PARAMETRIC VALUE STREAM MAPPING FRAMEWORK:

A CASE STUDY OF A SMALL SWEDISH INDUSTRIALIZED HOUSE-BUILDING SUPPLIER

Jarkko Erikshammar , Erik Alestig , and Weizhuo Lu

IGLC JUNE 23–27 2014 OSLO NORWAY

Introduction

- **Industrialisation are dependent on supplier networks**
- **The need for product development capabilites**
- **Many small (SME) suppliers and sub-contractors**
- **High risk associated with product development**

Contextual setting

Prefabricated house-building

Industrialized house-building

Systems Building

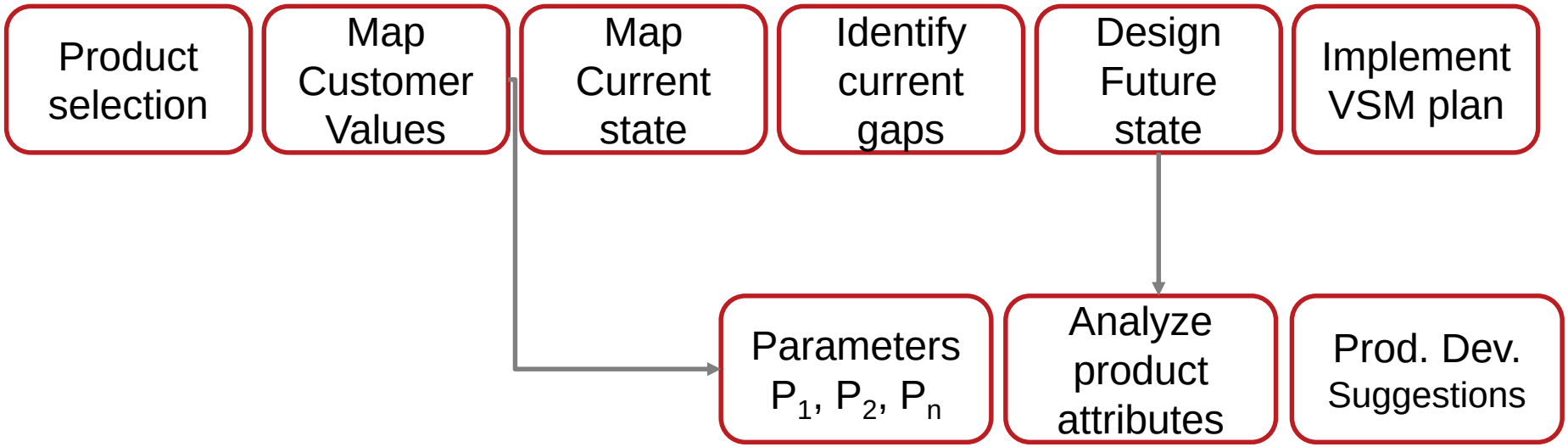
INDUSTRIALIZED BUILDING

Modern methods

Research question

Can product development done by small and medium-sized suppliers of industrialized house-building be supported by parametric Value Stream Mapping?

