Dimensions, Information Technology and the Effects in Organisational Learning

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What's going on just now? What's happening to us? What is this world, this period, and this precise moment in which we are living? (Foucault 1982a p.216)

PREFACE OF THE FIRST CHAPTER

It seems that nothing changes as quickly as today's society. The society we look at now could be totally different tomorrow. Perhaps there is nothing as complex as today's society, because of its quick changes. For centuries long until now, theorists tried to describe and to explain the society they lived in, to get a grip on the changes they saw and to understand the multidimensional aspects of society. That happened always with more or less success. Great theorists like Adam Smith (1723- 1790), Karl Marx (1818- 1883), Friedrich Engels (1820- 1895), Emile Durkheim (1858- 1917), George Simmel (1858- 1918), Max Weber (1864-1920) and more recent Charles Wright Mills (1916- 1962), Jurgen Habermas (1929) and Ulrich Beck (1944) had visions, ideas, concerns and critics towards the society.

We will also present a theory of society and describe several important aspects that are characteristic for this present society. We show how the dimensions have become a crucial factor in organisations and the main question we ask ourselves is how labour, organisational- learning and organisational management functions under the settings as we describe it.

In the first paragraph we make a theoretical overview of the four most important dimensions, which is mainly based on the work of George Ritzer (1996). In the overview we find an evident link and implementation of those in labour, organisational learning and management. After presenting each dimension we will give a practical case study, mainly based on our own knowledge and experience, that shows in one way how a dimensions is linked in labour, organisational- learning and organisational management.

The second paragraph is about the increasing role of information technology (IT), which is perhaps the most important development in an organisational level today. We give a short historical overview of the development of IT and discuss how IT increasingly implements in and affects to today's labour, organisational- learning and management, since IT is strongly linked with the dimensions presented in the first paragraph

The third paragraph presents a short summary, some critical remarks and a short conclusion. This paragraph can be also seen as a general reflection.

1. FOUR DIMENSIONS OF TODAY'S SOCIETY AND THEIR IMPLEMENTATION IN ORGANISATIONS

Every society can be described and characterized. That is the case with the present society also: it already has several metaphors such as Post Modern Society, Post Industrial Society, Information Society, Learning Society, Technocratic Society, Economical Society and Individualistic Society. Despite the different definitions and ideas behind metaphors, a society can never be fully described by them. Metaphors can be a powerful illustration or description, but it is always incomplete, biased and potentially misleading (see Morgan, 1996).

Our goal is not to give one specific metaphor and discus this, but to give four main dimensions which today's society relies upon and show how these dimensions seriously affect organisations. We mainly use the work of George Ritzer (1996), to set the theoretical framework around these four dimensions.

1.1 EFFICIENCY

The first dimension is efficiency. Efficiency became a very high priority for both customers and employers in today's society. There are several definitions for efficiency, but in brief, it basically is providing the best way, service or product in as little time and cost as possible. According to Ritzer: "Efficiency is choosing the optimum means to a given end" (p. 34). Mintzberg (1991) states that efficiency is an important force in an organisation, which attempts to ensure a viable ratio of benefits gained to costs incurred. Without some concerns for efficiency, sooner or later an organisation falters.

1.1.1 EFFICIENCY IN ORGANISATIONS

In the beginning of the 20th century general managers, directors and researchers were looking for a more efficient way to manufacture, because the old standards were no more usable. A step towards a more efficient manufacturing system was created by the American engineer Frederick Winslow Taylor (1856-1915). He developed the main steps for what he called *Scientific Management*: "The principal object of management should be to secure the maximum prosperity for the employer, coupled with the maximum prosperity for each employee" (Taylor, 1947*)*. Taylor was struck by the lack of efficiency in many working processes. He started to think about how employees could work as efficiently as possible. In his famous *Time-and-Motion* studies, he examined efficient employers in order to discover the best way for doing a job. After several observations he came to the conclusion that the most efficient way to work was to break down the tasks into smaller (minute) components. After this discovery he tested the new method successfully and soon became wanted to implement the process in different organisations - "Taylorism" was born.

