



CLASSIFICATION OF VALUE AND WASTE IN THE KITCHEN CABINET INDUSTRY: TOWARDS LEAN THINKING

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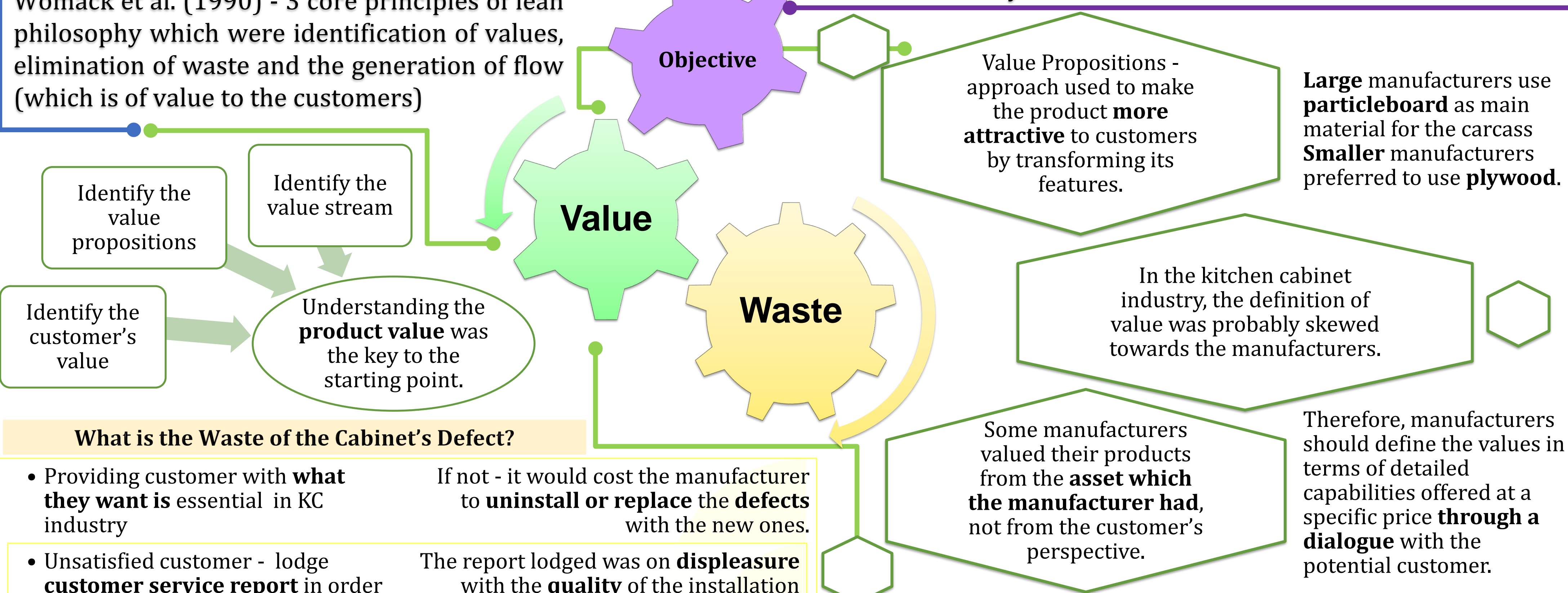
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Introduction

Lean thinking - to identify the product value, waste and to make the process flow run smoothly.

Womack et al. (1990) - 3 core principles of lean philosophy which were identification of values, elimination of waste and the generation of flow (which is of value to the customers)

The purpose of this study is to establish a comprehensive review on value and waste towards lean thinking for the furniture industry



What is the Waste of the Cabinet's Defect?

- Providing customer with **what they want is essential** in KC industry
 - Unsatisfied customer - lodge **customer service report** in order to claim their disappointment.
 - This study provide a platform to identify the **customer's needs**.
- If not - it would cost the manufacturer to **uninstall or replace** the defects with the new ones.
- The report lodged was on **displeasure** with the **quality** of the installation processes.
- Providing immediate feedback on the efforts of **minimizing** or converting the **waste** into a value.

