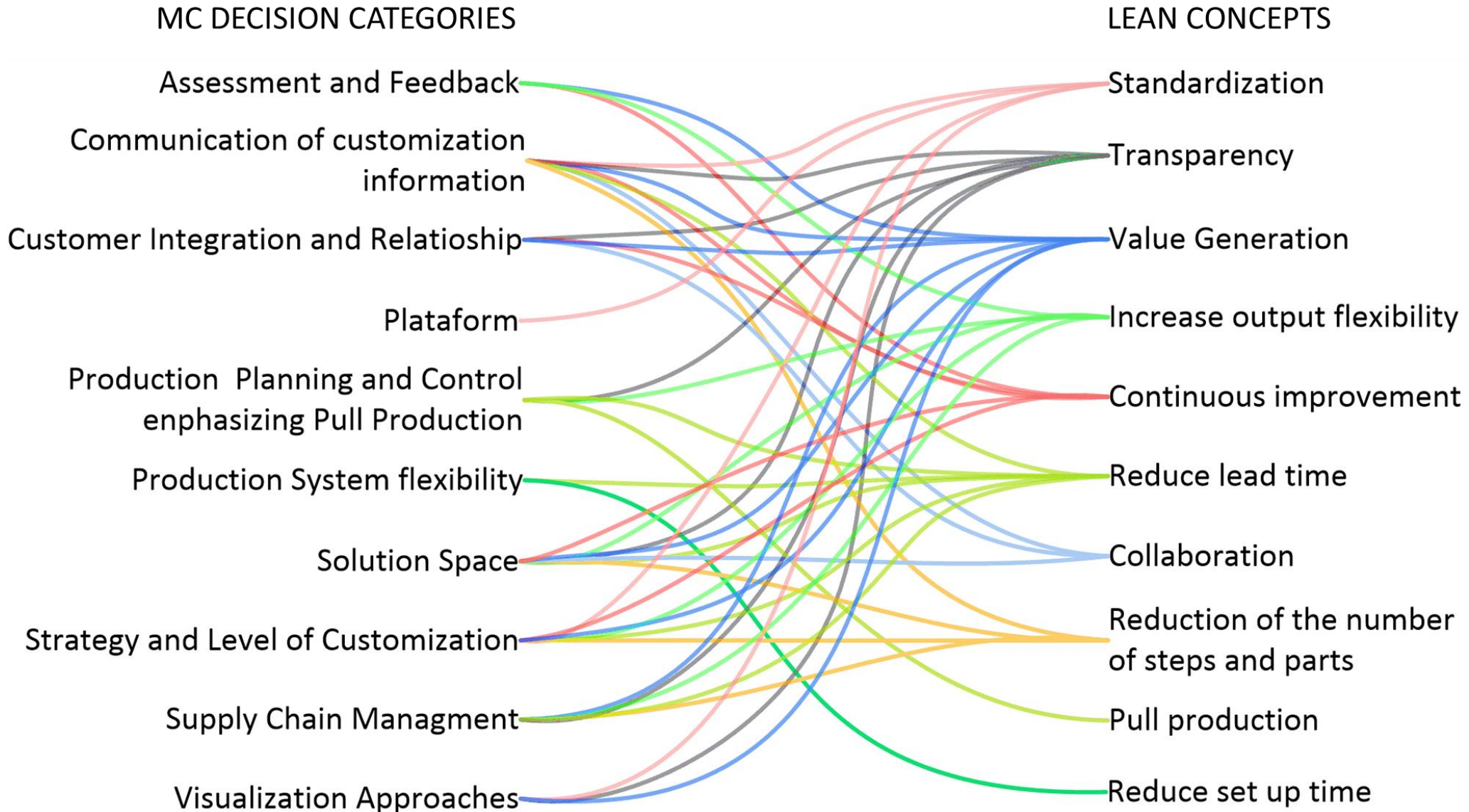
Identify the demand for customisation to define the customisation units and define the solution space.

1. Definition of a limited solution space to achieve scale economies.
2. The definition of customisation units should balance customers' perceived value with their production costs.

■ Applied
 ■ Partially applied
 ■ Not applied
 ■ Improvement recommended
 ■ Recommended

DISCUSSION

MC Decision Categories and Lean concepts Sankey Diagram



**Practical
and
Theoretical**

Assessment of the MC strategy adopted by a house building company from Brazil, identifying improvement opportunities

Connections between decision categories and Lean Production concepts, enabling the easier adaptation of some of those practices to different contexts.

**Future
Research**

Need for further research development of decisions categories and best practices adopted by house-building companies.

Use of IT and BIM-based tools to support customers' requirement management, visualization approaches, and collaborative processes related to MC

Thank You !!!

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