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PROCESSES' ASSESMENT OF WOODEN ARCHITECTURE ELEMENTS MANUFACTURING

WOOD PROCESSING AND FURNITURE MANUFACTURING CHALLENGES ON THE WORLD MARKET within

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The content of the presentation:

- Identification of the production course definition
- Research methodology model
- Determinants of standardization
- Research results analysis
- Conclusion

The production process is the set of the elements affected on the production process realization such as: financial resources, human resources, machines, software and hardware, information (market, clients, trends, policy, competitors, products, innovations, scientific research results, etc), production technologies, production organization.

Research Assumption: The correct course of the manufacturing process requires, among other, such things as: improvement activities, the waste elimination (Muda), control measures and cooperation of all the people who create the value.

The most common model of the production is **a model of Toyota production system**, which is based on the philosophy, where the centre are people and team work based on the tools and techniques involving the continuous improvement work.

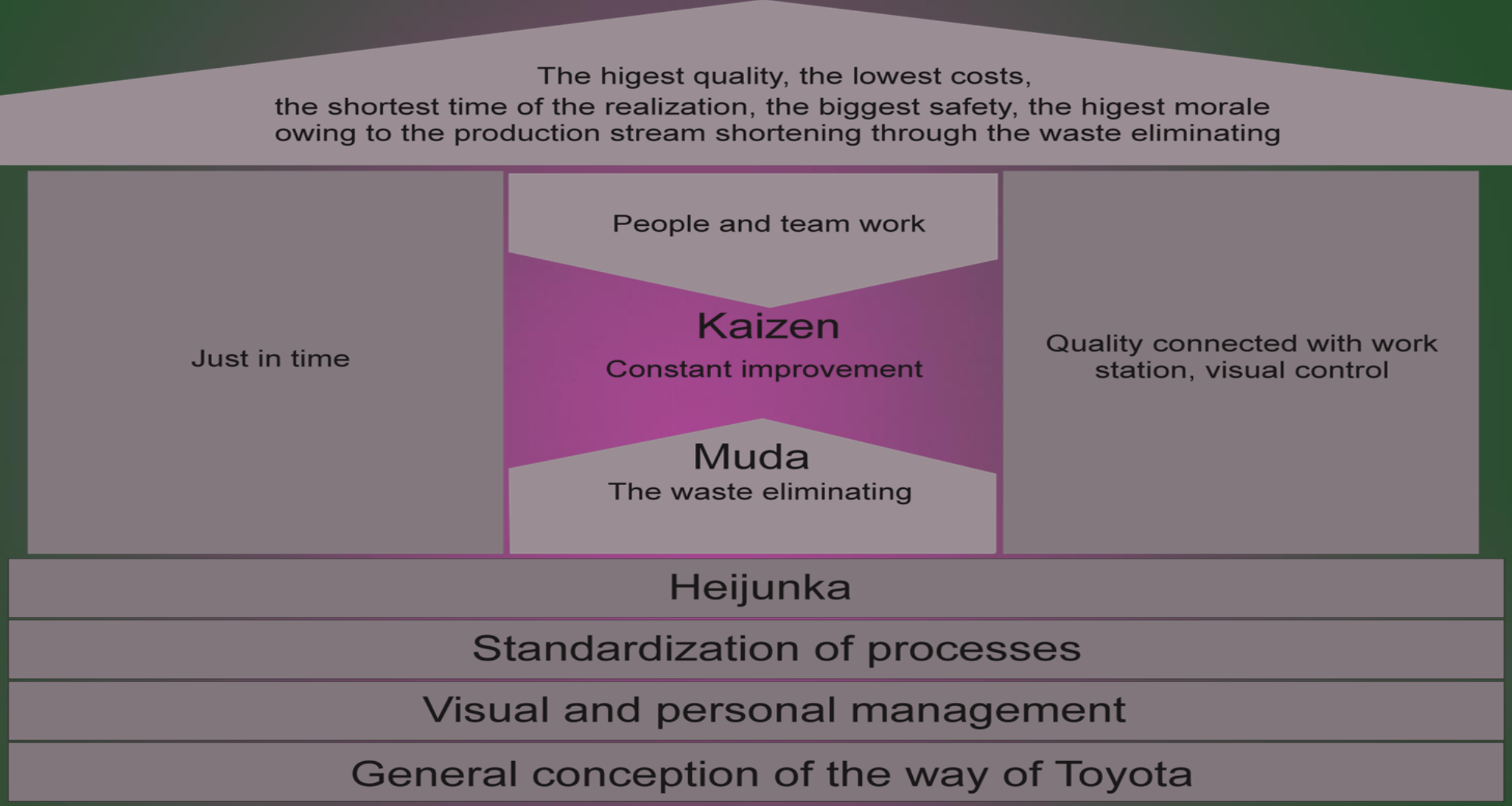

Fig. 1. The house of Toyota Production System.

Source: materials of TideSoftware.pl

Principle 1. Management decisions based on long-range concept - even at the expense of short-term financial results.

Principle 2. Create a continuous and smooth process of problems revealing.

Principle 3. Utilize “pull” systems to avoid overproduction.

