

Analyses of Dynamic Tools for Increasing Productivity, Quality and Customer Satisfaction in Six Graphic Arts and Media Companies

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Abstract

One study has shown that there is a direct connection between customer satisfaction and employee satisfaction (Schneider and Bowen, 1991; Kaplan and Norton, 1996). Customers can be more satisfied and more loyal to an employee who deals with them personally than to the organisation as a whole, especially in such sectors as the graphic arts and media industry, which are highly dependent on the individual. Satisfied employees are employees who are likely to remain in the company. It is obvious that a high employee turnover has an impact on customers' perceptions of service quality, and customer satisfaction.

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The work environment, that is the sum of organisational, technical, economic and psychosocial conditions in which the work is carried out, can influence and increase employee satisfaction, thus leading to higher productivity and efficiency in performing work, and ultimately to the improvement of quality as a whole. Obviously, the state of working conditions is closely interconnected with customer satisfaction.

It has been recognised that particular elements of work environment have a great influence on productivity, efficiency, quality and customer satisfaction. In this perspective, the study of six graphic arts and media companies has been carried out and nine major tools based on work environment elements have been analysed.

Introduction

The successful development of a graphic arts and media company in accordance with new trends and tendencies in the company's environment is related to many factors, both within and outside the organisation. Since the customers are actively involved in the prepress process, the factors that are related to new customer demands and that have a great impact on customer satisfaction can be seen as *crucial* for the graphic arts and media companies' development.

The operating conditions for graphic arts and media companies have had a great impact on the character of the organisation. In the traditional production-orientation era, the sources of wealth were accumulated in equipment, systems, material and other tangible values. In this new era, knowledge is the primary raw material that generates wealth. This has resulted in the situation in which companies can no longer base their business strategies exclusively on investments in technological development.

This paradigm shift has highlighted the new role of an organisation's staff. This role has been identified as a role of intangible intellectual capital, which has to be maintained, developed and utilised (Stewart, 1997) in order to create a differential advantage for a company.

It is necessary to analyse the impact of the paradigm shift on the companies' performance, and to ascertain which practical tool can be constructed to improve it.

Definitions

I chose to define the main terms used in this paper as follows:

Productivity – as a general term productivity is the relation between produced output and input used to produce that output. A measurement of employee

productivity can be described as revenue per employee (Kaplan and Norton, 1996).

Quality – totality of characteristics of an entity that are based on its ability to satisfy stated and implied needs (SS-ISO 8402).

Satisfaction – is defined as “the disposition of wants (and needs) by sufficient supply” (The Concise Oxford Dictionary 1964).

Work environment – the whole of the organisational, technical, psychosocial and economic conditions in which the work is carried out.

The customer

Customers can carry out all or part of the production process by themselves. This can reduce their interest in buying traditional graphic arts products. In addition, customers are being offered alternative products and services. In order for graphic arts and media companies to stay competitive, new managerial strategies with the intention of satisfying new customer demands must be considered.

The previous study (Lindgren, 1999; Slimani, 1998) identified new customers' demands that are summarised briefly below:

- The customers expressed a need for well developed internal (within a supplier company) and external (between the supplier company and the customer) communication that would give a supplier company a better opportunity to point out to employees customer-specific requests, service modifications, etc in order to focus on them.
- The foundation of a good customer-supplier relationship is respect for the given premises on both sides. The customers claim that when the supplier does not immediately inform them about a delayed delivery, the customer loses the opportunity to react and make a correct decision at an early stage.
- The customers state that the supplier's organisation has a unique pattern of knowledge, traditional graphic arts knowledge represented by a group of older employees and computer-related knowledge represented by a group of younger employees. The customers claim that the supplier's employees very seldom possess both areas of knowledge.

One common pattern was observed during the studies. The companies do not create a common knowledge base of customers' demands. Instead, different opinions exist within the organisation based on different pieces of information.

