Influence of Internet and Information Technology on Work and Human Resource Management

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Abstract

Internet has transformed our lives and the way we communicate, how we learn, how we work and spend free time, in essence – it has more or less changed every aspect of human society one can think of. This paper deals with the influence of Internet and information technology on work and human resource management. It observes main novelties and (inevitably coming) changes in areas of staffing, motivating and leading and discusses possible adaptations of organization and business. To discover the mentioned changes and consequences, firstly we try to broadly assert present condition in the field, both globally and in Slovenia, and outline promising future trends. Finally, combining that with elements of human-resource management we try to predict basic consequences that IT will have on the way employees are rewarded and the way new employees are acquired.

Keywords human resource management, knowledge economy, Internet and IT

Introduction

Internet has transformed our lives and the way we communicate, how we learn, how we work and spend free time, in essence – it has more or less changed every aspect of human society one can think of. The significance of the Internet and information technology (IT) in both business and private field has grown considerably in the last years, with exponential growth of Internet users and services offered.

Undoubtedly it also affected organizations' employees and their workplaces in job design, conditions of work and other (numerous) ways:

> *"Future prosperity is likely to hinge on the use of scientific and technical knowledge, the management of information and the provision of services. The future will depend more on brains than brawn," (Barley, 1996: xvii).*

Since – in today's business environment – people and their knowledge are company's key assets, it is obvious and expected of each company to be aware and prepared for such changes. Not only (or not at all) are the IT specialists ones that should be aware of the new trends and understand them, but also (or even first and foremost) the managers.

The intention of this paper is to present some ways for a company to adapt to emerging changes. A continuous monitoring of environment and prompt reaction to existing (and coming) challenges can assure a long-term survival of most of today's companies. At that, coverage of the paper is not focused on "dot com" (internet) companies rather than on "ordinary" (traditional) companies.

The goal of the paper is to observe what positive and negative consequences the Internet and in-

formation technology itself have in the field human-resource managing, chiefly how it can be used for acquiring new employees, motivating and leading. Also observed is, what outcomes we can expect from the use of Internet and IT in discussed field in the future and what are the possibilities for management and exploitation of the (inevitable) coming changes.

To discover the mentioned changes and consequences, firstly we try to broadly assert present condition in the field, both globally and in Slovenia, and outline promising future trends. Secondly, combining that with elements of human-resource management we try to predict basic consequences that IT could have on the way employees are rewarded and the way new employees are acquired.

The paper is structured according to introduced methodology – section two contains presentation of how Internet and IT have influenced some of the areas of organization's personnel function and a few consequences of that. In the third section mainly various opportunities that organization can take to adjust to the new situation both in its environment and within the organization.

Current Influence of the Internet and IT

The number of Internet users has grown over 300 million in year 2000 (predictions for year 2005 are set for one billion), a third of USA's economic growth in the period 1996-99 is directly attributed to the Internet explosion. There are over 2 billion web pages and more than 17 million registered domains (State of the Internet, 2000). These facts already indicate that the Internet has significant effect on how, why, where and when people work.

The Internet and IT have the most prominent influence on more educated, skilled and ambitious people, especially those, that are regularly working with information and communication technology (ICT). Since they are also the ones that occupy important positions in organizations hierarchy and are therefore of great significance for the overall success of the company, we shall focus our attention on the influence of the Internet on such employees.

Any potential advantage of the Internet-usage, that a company can exploit to recruit, develop and retain these types of personnel, is even more important due to the fact that there is a shortage of highly profiled people in the workforce market.

Use of Internet for Staffing

American research (Global 500 Web Site Recruiting, 2000) shows, that 79% of companies from the Global 500 group (500 largest world companies by revenue) at least to a certain extent use the Internet for seeking new personnel. Also, comparison of data for years 2000 and 1998 shows that percentage of companies that use the Internet for mentioned purpose has grown considerably from 29% in 1998. According to 1999 RIS-research (RIS – "Raba Interneta v Sloveniji" - Usage of Internet in Slovenia.), only 4% of companies have used Internet for recruiting in same fashion. The main advantages for Internet-supported recruiting are (Achieving Results with Internet Recruiting, 1998):

- Lower costs of recruiting (savings in invitations for application, postal-costs, data-processing costs…).