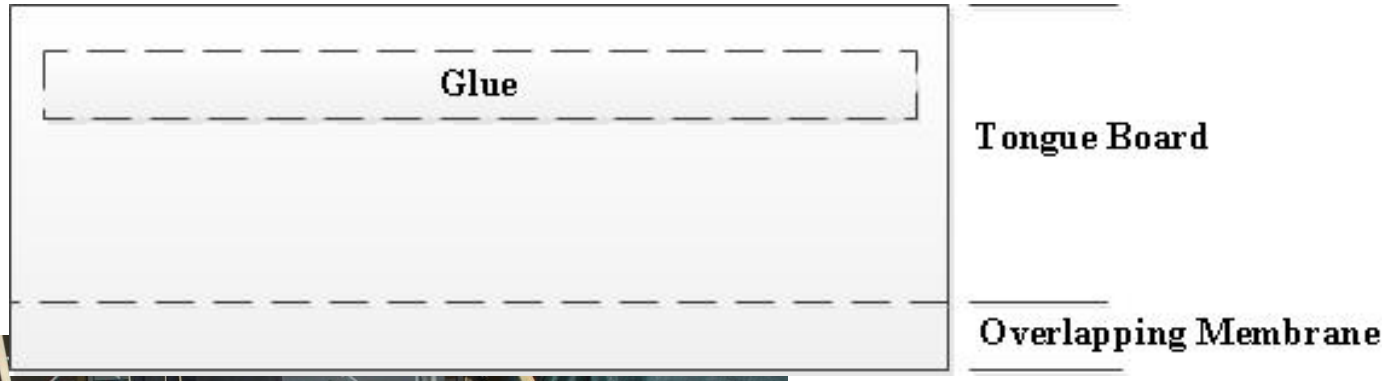
Parametric VSM Framework



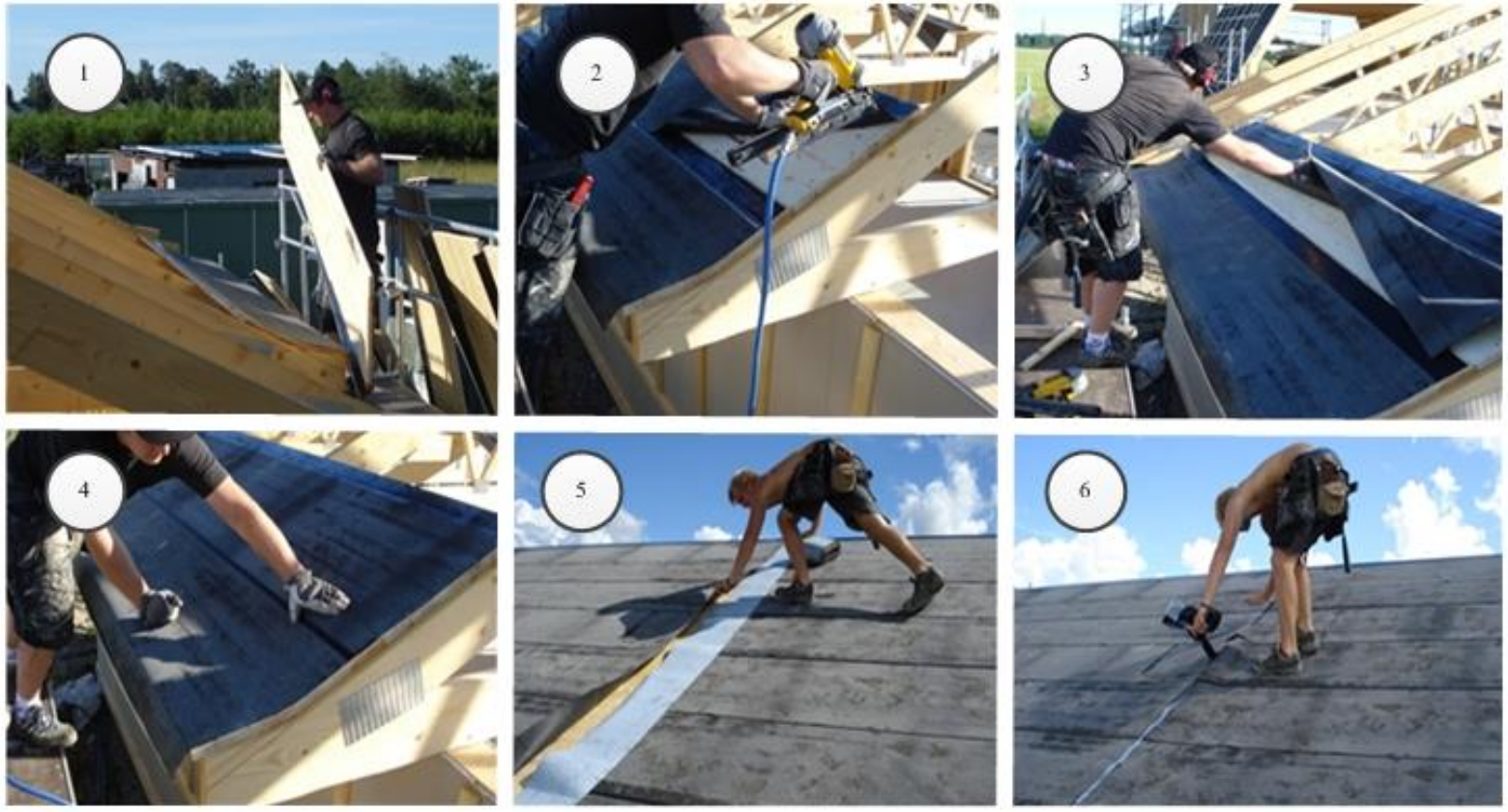
Method

- **Case study**
- **Two products at two construction sites:**
  1. **Roofing with tongue board (Product A)**
  2. **Roofing with tongue board with an integrated membrane (Prod. B)**
- **Video recorded participant observations:**
  - **Assembly on construction site (Product A and Product B)**
  - **Total of 24 hrs.**
- **6 recorded and transcribed Interviews with**
  - **3 purchasing roles**