This makes it difficult for the companies to identify and find new and better ways of successfully meeting consumer needs and demands.

The company

New global trends, new market constellations and new market players will lead to another type of organisation in the graphic arts and media sector. The result could be a flat organisation, which has to capture multi-skilled knowledge in graphic arts technology, information/data technology and communication, in order to achieve strategic goals. There are a number of factors that have to be taken into consideration, such as new organisational philosophy and the technological process, especially digital workflow, measurements and managerial tools.

The philosophy

In the new knowledge and digital era, the graphic arts and media industry is a recognised individual-based sector, as relationships between an organisation and its customers strictly depend on the employees' willingness to perform the required service and meet customers' expectations. This current situation is a basis for the new managerial approach/concept, which I have chosen to refer to as Internal Relationship Marketing.

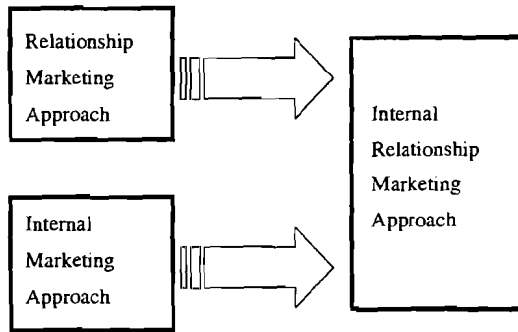


Figure 1. Construction of the Internal Relationship Marketing approach

The *Internal Relationship Marketing* concept is based on the combination of Internal Marketing and Relationship Marketing principles. This approach focuses on attracting, retaining and enhancing relationships (Relationship Marketing) with internal valued customers/employees (Internal Marketing).

Internal Relationship Marketing can be seen as a process of managing *intellectual capital* to create a differential advantage for a company. Intellectual capital includes *human capital* and *structural capital* (Stewart, 1997).

Human capital is the source of innovation and renewal. It can be defined in terms of what employees must know if they are to serve customers and benefit the organisation.

Structural capital is “the organisational capabilities of the organisation to meet market requirements” (from Stewart, 1997). It exists in the context of e.g., a strategy, information system, business intelligence, and other managerial tools which turn employee know-how into the property of the organisation. This is what organisations need if they are to contain and retain knowledge.

The employee

One of the most dramatic changes from the point of view of management, which can also exemplify the transformation from industrial age thinking to information and knowledge age thinking, is how employees contribute to the company. Employees are no longer simply in a part of the system like pieces of physical equipment, but they are seen as capital that has to be maintained and developed.

Employee satisfaction has been recognised (e.g. Kaplan & Norton, 1996) as highly important and as having direct impact on productivity, quality, customer satisfaction and ultimately customer retention. Some companies noted that satisfied employees are a precondition for increasing degrees of productivity, quality and customer satisfaction.

Employee satisfaction is especially important for media and graphic arts companies where employees interact directly with customers and thus have direct impact on relationships between a company and its customers. Sandberg (Sandberg 1982) represents the common research view that work environment is one of the elements, such as employment security and salary, that are necessary to achieve employee satisfaction. This should lead to higher productivity and quality. It is important to recognise which particular work environment elements have the strongest influence on employee satisfaction in order to create the best opportunities for productivity and quality improvement.

Figure 2 illustrates the loop between employee satisfaction and customer retention.