- Quicker process of recruitment: period from the point when the need for a new employee is sensed until the point when he starts doing his job is, according to the research, cut for twelve days.

- Possibility to attract better and more candidates – invitation for application published on a website can also be spotted by those, who are currently not seeking new employment actively.

Besides the corporate websites, third-party websites are gaining importance. Not only that they act as "work-force exchange" where supply meets demand and vice versa, many of them also publish relevant

business news, articles on job-hunting, CV writing etc., which acts as additional pull mechanism for web users, which ensures head-hunting companies that their call for applications is seen.

Use of Internet for New Ways of Work

With Internet and (more broadly) Information-and-Communications-Technology (ICT) development in the full swing for the last two decades, organisations have been provided with 'a whole range of new possibilities for performing work and structuring organisations' (Lindstrom, Moberg & Rapp, 1997), which will undoubtedly extend even more in the future and therewith grasp even wider sphere of employees. Two of new ways of work are discussed below.

Teleworking

There are many definitions of teleworking and in the field also many various terms are being used, for example telework, telecommuting, flexiplaces, electronic cottages... Yet as the purpose of our paper is not teleworking itself the following definition will be quite satisfactory. As outlined in European Commission's annual report for year 2000 (Johnston & Nolan, 2001), *telework* is a wide concept, whose 'common element' is 'the use of computers and telecommunications to change the accepted geography of work'. It means that we are 'moving the work to workers instead of moving the workers to work', with help of information technologies (Nilles, 1998).

Teleworking offers significant advantages, which could be summarized and classified in three views: individual's, organisational and macro-societal; from the second perspective, benefits of telecommuting include higher productivity ("more work being done") and "decrease of absenteeism". Because the employees are more satisfied and their morale is increased, they are more unlikely to be searching for another job – organisations experience lower turnover rate; according to Dash, employee fluctuation can decrease by 50-80% when teleworking is introduced (Dash, 1999). Besides, organisations have 'the ability to access a broader pool of employees as the geographic tie to an "office" are diminished' (Venkatesh & Speier, 2000). Furthermore, organizations 'real estate costs can be cut because of the reduced office space requirements' (Nilles, 1998). Additionally, customer service improves due to flexible working hours (twenty-four-seven concept) (Telework the Benefits – and some Issues, 2000).

According to a research, 18% of Dutch, 12% of US and 5% of German and English employees were regularly teleworking to a certain extent (How many teleworkers, 2000), furthermore, the percentage has been increasing with a yearly rate of 10 to 15% in all of ICT-developed countries (Gordon, 1999). In this area, Slovenia is out of step with "developed" countries. According to a research (Raba Interneta v Sloveniji, 2000), there were approximately 50% of companies that have technological possibilities for teleworking yet only 29% of these companies have introduced teleworking. Viewed from the whole work-force population and taking into account the size of the companies, only 2% of full-time employed workers can be considered to telework in same fashion as their Dutch and US counterparts.

Project-oriented work with subcontracting

According to economics theory, two of the main reasons for pooling of human resources into companies are the cost reduction that is achieved with partitioning of work and the need for management of work, which is divided between numerous employees.

Though, today's ICT enables efficient collection of people with similar interest and complementary skills, and their cooperation in short- or long-term projects. All that without necessarily being a formal part of the company.

> *"In terms of overall structure, ownership and control, use of advanced IT allows the firm's boundaries to become blurred, even to the point of the much-vaunted "virtual organisation"; while its functions are increasingly desegregated into complex mixtures of*

> *profit centres, franchises, small firms and subcontractors. As desegregation is combined with downsizing and delayering, we will move, according to Charles Handy (1995), towards a 20-80 society with only a small core directly employed by the organisation," (Warhurst & Thompson, 1998).*

For the future we can predict that there will be a growing number of "portfolio people" which will not want to be bound to a certain company but will offer their skills on a market to the best clients and customers (not necessarily top payers!), either individually (i.e. using their-own-presentation web pages) or via specialized (non)electronic agencies:

> *"The majority of people who work for an organization may still be employees of the organization. But a very large and steadily growing minority-though working for the organization-are no longer its employees, let alone its full time employees...They are "temps" or part-timers... Increasingly they are individual contractors working on a retainer or for a specific contractual period; this is particularly true of the most knowledgeable and therefore the most valuable people working for the organization," (Drucker, 2001).*