  - **3 on-site construction workers**

Product B

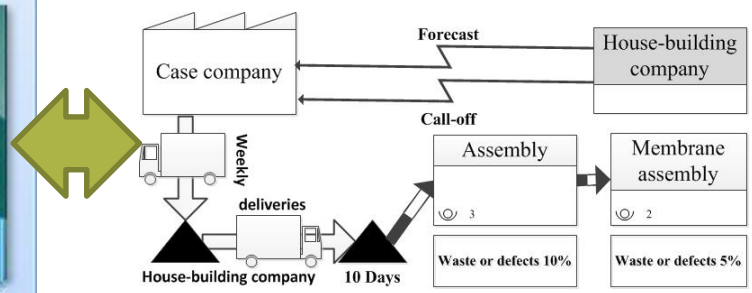


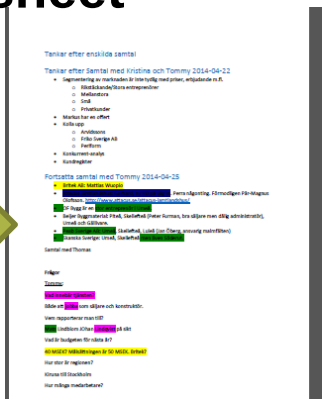
Product B



Analysis

1. **Video recorded material in-reverse**
2. **Value stream mapping based on parameters P_1, P_2 and P_3**
3. **Spreadsheet to categorized waste (P_2)**
4. **Recording and analysis verified by construction workers**
5. **Transcribed interviews marked with P_1, P_2 and P_3**
6. **Analyze results from VSM, interviews and spreadsheet**