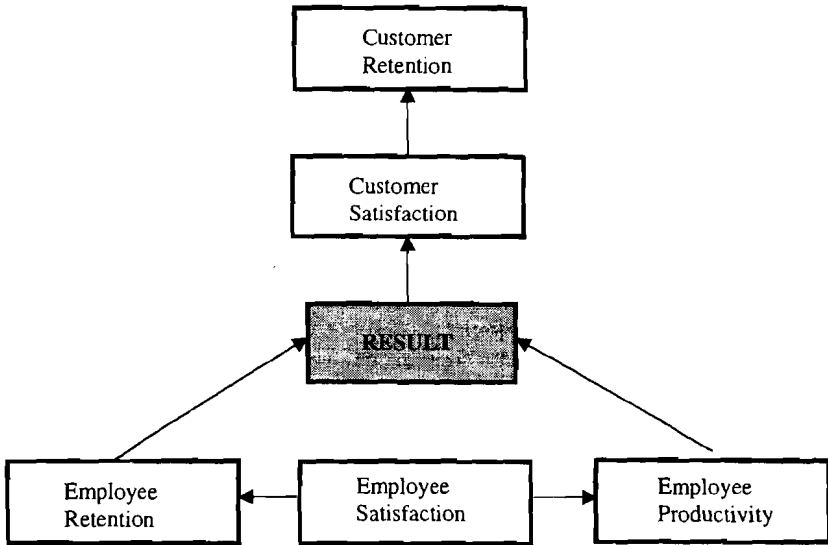


Figure 2. The framework of loops between objects

The measurements

To be able to monitor and improve the company's performance, the performance has to be put in measurable terms. The traditional economic and physical measurements are well established but not sufficient in the new knowledge and individual-based age. New measurements, which are based on the new trend, have to be developed.

The customer-oriented measurements

Once a company has identified and determined its market segments, it can address the objectives and measurements for segments. Sets of measurements can be used by a company for two different purposes. Firstly, to monitor the current situation and secondly, to define the development goals.

Measurements such as *customer satisfaction* and *customer retention* can appear to be appropriate and can also be related to the measurements representing the performance drivers. Customer satisfaction measurements mirror how well the company is doing and how far customers' demands are being met. Only when customers are extremely satisfied can a company count on a continuation of their purchasing behaviour. Clearly, a desirable way for maintaining customer segments is to start by retaining existing customers in those segments.

The set of performance-driver measurements illuminates some of the answers to questions related to companies' deliveries to their target customers in order to achieve high degrees of satisfaction and retention. The performance-driver measurements can be described in terms of *productivity* and *quality*. These performance-driver measurements and customer-oriented measurements can create the basis for a company's development.

The productivity and the quality measurements

As I mentioned previously, when the transition from analogue to digital techniques in a part of the technology process took place, it caused a number of process activities and physical materials to disappear. The digital prepress workflow has been minimised and has been limited to several activities when compared to a semi-digital process. It has influenced the whole technological process, see figure 3.

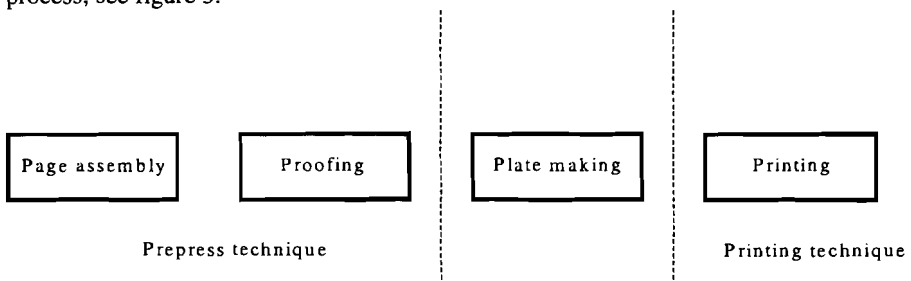


Figure 3. Activities in the total production process including the digital prepress process (after Lindgren, 1999)

The number of pages/hour is the measurement most commonly used to monitor productivity in all activities within the total production process.

As the customers are actively involved in the production process and are able to affect as well as to comment on the process outcomes, it is necessary to consider quality from the customers' point of view. This means that parameters that regard the quality only of the tangible elements of the process are not sufficient. So, the measurement of quality, being more subjective, can also be dependent on the customers' expectations and ultimate satisfaction. There are various factors such as communication between an organisation and its customers, service-mindedness, competence, certainty of delivery, etc that have a great impact on quality.