Scope of the projects, taken out by a company, can increase distinctly, since knowledge of the existing employees will not be the limiting factor any more; projects that involve outer subcontractors, engaged only in a specific project(s) and for a specific period of time, are now viable:

> *"[Reich echoes this when stating that]...few people in the "high-value enterprise" will have steady jobs with fixed salaries," (Reich, 1993, as cited by Warhurst & Thompson, 1998).*

The main advantage of this way of work, company wise, is inflow of new, fresh ideas and higher workforce-efficiency (no need for recruiting "on stock"); what is more, such "portfolio employees" have extensive experience from working with other companies and can – in such part time relationships – gain huge amount of new knowledge. On the other hand, disadvantages include higher fluctuation level, lesser degree of loyalty to a company and wounded security of confidential business information.

Additionally, the question of social and health insurance will have to be solved – in the United States, some agencies that offer subcontractors, have decided to cover mentioned costs for "their" workers for the time when they are not subcontracted (Flynn, 2000).

Use of Internet for Employee-Development

Acquiring new and supplementing existing knowledge is one of the top-level motivational factors for a person that has covered his basic existential needs, therefore as it a key success factor for an individual it is also critical for successfulness of organization as a whole. Internet-based technology offers numerous possibilities for getting hold of new knowledge and skills. Firstly, company wise, it offers much quicker access to latest scientific and technological innovations of other companies and research institutions (Jerman-Blazic, 1996). For each individual it offers itself as vast searchable database of web pages, newsgroups, mailing lists, online courses, forums, etc.

Effect of ICT and Internet on Organization

Information and communication technology and the Internet have not affected only the IT professionals and those employees that use IT for their work on a regular basis but also the environment of the organization, organization itself and the "social universe" (Drucker, 2001). Managers need to be aware of these changes, try to sense them in advance and adapt to them appropriately.

Especially in the field of employee-motivation we can expect essential changes. Even though visionaries predict deep and fundamental shifts in society, authors believe that first and foremost task of managers will remain motivating employees: firstly to arouse needs in employees and secondly to show them the way how to satisfy those needs in a manner, which contributes to achievement of organizational goals.

Yet if the fundamental concept remains the same, the changes will most definitely occur in employees' values and consecutively in their needs and in a manner in which their needs are satisfied. It is expected that "traditional" needs, i.e. salary and benefits, guarantee for permanent situation, loyalty to the company etc., will gradually lose their meaning. Infoworld's research (2000), that was undertaken between IT professionals, reveals that most of them feel that the most important benefit, expected from a company, is possibility to work from home, with salary and chance for promotion being less important (Battey, 2000). IT professionals are, naturally, more susceptible to novelties, therefore the cited research cannot be taken as representative situation in other professional fields, yet very similar changes can be expected elsewhere as well.

We can compare this finding with a survey of Slovenian employees (Siok, 2002). 51 different companies and over 5.100 employees (mostly middle management positions) participated in the study. The most interesting finding is that employees– out of 13 possible categories – ranked salary and chances for promotion as categories, which they were least satisfied with. Although the results cannot be directly compared with the Infoworld's survey due to different methodology and structure of population surveyed, this possibly shows that Slovenian companies as yet lag behind their US counterparts in that area and that the goals of Slovenian employees (higher salary, better chances for promotion) are still different (and more "traditional"). However further changes in the values and needs of Slovenian employees can be expected in the near future as we make further steps in knowledge economy.

Additionally, individualization will be evident – the needs will become specific to employees and will differ amongst them:

> *"What motivates… knowledge workers… is what motivates volunteers. Volunteers, we know, have to get more satisfaction from their work than paid employees… They need, above all, challenge, … to know organization's mission and to believe in it, … continual training, … to see results. Implicit in this is that different groups in the work population have to be managed differently, and that the same group… has to be managed differently at different times," (Drucker, 2001).*

Furthermore, employees that will only be subcontracted for a specific project, and probably also those that will be working from home, will identify themselves with the company and its goals to a much lesser extent than in traditional environment. Finally, productivity, efficiency and successfulness of intellectual work are much harder to quantify, measure and analyze, than they are with physical labour.