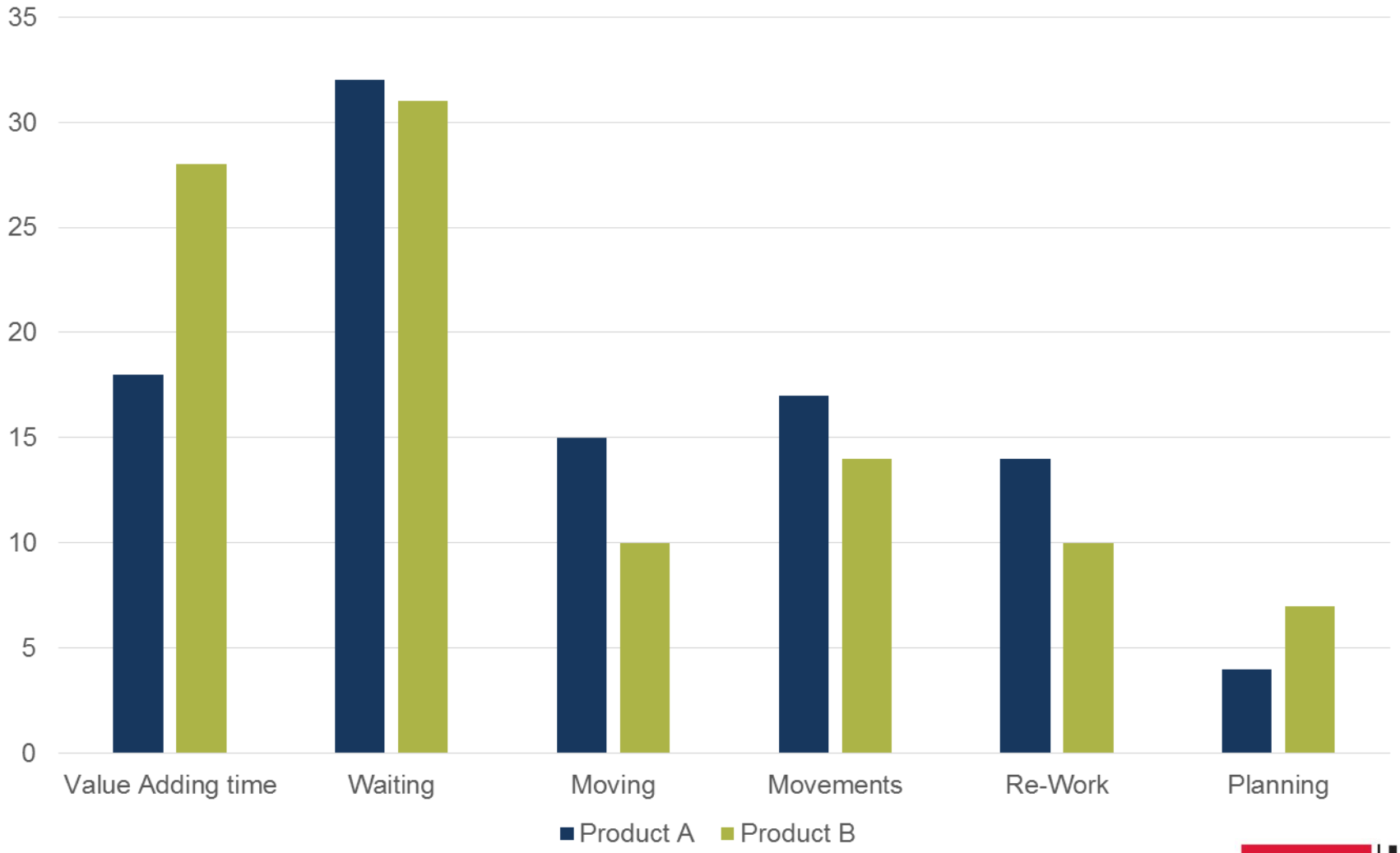




Findings

Parameter	Value	Respondent
P1	Truss interval	A
	Stabilization	A, B
	Project adjusted from factory	A, B, C, F
P2	Project based packaging	C
	Reduction of Assembly time	A, B, C, D, E, F
	Good fit	F
	Better quality on visible parts	A, B
	Visual numbering	B
P3	Walk on board	A, B
	Crane lifting	B
	Reduce time on roof	A, B
	Reduced weight	A

Findings



Conclusions

- **VSM can support product development process**
  - **Analyzing the relationships between Process and product attributes**
  - **Based on P_1, P_2, …, P_n**
- **Support managerial decision making and understanding**

Future research direction

- **Framework development:**
  - **Define interfaces/interrelationships between steps**
  - **Enhance the model with simulation of parameters**
- **Method development of the video-recording**