The dynamic tools

The primary question which has to be asked in this paper is which strategic elements within an organisation can encompass the complex relationship

between an organisation's philosophy, employees' role and measurements in absolute and relative terms, while at the same time performing as development tools.

The previous study (Slimani & Gorska 1999) has recognised particular elements of the working environment as a set of dynamic strategic tools that can be used *directly* and *indirectly* in order to improve a company's performance. Those working environment elements have to possess special characteristics if they are to affect the company's performance. They have to be based on three principles of dynamic characteristics, i.e. individuality, subjectivity and flexibility.

The traditional working environment represents an optimal and stabile character that has been regulated by legal standards, and which is not correlated according to the individual's perception of "well-being" and satisfaction. The following traditional working environment elements should be considered as *guidelines* both in the sense of occupational safety and those which can have a *direct* impact on productivity and technical quality in the digital workflow:

- Modernity of equipment
- Damage to equipment
- Arrangement of work objects
- Lighting

Those elements represent the category of *technical factors*.

Another category of working environment elements has been called: *economical factors*. Elements included in this category are partly regulated by legal standards and market rules, and partly can be influenced by employees. It means that they are less stabile and optimal then technical factors, and that they can have tendency to be flexible, individual- and subjective-oriented, for example salary, additional pecuniary gratification, financial participation in competence improving activities, privileges, representational functions, etc.

Psycho-social and *organisational factors* have been recognised as the third category of working environment elements. A single employee has a great opportunity to affect elements included in this category. It means that from the dynamic perspective, those elements are most flexible, individual-and subjective oriented and therefore can have direct connection with a single employee's satisfaction.

Those working environment elements which have a great and direct impact on employee satisfaction and therefore an indirect impact on the company's productivity and total quality are as follows:

- *Participation in management*
- *Essence of work vs. individual aspirations of an employee*
- *Training and competence improvement*
- *Physical overload*
- *Mental overload*
- *Organisation of rest breaks at work*
- *Work methods*

The necessity of different character of working environment in order to achieve the highest productivity and employee satisfaction is illustrated in figure 4.

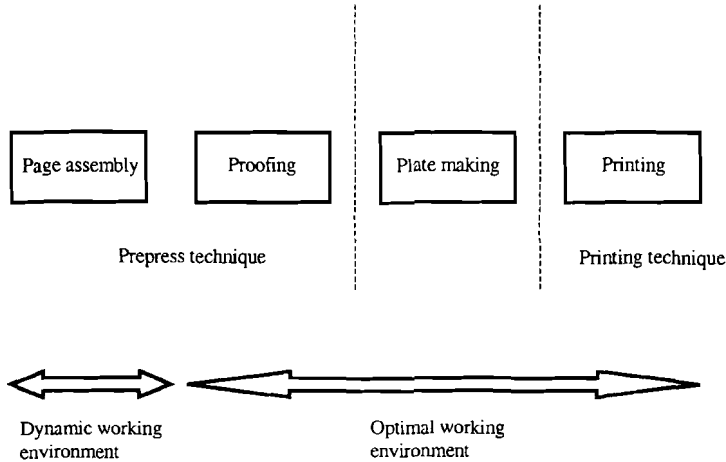


Figure 4. Needs of different type of working environment

The successful result of page assembly activity is higher depended on employee's skills, capabilities, willingness to meet customer expectation, well functioned communication, then for instance activity of proofing, plate making and printing and therefore it's necessary to create dynamic working environment conditions, which are flexible, subjective- and individual-oriented.

During the previous study (Slimani & Gorska, 1999) a number of drivers for each of mentioned above element have been recognised, see figure 5.