An important invention, strongly connected with Scientific Management, was made by engineer Henri Ford (1863-1947). Ford, a pioneer in the car production, was mainly

responsible for the development of the assembly line. He wanted to save time, energy and money (that is, to be more efficient) and therefore he searched for a method that could fulfil these goals. Eventually he got the idea of an assembly line from the overhead trolley system used by Chicago meat packers. A line of highly specialized butchers performed specific tasks, so that by the end of the line, a steer for example, had been completely butchered. On the basis of this system Ford (1922) developed the following principles:

- Employers should not take any unnecessary steps
- Parts needed in the assembly process are to travel at least possible distance
- Mechanical means (rather than human) are to be used to guide the assembly process
- If possible, an employer does only one thing with one movement

The assembly line was a prototype of working efficiently: a large number of highly specialized (or conditioned), unskilled employers (cheap labour) were responsible for a one small specific task in the car-building process. The system was proved to be time and costs saving, and therefore the prices of the cars lowered and more people were able to afford a car. The principles created by Ford have been adapted by many organisations and adopted by many countries (Japan for instance) and to this day the principles stand as models of efficiency (Ritzer, 1996).

1.1.2 CASE STUDY: EFFICIENCY IN THE MCDONALD'S RESTAURANTS

Fordism and Taylorism are no longer dominant in today's organisations: we now talk about Post-Fordism (Murray in Edwards, 1990). People get more responsibility and the tasks performed differ in various ways. Still, we can conclude that Taylor's Scientific Management was a great precursor of today's society from several aspects (Ritzer, 1996). Although it is not as explicit as it used to be, a lot of people still work under a Tayloristic or Fordistic approach. McDonald's is an organisation where this approach still is present.

The philosophy of McDonald's is to sell universally standardized products in self-service restaurants (Probst & Büchel, 1997). To fulfil this philosophy McDonald's created a huge network, with efficiency as one of the highest priorities. The training programme McDonald's uses, to teach new service-employees how to handle all the tasks, is strongly based on the principals of Ford and Taylor. The most efficient way of preparing a hamburger or handling a cleaning task is codified in training manuals which managers and new-employees simply reed and follow (Ritzer, 1996).

It is clear that a strong emphasis on efficiency is profitable for a company. So it is not the emphasis on efficiency that is criticisable, but the way to achieve this efficiency. If it is clear that a company uses still a lot of training techniques based on principles as formulated in the early 20th century, it requires a strong reflection of society. The main question should be if this development is desirable and if we are still willing to set people under Fordistic principles in order to be efficient.

1.2 PREDICTABILITY

The second dimension is predictability. Predictability is strongly connected with *rationalized* society, which emphasizes principles such as discipline, order, systematisation, formalization, routine, consistency and methodical operation. In such society people prefer to know what is going to happen and they neither desire nor expect surprises: they expect predictability. We can say that today's society is a rationalized society, where people prefer to know what to expect in most settings and at most times (see Weber, 1904; Leidner, 1993; Ritzer, 1996).

1.2.1 PREDICTABILITY IN ORGANISATIONS

The term rationalization is probably best described by the German sociologist Max Weber. He defined the rationalization process as "the practical application of knowledge to achieve a desired end"(http://campus.murraystate.edu/). Since the rationalization process leads to predictability, and people are willing to desire that, companies and factories began to reform themselves as bureaucratised and rationalized organisations. Weber saw bureaucratic organisation as the best possible organisation, because it led to efficiency, coordination, and control over both the physical and the social environment. In this way Scientific Management, is strongly connected with rationalization. Standardized tools and procedures created standardized employers, and that was the best guarantee of a predictable outcome.

The great external pressure in the economical and political environment these days, as well as the increasing internal development of technology, forces organisations to be rather flexible in order to survive (Bouwen & Fry, 1991). It is clear that a bureaucratic organisation has great difficulties to be flexible (because of all the rules, standardizations, formalizations and rationalizations). That way a lot of companies have renovated their organisational structure, yet some bureaucratic ideas remained due to the advantages of predictability.

The next case is a clear example of a company, which struggles between the new order of flexibility and the attractive advantages of bureaucracy and predictability.

1.2.2   CASE STUDY: LOGICA´S STRUGGLE BETWEEN FLEXIBILITY AND PREDICTABILITY

Logica, founded in the UK, is a "leading service solutions provider" and they help organisations worldwide to maximize value from investments in information technology (IT) by supplying a range of services to the highest professional standards. They are very fond off their "unique" training methods, which is the guarantee for continuous quality. Martin Read, managing director and chief executive of Logica, states: "We understand our customers' expectations and that is mainly achieved by a constant development of our professional, staff and management expertise" (www.logica.com).