All that indicates that the crucial challenge for companies will be to ensure that tasks can be carried out at any time by the best (or at least good enough) employee or subcontractor. Since people are of vital importance in information society, it is clear that the companies, which answer to the challenge properly, will be the ones that not only survive but also thrive; as Drucker suggested, "we need an economic theory that puts knowledge in the centre of the wealth-production process," (Drucker, 1993).

How to Manage Changes?

So it is evidently that "lump sum" manner of rewarding people with money, position or other tangible benefits is not going to be appropriate any longer for more and more employees (speculatively said, "possibility for promotion" is transformed from motivating into "hygiene factor", as Frederick Herzberg called it in his 1959 book "The Motivation to Work"). Besides, authoritative leadership style grows to be inappropriate due to the fact that employees with more and more knowledge don't want to 'bend under

tyranny of dictator', if they can simply – change jobs. According to a research (Battey, 2000), dissatisfaction with the manager is the principal reason for changing the job.

Organizations will have to adapt in several areas to the coming changes. Initiators of changes will probably be employees themselves, yet the success of adaptation is in hands of managers. Some of possible changes – and by no means all or even majority – in specific areas are discussed below, together with possible solutions for managing those changes.

Change of leadership style

Using any other leadership style than the authoritative one can represent a major challenge for any manager, since he has to rely on leadership based on expertise and personality. The gap between the fact that her work and results are progressively dependent on "her" employees on one side, and higher degree of work-interdisciplinarity (being a project manager with team that consists of various highly skilled experts) and lesser "power of authority" with not as much of possibility to influence subordinates with "power-rising-from-position" on the other side, can be frustrating.

The personality of the manager will therefore become *the* manager's lever to enrapture employees for reaching common organizational goals. Firstly, manager will have to motivate employees appropriately, in order to make them work without need for supervision. Secondly, he will have to ensure appropriate working conditions and act as a support to the specialists in those areas, for which they are not qualified (i.e. management skills like planning or organizing).

> *"Their [manager vs. employee] relationship…is far more like that between the conductor of an orchestra and the instrumentalist than it is like the traditional superior/subordinate relationship. The superior in an organization employing knowledge workers cannot, as a rule, do the work of the supposed subordinate any more than the conductor of an orchestra can play the tuba. In turn, the knowledge worker is dependent on the superior to give direction and, above all, to define what the "score" is for the entire organization…And just as an orchestra can sabotage even the ablest conductor – and certainly the most autocratic one – a knowledge organization can easily sabotage even the ablest, let alone the most autocratic, superior," (Drucker, 2001).*

Thus we can expect a downturn of the hierarchy in the organization – employees (specialists with their knowledge) as a critical success factor, managers as support for the specialists. Proper management support is also one of the key things for work of specialists: this work should not be only efficient and successful for employees personally, but it should simultaneously contribute to overall success of a company.

Changes of personnel-function

Employees that are critical for success of a company are the workers with (proper) knowledge. Even though "no other decisions are so long lasting in their consequences or so difficult to unmake… at most one-third of such decisions turn out right," (Drucker, 2001). As people determine the capacity of the organization, the staffing (and promotion) decisions should (at least try to) be flawless.

The personnel function will grow its importance and might even become the central function in many organizations. For the staffing purposes it will – most probably using the Internet – constantly have to monitor the "supply-side" of work on the market and compare it with current "gap" in company's needs and disposable human resources.

Other scenario is also possible: due to the growing importance of the personnel decisions, the personnel function as we know today might disappear from the organizations' structures. Such tasks would be performed in collaboration with external contractor, who would, 1) using their knowledge and information

and communication technology automate simpler and routine operations, 2) supply managers with relevant database (with much wider scope than the company could reach by itself) of appropriate candidates, 3) with their knowledge act as manager-consultants in important decisions.

Changes in employee-control

The importance of control as continual observation of work performed by employees will be lower. On one hand, due to the fact that such traditional control is impossible or at least very difficult (how to control teleworkers?), and on the other hand, because of individualization of employees that will also bring demand for higher level of autonomy in their work; ceaseless control would demotivate them.