PARTICIPATION IN MANAGEMENT

- 1. Possibility of co-operation in different fields within & outside the company
- 2. Making decisions
- 3. Participation in different aspects of work
- 4. Choice of role in the organisation

ESSENCE OF WORK VS. INDIVIDUAL ASPIRATION

- 1. Improving professional qualifications & knowledge
- 2. Active independence
- 3. Choice of role in the organisation
- 4. Influencing & controlling own stress level

TRAINING & COMPETENCE IMPROVEMENT

- 1. Atmosphere of appreciation at work place
- 2. Improving professional qualifications & knowledge
- 3. Individual & personal development

PHYSICAL OVERLOAD

- 1. Active independence
- 2. Influencing & controlling own stress level

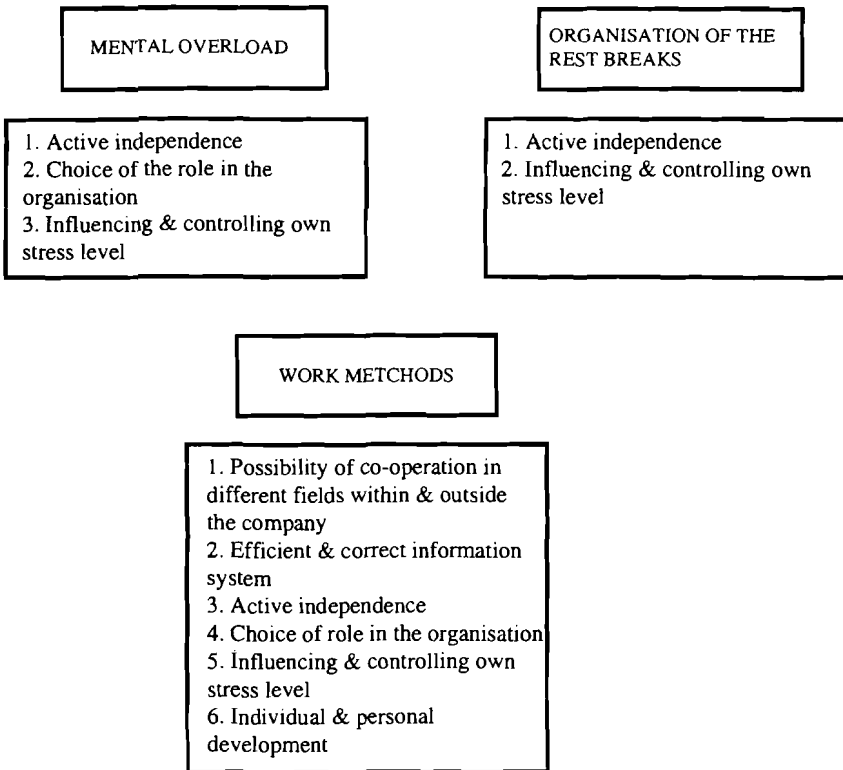


Figure 5. Dynamic working environment element and their drivers

Drivers can be divided in two groups:

- Directly affecting productivity and quality
- Indirectly affecting productivity and quality, but directly affecting employee satisfaction

For example, an active independence belongs to the first group, because it can cause increasing or decreasing a number of pages/hour. Possibility of choice of role in the organisation has a great impact on a single employee satisfaction, and therefore belongs to the second group.

Results 1

Six case studies were carried out in order to analyse particular working environment elements as dynamic tools for increasing employee satisfaction in order to increase productivity, quality and ultimately customer satisfaction.

Equipment serving prepares process was on the almost equal development level and no major variations have been recognised.

Case study A

Company A is a traditional printing house. The company has existed since 1967.

Participation in management – Almost 80 per cent have no possibility to co-operate within the organisation and almost 100 per cent cannot influence the choice of tasks that are going to be carried out outside the field of the respondents' own duties and responsibilities. Almost 100 per cent are disappointed with this situation. Approx. 70 per cent are not satisfied with the degree of involvement in decision making.