Logica tries to attract young academics with advertisement slogans like "IT´s all about emotion" and "If we can't do IT, nobody can". The advertisement focuses on the unlimited training opportunities, and that one is fully responsible of compiling his own training programme. "When you join us, YOU can decide what you want". Here is where the contradiction lies: It is clear that their costumers expect predictability, a clear solution with no surprises in behold or unexpected complications. When a company lets their employers fully decide what trainings to follow, it is likewise that they learn "wrong" competences and skills that won't guarantee predictability. Students of the Catholic University of Nijmegen have researched this fact, and the outcome was not surprising, but more striking: Logica has a strong controlling system over their adult education. Especially the new coming professionals do not actually have a *free choice* of the courses, since they have to follow the training programmes that increase the skills and competencies they lack from the point of view of the company. This means that even though the company offers flexible solutions, the training programmes are rationalized and strongly controlled by supervisors of the training department and the human resources management.

1.3 CALCULABILITY

The third dimension is calculability. Calculability involves an emphasis on quantification which, in other words, means that the amount of a service or a product has become increasingly important to people and organisations. "Bigger is better" is a good slogan to describe calculability. As Ritzer points it out: "In terms of processes (production for example), the emphasis is on speed (usually high), whereas for end results the focus is on the number of products produced and served." (p. 59). Especially during the last decades, people, organisations and others in western societies have shared this attitude.

1.3.1 CALCULABILITY IN ORGANISATIONS

With Scientific Management, Taylor wanted to measure and count the work procedures done by employers. Every movement could be reduced to a number that could be further analysed. With ten movements a employer produced five products, which took him twenty minutes. Taylor studied the movements and calculated the optimal movements in order to produce more and more. Time was a very important aspect in Taylor's studies, since time is strongly connected with calculability. Calculations on processes and needs, for example, save a remarkable amount of time. More time allow employees and individuals to do *more* things, which is *efficient*.

Over the years tasks got more complex and it was not longer possible to calculate and study movements of employers. Even so, the emphasis on speed and production remained in many organisational settings. To guarantee still the advantages of calculability, a new trend, highly connected to calculability, started to develop. Organisations put the emphasis on capacities of an employer and the more an employer has skills, the better she/he is considered to be.

The emphasis on skills and competences shows that time is a main factor in the organisational process. Complex tasks ask for skilled employers to solve them as quickly as possible so the concentration can be put on other problems. The more problems solved, the faster development starts. Bigger is better, more competences are inevitable; calculability has become a very important dimension, and it seems that it is going to last for a long while.

1.3.2 CASE STUDY: RED BAND/VENCO AND THE EMPHASIS ON COMPETENCES

Red Band/Venco is a Dutch candy factory, recently taken over by the CSM Sugar Confectionary Division, with relationships all over the world. During the take over, CSM-SCD decided to have a major renovation, because Red Band/Venco suffered too much from inefficient employers as internal research had shown. Tasks had indeed become more complex, but even if a simple problem occurred, an employer had to ask another employer to fix it, because he was not capable to solve it. He could basically do just "one movement" very specifically, but that was it. So the idea was to end the Tayloristic processes in the organisation and to start with multi-skilled employers. The way to achieve this goal was done rather aggressively. The company forced the employees to do several training programmes, because if they didn't agree with the training programme, or if they showed a lack of motivation, they got fired. Employers who had done the same movements every day for over 20, 30 years, suddenly had to change their habits. This aggressive tactic, with the basic idea that more competences mean better employers, that quantity means quality, had the opposite outcome: employers weren't motivated at all and not even the threat of unemployment could prevent employers to perform worse.

The lesson of this case is that putting the emphasis on competences, and force people to take trainings, is not always the right way. Bigger is not always better and more is not always good. This often misleading thought is coming more and more accepted, since society emphasises on calculability.

1.4 CONTROL

The last dimension is control. A society that desires efficiency, predictability and calculability requires a remarkable amount of control, "non-human technological control" to be specific (Ritzer, p. 101). Non-human technology tends to control people since they are the main danger for a rationalized system. The basic idea of controlling people is that it allows adjusting them whenever that may be necessary. Once people are controlled, it is possible to have power over their behaviour.

1.4.1 CONTROL IN ORGANISATIONS

Controlling people in the workplace is not new. Bosses always want to know what their employers are doing and what time they come in and what time they leave. It is the way of controlling the employers that is changing. Taylorism and Fordism were great ways to

reduce the responsibilities of an employee. That way, the overview of what the employee was doing was very clear. The assembly line was the best way to guide and control the production process. Once an employer didn't do his task so well, it was immediately seen in the line of the process.

The highly bureaucratised organisations mainly in the 60´s and 70´s were one big controlling machine: many rules, standardized procedures and rationalized manners were to ensure that employees did exactly the things their bosses wanted and the system expected.

