UNIVERSITY OF WEST HUNGARY
DEPARTMENT OF WOOD ENGINEERING

JÓZSEF CZIRÁKI DOCTORAL SCHOOL OF WOOD SCIENCES AND TECHNOLOGIES
WOODWORKING TECHNOLOGIES PROGRAMME

USING SYTEM APPROACH MODELS IN WOOD INDUSTRIAL BUSINESS ENTERPRISES

PhD thesis instalment

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1. The topicality and significance of the theme choice

Growing market dynamics and the ever increasingly complicated technologies require constant changes on the level of entrepreneurial operational systems. The stronger the competition, the more efficient the organisations have to be, independent from their sizes and complexity. Those business enterprises which have a systemic approach while searching for solutions and which constantly optimalize their processes based on the deeper knowledge of their operation are able to increase their efficiency. They are able to maintain and consolidate their competitive position. They can undisputedly reduce delays in time, costs and increase customer satisfaction and so they become able to develop the standard of their achievements constantly by using the latest models and methods in a professional way. That is why the creation of system approaches, process-centred approaches, process models, process plans and standards have been focused on in international practices and this at once gives the special topicality of the theme choice.

2. Phrasing the scientific problem

Because of the changes in the national and international economic conditions and the accelerated technological developmental processes, wood industrial business enterprises, just as the members of other economic sectors, have gone through significant changes. We can see considerable fallback on the level of small ventures although adapting to requirements has become the basic condition of emergence on markets even in the case of these business enterprises. Hungarian small ventures and medium-sized business enterprises have not made their everyday practice to – although there are a number of foreign examples for this – learn from organisations showing greater organisation, efficiency and to adopt exemplary models, techniques, systems so as to create excellent factory applications and practical solutions. Thus the creation, optimalisation and regulation of processes have to be put on new, complex and integrated approach bases independent from the firm profile. The use of process planning, process analysing and directing models and techniques enables us to carry out the elaborate analyses that can be the bases for the revelations of the system resources, weak and strong points of business enterprises and so the directions of development can be pointed out.

The preparedness of wood industry business enterprises, the effective handling of growing complexity can be solves successfully:

- by creating the transparency of operational processes (visual management techniques),
- by constant search and use of available best practices (using benchmarking methods),
- by using standardisation possibilities.

3. The aims of the dissertation and the methodology of the research

The aim of the dissertation is to analyse the possibilities for the application of system approach models in the area of wood industry that are able to affect and enhance the operational efficiency and success significantly. I attempt to create such formalised processes that enable a wider application in the wood industry sector as a process planning models, on the basis of secondary technical literature research and empirical research. The research model of the dissertation is demonstrated in Figure 1.

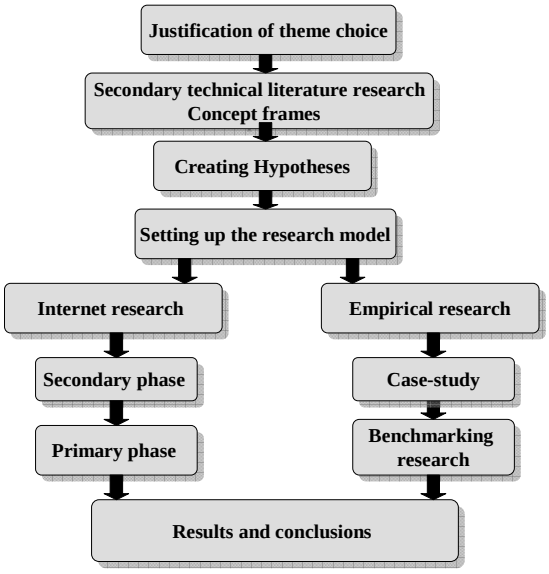

Figure 1: The research model of the dissertation

3.1. The overview of the technical literature

First I reviewed the related technical literature for the elaboration of the chosen topic. It lays the basis for the creation of the research model of the actual analyses and for the pointing out of the analysis directions. First I raise everybody's attention to the importance of the emergence of system theory and cybernetics principles (chapter 2). Since the operational efficiency of business enterprises can be reached by the optimalisation and improvement of

their process systems primarily, I examine (chapter 3) which process management methods, models and techniques are available for these. The theoretical overview covers the possible system developments of the certifications most frequently used in wood industry (chapter 4).

3.2. Internet research

I analyse the system of the certifications most frequently used in wood industry on international and national level. The international research is carried out using and Internet online database while the frequency of Hungarian certifications is revealed by primary researches.

3.3. Empiric research

The empiric research consists of two phases.

The **study-case** summarises the launching and operational experiences of the ISO 9001 quality management system in the company producing doors and windows. The critical points and operational potentials are also revealed using elaborate process analysis.

The **benchmarking research** is carried out in order to develop processes. I introduce the possibilities to optimalise the processes of the operational system of the revealed wood industrial small venture by case analysis with the help of process-oriented benchmarking and the practical examples of standardisation.

4. Research results

- **Internet research**

According to the analysis of the international and national spread of certifications most frequently used in the wood industry the statement of the first hypothesis could be verified.