Types of waste during the kitchen cabinet installation

Waste	Description
1- Defects (products)	Defects during the screws insertion which required rectification.
2- Inventories of goods awaiting further processing	Goods (particleboard) delivered in a set of module which was unwanted and adjunct and the remainder goods being piled up.
3- Unnecessary processing	Additional areas of screw insertion which were not actually needed. It would increase potential defects to occur
4- Unnecessary movement (people)	Movement of labour during the delivery and cabinet installation from one place to another without any purpose
5- Unnecessary transport (goods)	Transportation of goods due to replacement on product defects or missing order from the factory to the project site
6- Waiting	Waiting for missing goods or replacements to be delivered to the project site. For example, installation of the wall unit which required brackets to hang the carcass. Labourers at the site standing around waiting due to an upstream activity which was not delivered on time.
7- Overproduction of unnecessary goods	Goods and services which did not meet the customer's order, especially on the figurative of the door design.

Value propositions within the kitchen cabinet industry

Customer's type	Manufacturer's type	Value proposition
Economical buyer	• Toll manufacturer of furniture intermediates	• Bargain price • Impermanent kitchen cabinet • Standard functions
Mixed buyer (Project)	• Toll manufacturer • Major kitchen cabinet products	• Accurate specifications • Low cost • Delivered on time in volumes specified
Specific buyer (Individual)	• Skillful workers (Contractors) • Major kitchen cabinet products	• High quality • Attractive additional kitchen appliances • At a premium price

Value stream of kitchen cabinet industry

Task	Definition	Activity
Problem-solving task	Running from the concept through detailed design and engineering to production launch	Kitchen planner design and planning with customer
Information management task	Running from order taking through detailed scheduling to delivery	Kitchen planner order from factory
Physical transformation task	Proceeding from raw materials to a finished product in the hands of customer	Factory produce the kitchen cabinet and sent it to the customer's house

References

1. Abdulmalek, F. A. & Rajgopal, J. (2007). Analyzing the benefits of lean manufacturing and value stream mapping via simulation: A process sector case study. *International Journal of Production Economics*, 107, 223-236.
2. Bhamu, J. & Singh Sangwan, K. (2014). Lean manufacturing: Literature review and research issues. *International Journal of Operations & Production Management*, 34, 876-940.
3. Chay, T., Xu, Y., Tiwari, A. & Chay, F. (2015). Towards lean transformation: The analysis of lean implementation frameworks. *Journal of Manufacturing Technology Management*, 26, 1031-1052.
4. Gaik Chin, H. n. & Zameri Mat Saman, M. (2004). Proposed analysis of performance measurement for a production system. *Business Process Management Journal*, 10, 570-583.
5. Karim, A. & Arif-Uz-Zaman, K. (2013). A methodology for effective implementation of lean strategies and its performance evaluation in manufacturing organizations. *Business Process Management Journal*, 19, 169-196.
6. Melton, T. (2005). The benefits of lean manufacturing. *Chemical Engineering Research and Design*, 83, 662-673.
7. Rahani, A. R. & Al-Ashraf, M. (2012). Production flow analysis through value stream mapping: A lean manufacturing process case study. *Procedia Engineering*, 1727-1734.
8. Womack, J. P. & Jones, D. T. (2003). *Lean thinking: Banish waste and create wealth in your corporation*, New York, Simon & Schuster.
9. Womack, J. P., Jones, D. T. & Roos, D. (1990). *The machine that changed the world*, New York, Simon & Schuster.

Conclusion

- 1- Value of the products were more on the physical transformation task.
- 2- Customer values their kitchen cabinet after the complete installation of the kitchen cabinet rather than timing, design and product prices.
- 3- Elimination of waste was more focused on customer's relations and product designs.