Essence of work vs. individual aspirations of an employee – approx. 60 percent of the respondents can be classified as having no possibility for active independence and more than 80 percent do not follow up the work results and customer response. Over 70 percent are satisfied with the content of the work in relation to the post that they occupy. Respondents presented the whole spectrum of factors causing stress e.g. work involves some unreal and incommensurate requirements; it requires broad knowledge of too many fields. Over 60 percent have no influence on the level of stress.

Training and competence improvement – approx. 50 percent responded that neither their colleagues nor their superiors appreciate the improvement of their professional skills. The same answer also concerned appreciation of improved work resulting from an improvement of their professional skills.

Physical overload – 70 percent of the respondents are actively independent in their physical tasks. The majority of responses show that the people interviewed do not feel physical overload. The time needed to relax is rather short, requiring a few minutes at most.

Mental overload – 50 percent of those interviewed responded that the information they receive consists of data essential for the performance of their work, but not for planning the work successfully or to make decisions, and 50 percent say that the information does not consist of essential data. 60 percent prefer team-work and 40 percent individual work. The majority experience

mental overload, which is caused by many factors, and the work requires a high degree of concentration. They assume that relaxation requires considerable time, i.e. several hours.

Organisation of the rest breaks at work – the majority of respondents responded that the organisation of the rest breaks at work does not enable them to plan or perform tasks freely or successfully, nor does it enable them to co-operate with other employees.

Work methods – the majority (80 percent) responded that the work methods give them the possibility for co-operation and communication with others. The respondents (100 percent) think that one shift with day-work hours is most suitable. They find the amount of work to be carried out as well as the work tempo sufficient, but they cannot come up with their own initiatives concerning the contents and methods of the work.

Case study B*

Company B is a printing house, in existence since 1993. The organisational structure is undergoing a process of reorganisation, partly hierarchic and partly flat.

Participation in management – the majority responded that the initiatives they take are recognised by their colleagues or employers as valuable and helpful and these initiatives bring positive and profitable results to the company. Mostly, they can participate in the projects of other units of the company. But they have not the opportunity to make any decisions directly concerning company, business or co-operation matters. Approximately 50 per cent can put their ideas, or their colleagues' ideas, into practice, and they can participate in making decisions about what and when working tasks are going to be carried out and how they are going to be carried out, as well as who is going to work with whom. The majority think that the field of their working tasks and responsibilities suit them and meet their expectations.

Essence of work vs. individual aspirations of an employee – the majority describe the relation between the working tasks and the post they occupy as suitable and they are satisfied with the content of the work in relation to the post they occupy.

Training and competence improvement – the majority answered that the job offers them the possibility for professional development and learning new things. They also think that the experience and knowledge which they have gained during the last year are valuable for their further development.

Physical overload – the majority usually do not feel physically tired while performing their duties at work and they think that they do not need a great deal of time to relax after the working day. They perform their work in the most favourable position for their body and in the most favourable place for their comfort.

Mental overload – mostly, they think that the information they receive consists of essential data which enables them to plan and perform the work successfully and make decisions. The reason most often mentioned for mental overload is intense concentration.

Organisation of the rest breaks at work – those interviewed responded mostly that the organisation of the rest breaks enables them to plan and perform their tasks freely and successfully but disturbs co-operation with others. They feel that rest breaks are organised in a manner which corresponds to their physical and psychological needs.

Work methods – mostly, they can come up with initiatives of their own concerning the contents and methods of the work. A large number of respondents think that the amount of work to be carried out is sufficient.

Case study C

Company C, in existence since 1993, is a printing house focused on the offset printing of calendars, calling cards, books, folders, etc. The organisational structure has a tendency to shift from the traditional towards a more flat structure.

Participation in management – almost 100 per cent feel that the initiatives they take in the job are recognised by their colleagues or employers as valuable and helpful. The majority can participate in projects with other units of the organisation and in co-operation with other companies. But they can not make decisions directly concerning the company and business. They can put their ideas, or ideas of their colleagues, into practice. They can actively participate in making decisions about what is going to be carried out, and how, and who is going to work with whom. They are also involved in long-term planning, evaluation of the results and product/service development. Almost 85 per cent are satisfied with this.