Thesis 1

Hungarian wood industry firms have huge fallbacks in the field of certification application compared to similar organisations of the developed and the neighbouring countries. Hungarian firms do not consider either the necessity of the application or the advantages of certifications important enough due primarily to lack of information and their approaches. This can cause a drawback in competitiveness both in wood trade and on the market of wood industry products and it can have a negative effect on the expansion of partner and supplier connections. Enhanced government involvement and grants have to be used to assist the change in approach and the present practice.

- **Case-study**

The analysis of the launching and operational experiences of the ISO 9001 quality management system in the company producing doors and windows the two sub-hypothesis and their summary, hypothesis 2, were verified.

Thesis 2/1 A quality management system can cause considerable changes in managerial processes which changes manifest primarily in the well-founded nature of decisions, in faster and more precise information flow and in unambiguous authority-responsibility systems. This was established based on the introduction of the ISO 9001 system and the analysis of its one-year operation. So the organisation is better-prepared for handling constantly changing conditions and requirements.
Thesis 2/2 The application of the process model of the standard in the area of production and services results in the increase of accomplishment primarily in the fields of production planning, control and regulation. The operation of the ISO 9001 brings about expected results and becomes maintainable for small firms only if the elaborated processes can assist operative functioning and its correspondence with higher quality levels.
Thesis 2 The statement of this hypothesis is the summary of sub theses 2/1 and 2/2. The introduction of the ISO 9001 system standard and its operation in an already working factory brings about changes for the sake of quality the results of which manifest in the organisation and regularization of main processes, in the complementation of information and in the improvement of decision making mechanisms. According to the self-evaluations coming along with certifications the organisation can increase its preparedness for the handling of changes. According to system information it can enhance the quality standard of operative performance-production processes. The maintenance of a well-documented quality management system is not enough for handling changes in an effective way; the higher performance level of the operation system has to be assisted by the exact elaboration of processes.

The elaborate analysis of the process system of a building-joiner small venture and the evaluation of the results verified hypothesis 3.

Thesis 3

The detailed analysis of the processes of the operational system, the elaboration of the process map and the input-output model all assist the optimalisation of processes. They all mean starting points for process regulation, the application of the benchmarking technique and the creation of information and decision making systems. The necessity of measurability can be cleared by the overall mapping of the process system, the system of checking/control points can be determined more precisely for the sake of regulation and so the system of prevention becomes maintainable. The directions of development can be determined to create a better practice based on the analysis of the background of occurring weak points and operational potentials.

- **Benchmarking research**

Through sub theses 4/1 and 4/2 thesis 4 was verified by two application examples of **the process-orientated, non-competitor-centred benchmarking method:**

Thesis 4/1

The requirements of both contractors must be attempted to be met during the process of contracting to maintain a correct customer-supplier relationship. The application of the cross-assignment model can assist this. The elaboration of fixed processes may be justified in order to dominate the processes of agreement bounds. The formalised processes elaborated for individual frame contracts based the excellent practice of the benchmark partner can provide an example for this.

Thesis 4/2

The critical acquisition processes are worth being backed up by the elaboration of formalised (workflow) processes for the sake of commitment for responsible production. The supply system of business enterprises can be elaborated by the process planning model created on the basis of the better practice of the benchmark company. The supporting process of acquisition can serve production on a higher quality level by the elaboration of the precise needed task steps.

Thesis 4

The statement of the hypothesis is the summary of sub theses 4/1 and 4/2. The two revealed critical processes of the analysed operational system can be improved according to the better practice of the studied benchmark company. Using the exemplary solutions of a modern big business system while taking into consideration the unique characteristics of the wood industrial small venture I attempt to create such formalised processes that enable a wider application in the wood industry sector as a process planning model. Primarily the complexity of systems, as well as the risks and insecurity of processes determine whether the elaboration of the activity chains is justified or not. Small companies rarely need the elaboration of workflow.

Through the case example of a delegated activity – on the spot construction – of the analysed wood industry company, sub thesis 5/1 was determined and so thesis 5 was verified.

Thesis 5/1

Delegated processes always have to be handled as critical processes. It is especially true in the case of those processes when the contracted party gets into direct connection with the customer. The process standard elaborated for the on the spot construction of the wood industry company shows an example for this. The process controlling inputs, the determination of the expected achievement level, the recording of the process as well as the elaboration of the regulation points reduce risks greatly.

Thesis 5

Primarily the critical processes justify the need for the elaboration of process standards. The recording of a "better" practice in the form of a standard reduces differences and thus increases the stability of processes. The application of the planning process model is advisable for the creation of standards. As a result of this, process standards, apart from recording reliable and optimal processes as process models, give precise quality requirements towards inputs and outputs as well as process controlling inputs. Reference models lay the basis for information technology developments and system adaptations needed for the regulation of processes.

Practice must justify the results of models and methods elaborated based on the case-study of the building-joinery manufacturer. The models, methods and standards as means of process-oriented management can create excess values by total managerial commitment. Of course

success always depends on personal factors thus the individual approach of a manager has a great effect on the success measured in practice.