Although bureaucratic rules and assembly line are not so obvious anymore, we still see organisations where people are highly controlled; increasingly by non-human technologies. The Industrial Revolution can be seen as the starting point of the development of non-human technologies as machines became more and more important in controlling mans work. In the McDonald's Restaurants, for example, when they give costumers their cola or fries a machine makes sure that the employee doesn't give too much or too little.

In today's society a rather new implement of the rationalized system's control is that not only the employees are being controlled, but increasingly also consumers, tourists, students and so on. It provides the "system" with social, political and economical information about people (i.e. what people buy, how they perform, what they vote or whom they like) in order to make profiles on people and then offer them specific and tailored bargains. Huge databases of information are compiled and whenever needed a database can be accessed by an organisation for example, to benefit the information. The next case makes this clearer.

1.4.2 CASE STUDY: CONTROLLING AND FOLLOWING STUDENTS BY PHILIPS.

Philips is a strong multinational founded in the Netherlands, with a clear emphasis on information technological development. The late shortage in highly skilled employers and the quick development of IT, makes organisations very creative in thinking up new ideas to get highly skilled employers. Philips is one organisation that is creative is attracting them. Especially for ICT students Philips created a database with University-information of their performance. The best students get invitations and are offered to come to business-weekends where they can get expensive training courses and are spoiled like a real wealthy businessman.

This rather new idea of making contracts with universities and gather information of students can be seen as a violation of privacy. Although nobody gets "hurt" companies get information without the permission of students. And that could be a main problem of the controlling dimension: people have nothing to say about it, it just happens.

2. INFORMATION TECHNOLOGY

Nobody can deny the impact of Information technology (IT) today. IT has found its way into most organisations and is inevitable in many processes. How many organisations were worried for many years about the new millennium and the problems linked? It is clear that the increasing role of IT affects organisations in several ways. Organisations and people have to adapt to the new technologies. Education, or "organisational learning" is perhaps the best way to do that.

In this second paragraph we will focus, after a short overview of the development of IT, on the consequences of the increasing role of IT, the link with the presented dimensions and the impact on today's organisational learning.

2.1 THE DEVELOPMENT OF INFORMATION TECHNOLOGY.

Blaise Pascal tried already in the 17th century to build a mechanical adding machine for tax computations, but it was unreliable. It was only at the end of the 19th century that concrete development of IT started. Herman Hollerith designed in 1890 a system to record census data. The information was stored as holes in cards, which were interpreted by machines with electrical sensors. Hollerith started a company that eventually became International Business Machines (IBM).

IBM is perhaps the most important innovator when it comes to computerscience. It builds as first a "real computer" in 1946, named the Eniac, and that computer cost over 500000 dollars. Since that year, the development of IT was unstoppable; several important computerlanguages were created (Fortran, C, Pascal, C++), operating systems were written and developed (Unix, MacOs, Dos and Windows) and processorspeed increased. In 1981 the revolutionary IBM PC was introduced, and till this day, that is the standard of personal computers. That first pc had a genuine Intel 8088 XT processor of 5 Megahertz (MHz). Recently, march 2000, Intel and Advanced Micro Devices released the 1 GigaHertz processor (1000 MHz) for personal computers.

This very short and certainly incomplete overview shows just how fast IT develops, and that we cannot deny its strong influence on today's society and organisations.

2.2 IT AND THE DIALOGUE WITH THE FOUR DIMENSIONS

The increasing importance of the four dimensions and their strong influence on society and organisations is for an important part founded on the strong development of IT as presented. Working with IT is very efficient, because it takes for instance a lot of time robbing problems away. Nout Wellens (in Rikkers, 2000), directors of the Dutch State Bank: "IT has developed itself as one of the main pillars of economy: it provides efficient communication, buying, selling and delivering. Education should be focused on these developments within IT, because it is inevitable if a country wants to keep a strong (international) concurrence position".

Using IT provides predictability: the computer, unlike employers, doesn't make that often mistakes and is under normal circumstances very reliable. With new software, he can do new tasks and is always up to date: no surprises will rise.

Perhaps the strongest characteristic of IT is its calculability. With today's computers everything is calculable and time is saved. Even average computers are capable of doing millions of calculations pro second, something that would take decades to do for a human being.

And finally, IT dedicated a lot towards the control we see nowadays going on. Camera's, video security, servers with hundreds of databases and many work processes are always guided by IT. IT controls and makes sure processes develop in the right way.