Essence of work vs. individual aspirations of an employee – 100 per cent are satisfied with the content of the work in relation to the post they occupy. 50 per cent can influence the level of stress even though there are many factors causing stress.

Training and competence improvement – 70 per cent agreed that the job offers them the possibility for professional development and learning. But 100 per cent think that the experience and knowledge which they have gained during the last year are valuable for further development.

Physical overload – mostly, they need some minutes to physically relax after their job, and they think that is enough.

Mental overload – the majority think that the information they receive enables them to plan and perform the job as well as to make decisions. Approximately 70 per cent do not feel tired and mentally overloaded with their work. 100 per cent think that they do not need a lot of time to mentally relax after work.

Organisation of the rest breaks at work – almost 80 per cent think that rest breaks are organised in a manner which corresponds to their physical and psychological needs. But they are disturbed in their co-operation with others.

Work methods – the respondents are totally satisfied with their role in the organisation, and almost everybody working in a team finds the work division fair and satisfactory.

Case study D

Company D is production-oriented with its focus on books, folders and information leaflets. Company D has been in existence since 1972. The organisational structure is typically hierarchic.

Participation in management – almost 50 per cent have no opportunity to participate in the projects involving other units or in co-operation with other companies. Over 70 per cent cannot put their ideas, or ideas of their colleagues, into practice.

Essence of work vs. individual aspirations of an employee – all the following factors were mentioned as causing stress: work involves some unrealistic and incommensurate requirements, work requires a broad knowledge of too many fields, lack of necessary information, lack of proper education, and difficulty in following new scientific developments and progress of science in the given field. 50 per cent cannot influence the level of stress.

Training and competence improvement – over 70 per cent feel that the job offers them the possibility for professional development and learning and 100 per cent think that the experience and knowledge which they have gained during the last year are valuable for their further development.

Physical overload – over 70 per cent usually feel tired while performing duties at work, but they do not think that they need a great deal of time to relax.

Mental overload – 70 per cent responded that the information they receive consists of essential data which enables them to plan and perform their work, but 30 per cent responded that the information does not consist of essential data. The majority think that team-work is most suitable to them. However, they prefer to work as task performers, not team-leaders. Over 50 per cent feel tired and mentally overloaded with their work.

Organisation of the rest breaks at work – almost 100 per cent agreed that the organisation of the rest breaks enables them to plan and perform the job, but absolutely not in co-operation with others. Over 60 per cent think that rest breaks are organised in a manner which corresponds to their physical and psychological needs.

Work methods – 100 per cent responded that the work methods that they apply in their job give them the possibility to communicate and co-operate efficiently with others. Over 30 per cent cannot come up with initiatives of their own concerning the contents and methods of their work.

Case study E

Company E is a production-oriented company. The main business concept is the production and printing of envelopes. Company E has existed for over 200 years.

Participation in management- over 70 per cent of those interviewed think that their initiatives are appreciated in their job. The majority have the opportunity to co-operate in different projects inside the company and between the company and other companies. But over 60 per cent have no possibility to make decisions concerning these projects. The majority can put their ideas into practice and can participate in making decisions about what is going to be carried out, how it is going to be carried out and who is going to work with whom. Over 80 per cent responded that decision-making is frustrating and stressful. Over 75 per cent can not influence the choice of tasks that are going to be carried out outside their field of duties and responsibilities, but they are satisfied with the situation.

Essence of work vs. individual aspirations of an employee - 100 per cent described the relation between working tasks and the post that they occupy as suitable and over 80 per cent are satisfied with the content of work in relation to the post that they occupy. Over 70 per cent can control the stress aspect, even though there are many factors that cause stress.