5. Possible further directions of the research

While preparing a PhD dissertation we have to take into consideration the limits of extension, we have to limit the circle of studied elements. While we are applying the steps of research and methods – in connection with the elaboration of the topic – always new aspects, impulses and possibilities occur which point into new research directions. Although, while creating my dissertation I attempted a complex elaboration of the theoretical and practical parts, my work cannot contain many important areas. Thus the system approach analyses are worth continuing in the following directions.

- **Product planning, development**
- **Market research, product positioning, public relations**
- **The system of product-production**
- **Organisation Culture**
- **Information system**
- **Managerial Processes**

The research directions determined based on the development of the operational system have occurred with the aim of moving towards a higher quality level primarily, as well as with aim of creating an effective and successful organisation.
According to the self-evaluation aspects of the EFQM excellence model further areas of development can be chosen which can have a significant effect on the increase in the achievements of the system.

6. Scientific publications, activities

List of publications:

2006 Pannon Design Exhibition and Fair in Sopron, Faipar LIV Volume 2006/1, page 22.
Author: Horváthné Hoszpodár Katalin

2006 The Renewal of The Wood Science Foundation, Faipar LIV Volume 2006/1, page 27.
Author: Horváthné Hoszpodár Katalin)

2007 Intercultural management. Hungarian-German Wood Industry Dictionary: Chapters on entrepreneurial studies, marketing, finance. Pages 131-156. Zala County Enterprise Development Foundation, Média Print Hungária Ltd. Zalaegerszeg 2007
Co-author: Pakainé dr. Kováts Judit

2007 Professional Evaluation of Pannon Design Furniture, Home décor and Living space Exhibition, Faipar LV Volume 2007/1-2, pages 53-54.
Author: Horváthné Hoszpodár Katalin

2007 A minőség fokozódó szerepe a vállalatok piaci érvényesülésében cikksorozat I. rész: A minőségügy fejlődése, a minőségmenedzsment rendszerek kialakulása / *The Increasing importance of quality in the market success of companies Part 1: The evolution of quality and the creation of quality management systems*, Faipar LV Volume 2007/1-2, pages 33-38.
Author: Horváthné Hoszpodár Katalin

2007 Professional Evaluation of the 3rd Pannon Design Furniture, Home décor and Living space Exhibition, Faipar LV Volume 2007/4, pages 25-26.
Author: Horváthné Hoszpodár Katalin

2007 A szabványok kialakulása, az ISO 9000:2000 minőségügyi rendszerszabvány áttekintése. A minőség fokozódó szerepe a vállalatok piaci érvényesülésében cikksorozat II. rész / *The development of quality standards and an overview. The Increasing importance of quality in the market success of companies Part 2.* , Faipar LV Volume 2007/4, pages 7-15.
Author: Horváthné Hoszpodár Katalin

2007 Wood Industry Explanatory Dictionary / *Erläutendes Fachwörterbuch Holzindustrie*, Zala County Enterprise Development Foundation, Paper manufacture Ltd., Sopron 2007
Co-editor, product manager: Kalcsú Zoltán, Pakainé dr. Kováts Judit

2008 www.falexikon.hu four lingual Internet Wood Industry Explanatory Dictionary / Erläutendes Fachwörterbuch Holzindustrie, Zala County Enterprise Development Foundation, Zalaegerszeg 2008
Preparing computerised system plan: Horváthné Hoszpodár Katalin)

2009 ISO 9001 rendszer bevezetésének tapasztalatai nyílászárókat gyártó cégnél. Minőség fokozódó szerepe a vállalatok piaci érvényesülésében cikksorozat III. rész. Observations of the ISO 9001:2000 system introduction in a factory producing doors and windows. *The Increasing importance of quality in the market success of companies Part 3*. (Faipar LVII Volume2009/3-4., pages 30-39.
Author: Horváthné Hoszpodár Katalin)

2010 ISO 9001 minőségirányítási rendszer alkalmazásának tapasztalatai egy kkv-nál *Observation of the ISO 9001 system application in a SME*, Quality and Reliability magazine. Confirmed publication: 2010/volume 6 (December)
Author: Horváthné Hoszpodár Katalin

2010 Die Erhöhte wichtigkeit der Qualität bei der Durchsetzung der Unternehmen im Wettbewerb - Erfahrungen bei der Einführung des ISO Qualitätssicherungssystems am Beispiel eines Fenster und Türen herstellenden Unternehmens / Acta Silvatica & Lingaria Hungarica (under vetting) ,
Author: Horváthné Hoszpodár Katalin

Conferences:

2010 Benchmarking in wood industry, 10th Wood Industry Marketing Conference, Innolignum Sopron Forestry and Wood Industry Exhibition. Sopron, 9 September.
Lecturer: Horváthné Hoszpodár Katalin

2010 The Basics of Benchmarking, Sopron Region Logistical Cluster, Assembly, Benchmarking Club. Sopron, 24 November.
Lecturer: Horváthné Hoszpodár Katalin