The solution for the problem is, according to (Drucker, 2001), management by objectives and self-control. Business performance depends on how each task is directed toward the objectives of the whole company. The number of highly educated specialists will increase dramatically and at the same time, the new technology will demand much closer coordination among specialists. Furthermore, the performance of the manager is also measured by the contribution he makes to the success of the enterprise; "the greatest advantage of management by objectives is perhaps that it makes it possible for a manager to control her own performance" (Drucker, 2001), with help of state-of-the-art technology that enables fast gathering, analysis, synthesis of data and retrieval of relevant information.

Additionally, managers will have to tolerate that employees "waste" some period of time when they perform activities, non-related with main goals of the organization (i.e. playing chess via Internet). If these activities prevail, employees' satisfaction will be at high level yet the goals of the company would not be achieved.

The recommended way to control employees is therefore to check the final results of each individual project and to set goals according to the results of those projects. It is especially important that those goals are set objectively. Therefore it has to be assured that the employees will have enough intrinsic motivation to set adequately demanding goals.

Changes in employee motivation

The differences between different employees and their needs will probably increase in the future. If the company would try to cover those needs with a unified motivational scheme, this scheme should be very broad. Offering such a scheme would be very expensive and inefficient, since the company would offer a variety of benefits to each individual. This individual would consider many of those benefits as less important.

The possible solution is to adapt the motivation system to each individual employee and offer her only those benefits that stimulate her to perform better and more efficiently. It is hard to find out the best possible way of motivation without the cooperation of that employee. The employees will have to play a more active role in the motivation process and should have a clear picture about their own goals and especially about that what they expect from a company where they are employed (full or part time). It is in the best company interest to encourage the development of this clear picture about individual goals with improved communication (for example with different seminars or workshops).

The main goal of this kind of motivation is that every employee would set her own goal that would be demanding enough. The employee should have a strong enough motivation to fulfil those goals – not because of company goals or supervisor's orders but due to his own interest. The task of the manager is to assure that those individual goals are harmonized with the goals of other employees in this department, across different departments and with the goals of the company as a whole.

Changes in information management and exploitation of knowledge

> *"Managing your company's knowledge more effectively and exploiting it in the market-place is the latest pursuit of those seeking competitive advantage," (Skyrme, 1998).*

Acquisition of knowledge by individual is relatively easy compared to successful exploitation of all the knowledge that resists in organizations' employees' minds. According to American research (Gopal, 1995), companies take advantage of only 20% of the knowledge that exists inside their employees.

Information and communication technology offers numerous possibilities to improve information management in organizations and therewith make better use of employees' knowledge. One of such options is use of intranet as internal information system of a company, which is based on Internet protocols and services (Turk, & Jaklic, 1998). It enables relatively inexpensive and simple storage, organization, processing, maintenance and sharing of information between organizations' members; all these tasks are essential for good information management, according to (Marchand et al., 2001). At the same time such information is (in technological manner at least) securely kept from the outside world.

There are many other ways besides intranet for better use of stored knowledge (and for processing of information from piles of data), i.e. data warehouses, data mining, expert systems…

Contemporary state-of-the-art soft- and hard-ware solutions offer support for knowledge-use, yet the main obstacle is the one of the content and of the people – how to achieve that existing knowledge will be shared, stored and transferred organization-wide with help of IT in the best way. Better business performance, according to a twenty-eight month research which included over 1.000 senior managers worldwide, comes not just from information technology but also from information management and management of organization's people (Marchand et al., 2001).

Conclusion

The paper fulfils its main goal with presentation of some of the changes that have been brought by the Internet and Information and Communication Technology (ICT) to the field of staffing and development of employees, and to enabling new ways of work, as for example project work with subcontractors and telework.

As the scope of the paper was wide and the extent limited, not every single possible influence of the Internet and ICT to the workplace market and management of employees has been discussed. Yet some of the most important novelties in the field and possible ways to adapt to those changes with new organizational structure, leadership and motivation style, and improved information management and exploitation of knowledge. Which options are relevant for a specific organization depends above all on characteristics of each organization. It is clear though that no single company will be able to avoid these changes and necessary adaptations. As statistical data in the paper regarding the use of Internet and teleworking shows, mentioned changes are already so important today, that they can not be neglected by senior managers of any firm.

Mentioned adaptations are not the sole possible ones and the fact is, that the most successful will be the ones which will manage to find and take advantage of new business opportunities in progressively rapidly changing environment. And that is the principle that has to be followed by any serious business anyway.

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