Training and competence improvement – over 70 per cent responded that both their colleagues and superiors appreciate the improvement of professional skills and improved work resulting from the improvement of professional skills. Approximately 95 per cent agreed that the job offers the possibility of professional development and learning new things.

Physical overload – the majority do not usually feel tired while performing duties at work and they do not think that resting and relaxation after work take a great deal of time.

Mental overload – 90 per cent responded that the information they receive consists of essential data which enables them to perform work and 70 per cent think that the information also enables them to plan work successfully and make decisions. Only 10 per cent responded that the information does not consist of essential data. 50 per cent of the participants find that teamwork is the kind of work which is the most suitable and that they prefer to be a team-leader. Over 65 per cent do not feel tired and mentally overloaded with the work, even when a degree of high concentration is required.

Organisation of the rest breaks at work – almost 99 per cent responded that the organisation of the rest breaks enables them to plan and perform tasks freely and successfully as well as enabling them to co-operate with others.

Work methods – almost 100 per cent responded that the work method according to which they perform tasks and duties gives them the possibility to co-operate and communicate with others. 100 per cent responded that they can come up with initiatives of their own concerning the contents and methods of their work.

Case study F

Company F is a local newspaper that has been in the market for over 140 years. The structure is traditional and hierarchical.

Participation in management – almost 90 per cent believe that the initiatives that they take in their job are recognised by their colleagues or employers as valuable and helpful. 100 per cent have the opportunity to participate in projects involving other units within the company, and over 75 per cent have the opportunity to participate in the project in co-operation with other companies. But only 50 per cent make any decisions directly concerning the company and business. Over 70 per cent can put their ideas, or ideas of their colleagues, into practice. The majority are involved and can make decisions in following areas: long-term planning, evaluation of the results and product/service development. They do not regard decision-making as frustrating or stressful.

Essence of work vs. individual aspirations of an employee – over 90 per cent described the relation between their job tasks and the post they occupy as suitable. Many factors causing stress were also mentioned, but over 80 per cent can influence the level of stress.

Training and competence improvement – 100 per cent believe that the job offers them the possibility for professional development and the learning of new things. 100 per cent also think that the experience and knowledge which they have gained during the last year are valuable for their further development.

Physical overload – 70 per cent do not usually feel tired while performing duties at work and they do not think that they need a great deal of time for relaxation after work.

Mental overload – only one person responded that the information they receive does not consist of essential data. 80 per cent feel tired and mentally overloaded with their work, but they do not think that they need a great deal of time to relax.

Organisation of the rest breaks at work – nearly 100 per cent responded that the organisation of the rest breaks enables them to plan and perform their tasks freely and successfully as well as enabling them to co-operate with others. Almost 100 per cent are totally satisfied with the organisation of rest breaks.

Work methods – over 90 per cent think that the work methods give them the possibility to perform tasks and communicate with others. 100 per cent can come up with initiatives of their own concerning the contents and methods of the work.

Results 2

Interviews which have been carried out in the six companies and which involved decision makers on the middle and high level focused on the recognition of pattern of productivity level, quality, customer satisfaction and customer retention.

Decision makers at companies A and D were clearly unsatisfied with the productivity level and performance outcomes. In both companies decreasing of market share were recognised. No percentage growth of business with existing customers was recognised.

Decision makers at companies B, C, E and F expressed their satisfaction with the performance results, which was also mirrored in increasing ongoing relationships with customers.

Conclusion and discussion

The case studies clearly highlighted the connections between employee satisfaction and companies' performance as well as recognised working environment elements as the dynamic tools that can be applied in order to increase productivity, quality and ultimately customer satisfaction.

The case studies identified that in companies A and D employees' needs in many cases are not satisfied. This causes lower productivity and lower total quality, and ultimately lower customer satisfaction and customer retention.

Employees at companies B, C, E, and F are mostly satisfied and this results in higher productivity, quality, customer satisfaction and customer retention.

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