Principle 4. Align workload (Heijunka).

Principle 5. Create a culture of interruption processes to solve problems, to immediately obtain the appropriate quality .

Principle 6. Standard tasks are the basis for continuous improvement and empowering employees.

Principle 7. Use visual inspection to ensure that no problem remains hidden.

Principle 8. Use only reliable, thoroughly tested technology for employees and processes.

Principle 9. Educating leaders who thoroughly understand the work, live the general concept of business and teach others.

Principle 10. Develop exceptional people and teams performing general concept of the company.

Principle 11. Respect wide network of partners and suppliers, throwing the challenges and helping them to improve .

Principle 12. Engage yourself to thoroughly understand the situation (Genchi genbutsu).

Principle 13. Taking decisions slowly by consensus and carefully considering all the possibilities; quickly implement decisions (nemawashi).

Principle 14. Becoming a learning organization, thanks to the tireless reflection (Hansei) and continuous improvement (Kaizen) .

Research method and model

Research methodology

- The **BOST method** is a research tool that use unique questionnaire technique addressed to workers and managers as well.
- Respondents answer for questions concerning the company/institution with regard to Toyota model elements.

Research model

- **BOST** is used for importance assessment of elements performed by **Toyota model**, such as:
  standardization principles, visual control, using of Toyota principles, 4E + 1 principles and importance hierarchy of strategic areas in production/service enterprises and service institutions.

Analyzed factors

- **In addition, the subject of BOST research are also:**[1]
- factors determining the correct execution of the production process (cost, quality, safety, workload of machines and workers),
- development opportunities for companies/institutions,
- technological opportunities,
- possibilities of the production process,
- factors of visual control,
- areas needing improvement.

[1] Borkowski, S. Zasady zarządzania TOYOTY w pytaniach. Wyniki badań BOST, Wyd. PTM, Warszawa, 2012.
Borkowski, S. BOST Method as the Instrument of Assessment Process Functioning according to Toyota Principles. Faculty of Logistics. University of Maribor. Marbior. 2012.

BOST method allows to evaluate and interpret:

- the importance of the factors describing 14 principles of Toyota management,
- management styles (including optimum Toyota),
- features of leadership, managers,
- satisfaction employees/customers,
- features of managers,
- characteristics influence on the managers,
- team and individual self-assessment.

BOST method also allows:

- building 3x3 matrix (competitiveness of product/service and technological capabilities),
- evaluation of the managers,
- assessing the importance of the improvement process driving forces,
- assessing the validity of the factors deciding about goals achievements,
- obtaining information about the human potential structure with internalisation of features such as: gender, education, age, length of service, mobility, mode of employment.

The standardization is an activity designed to obtain an optimal, in the circumstances, the degree of order in a given range,

by setting provisions for common and repeated use, for existing

or problems that may occur (1).

The purpose of standardization is used in industrial production of uniform patterns, e.g. standardization of products in terms of dimensions, materials used, etc. This allows company to obtain results such as:

costs reduction, mass production, co-operation of devices from different manufacturers, replacement of worn parts, easier to make trade orders.

[1] Law on standardization, 12 September 2002. Dz.U.2002.169.1386.

There was used sixth Toyota principle that concerns the following statement:

"Standard tasks as a basis for continuous improvement and empowering employees"

with regard to question on **E6 area:**

"What kind of standardization is the most important in ensuring continuous improvement of processes in your company?".

In this case, the respondents had seven variants of answers:

- execution time task (CW),
- process (PU),
- documents (DO),
- work station warehouse (MP),
- training (SN),
- the flow of information (PI),
- employment (ZA).

seven variants of standardization that are highlighted with regard to second Toyota principle as the basis of the constant improvement.

The research object

- The analyzed company XY Ltd. is a private company which deals with the wood processing with entirely Polish capital. It was founded in 1988. The organization is equipped with modern machinery that produce with using the new technology.
- All plants together employ about 700 employees. Production plants process about 250 000 m^3 of round wood and lumber annually.
- It is certified by FSC, which was introduced in the company in 2003 and it is evidence of the ecology principles implementing in the processes of the forest production.
- The high quality of products and environment-friendly production were certified in 2004 by the quality management system compliant with ISO 9001: 2008.

Rating	Factors' denotation [%]						
	CW	PU	MP	DO	SN	PI	ZA
1	9,7	0,0	38,7	25,8	0,0	22,6	3,2
2	3,2	0,0	19,4	9,7	3,2	38,7	25,8
3	12,9	0,0	9,7	41,9	12,9	19,4	3,2
4	22,6	9,7	12,9	16,1	12,9	9,7	16,1
5	25,8	22,6	12,9	3,2	22,6	3,2	9,7
6	9,7	32,3	3,2	3,2	19,4	3,2	29,0
7	16,1	35,5	3,2	0,0	29,0	3,2	12,9

Conclusion

The most important factors in standardization

a process (PU) with the highest score (29%)

The second importance ..

the execution time of one task and training

assessed as the most important in the opinion of 15% workers/respondents

The least important …

Flow of information(PI)

Work station storage (MP)

Have you any questions?

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