2.3 IT IN ORGANISATIONAL LEARNING

It all fits together: we see the growing importance of the four dimensions, organisations react and respond on that importance and they have to put a certain emphasis on IT. The fast development of IT makes organisations invest in training and education related to use IT, but IT is also used in several new training methods.

Probst & Büchel (1997) explain how employers learn from their experience via "games in Microworlds". Microworlds can be seen as a real-time interaction between employer and computer. The computer gives problem situations and the employer tries to solve this. Through advanced feedback of the computer, the employers learn from experience. According to De Geus (1988) occurs organisational learning trough teaching, through changing the rules and through experimenting. IT is in that way the ultimate stage. The computer can be a personal teacher, software and software-settings can be changed all the time and IT allows experimenting in "real work situations". Senge (1990a) states that the advantages of IT in learning situations are enormous. IT provides opportunities to study complex situations, to develop strategies and to analyse results without running the risk of failure and having to pay the price.

The late emphasis on network-development and the use of complex simulation-engines are great new ways of learning in organisations (the engine of Microsoft's FlightSim Pro 2000 for instance, is used to train KLM-pilots). Via a network employers are able to communicate, to learn from each other and to chair information at any time at any place (the intranet for example is a powerful development that is used for organisational learning).

The development of organisational learning and the use of IT within that process is an increasing development and will certainly be a competitive advantage for the future.

3. SUMMARY, CRITICAL REMARKS AND CONCLUSION

Society developments, i.e. the four dimensions, affect organisations. To deal with the changes, education, or better organisational learning is needed and IT, also contributing to the dimensions, is a good solution to keep up with quick changes. It is clear to us that the dimensions more or less, already existed for a long time, except for the different context they appeared in. Despite the shift that can be seen from Tayloristic-, Fordistic-settings to more Human Recourses Management-settings, we think there are quite some remarks and comments to be given towards the development of the dimensions in organisations.

A first problem we see is that although it seems that the dehumanising settings in vocational training and education, we saw in the beginning of the 20th century and which continued thorough the early 80s, have disappeared, we believe they are in a certain way still present, except in a different context. Efficiency, predictability, calculability, control and information technology can be advantageous for organisations, and often they are, but these dimensions are used in a very narrow perspective. They seem to focus only on aspects, which are reliable in an economical way, and training and education is fine-tuned towards these economical advantages. The possible social advantages are forgotten. The one-sided and narrow training concepts used in organisations is also clear to Probst & Büchel: "Unfortunately (….) most tasks focus on one aspect only and do not take account of the whole pattern of relationships present in the system" (p.89). We already presented some disadvantages in the case studies. The case of McDonald's shows how low-skilled work still is based on Ford´s principles. In the Logica case it is clear that the freedom of an employer is not always that big as organisations might tell and the Red Band/Venco case shows some aggressive tactics organisations might use in order to keep up with society developments or demands. And, finally, the case of Philips shows a new implement of control and its attached possible violation of peoples privacy.

We agree with Edwards (1983) that training in organisations should do more than only emphasis on technical qualities needed for the job. The main purpose should be to facilitate employers with knowledge, capabilities and skills, in order to cope with changes both at workplace *and* the social environment. McDerment (1991) states it even more clear: education and training should not be especially for the labour life, but also for a more general cultural and personal development of the learner, in order to improve his quality of life in more settings than just the vocational one. Sarramona (lecture, 2000) argues that employers should develop a certain meta-cognition towards the trainings they follow. They should not just be a slave of the training system, but they should know why they follow the training and what the use of it is.

A second problem, we see, is that today's emphasis on organisational learning certainly doesn't count for everybody. We see a rising gap between low-skilled and high-skilled employers. Low-skilled, -qualified people who are "forced" to keep up with innovations or who have to work under pre-century conditions. High-skilled, -qualified people get lots of (training) opportunities and have more control over the learning process. It is quite difficult to solve this problem and to a certain extent close the gap, because differences in

qualities between people will always remain, but we would like to refer to Pring (1995) and state that organisations should and can close the gap. After all, education and training is a structural quality investment in a person and can be advantageous to organisations, although not always in a direct way.

CONCLUSION

We cannot deny the dimensions in our society and we agree that they are very present and affect organisations in a various way. We also cannot deny the importance of IT and its continuous dialog with the dimensions. The new "paradise" of flexible labour, organisational learning and new human resources management seem to forget the Fordistic settings in organisations. Still, we believe that many people do not access this paradise and are falling more and more behind since they cannot cope with strong changes and developments. Chapter two will deepen some problems caused by fast developments described in this chapter, and hand a more practical framework in order to come to a possible solution.