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# **THE PSYCHOLOGICAL ASPECTS OF THE HUMAN FACTOR IN THE ECONOMY AND SOCIETY AT THE DIGITAL ERA**

**Svetlana Radtchenko-Drailard**

## **ABSTRACT**

The aim of our study is to analyze the prospects for optimizing the modelling of the human factor in the economy and society in the era of digitization. By defining the main axes of human practices in the economy and society, our research highlights the need for evaluation, mediation, negotiation, the evolution of the modelling of their activity. Our empirical research complement also the analysis of the impact of the human factor in this modelling of economic and societal practices.

**Keywords:** digitization, human factor, economy, modern society, information and communication technologies (ICT), management, mediation, negotiation.

## **Introduction**

The cognitive and social changes of digitization result from a strong data of the change in the activity of the individual in his personal and professional life as well as in his interpersonal and intergroupal environment. This profound evolutionary movement is changing the way we understand, represent and interact in the world. It carries potential, evolution, restructuring and the emergence of the human factor in the economy and modern society. In the current era of digitization, collective imaginations are the result of the inventive potential of creators and their interpreters, modulated by successive filtering of groups, political powers, the economy, social functioning, education and public opinion that all acting together. In the development and the appropriation of digitization in the economy and society a very large number of individuals are actively involved in various forms in the process of creation, application and constitution of imagination and symbolic values, by being actors in the evolution of the real world. This movement is crucial, for the dynamics of the knowledge society, its economic performance and its health of the territories, the balance and harmony of people's social life. We must therefore give all our attention and our intelligence, gradually evolving the benchmarks, increasing the reflexive capacity of individuals and society, and devoting time, space and necessary economic resources to them. Moreover, the digitization of society reflects the

intrusion of Information and Communication Technologies (ICT) not only in industrial, economic or financial production processes, but also in all trials of human activity. In our theoretical-empirical research we find: on the one hand, producing goods, providing services and consuming from these digital technologies take place under relatively different conditions (important fixed-cost production, strong externalities, competition and commodification of goods, etc.), make traditional market balances delicate and require specific market regulation; on the other hand, this change raises questions about the need for transformation of certain ways of seeing rules and laws, including intellectual property, innovation, creativity, and the employees' professional skills, competitiveness of products, as well as the nature of economic development, etc. Therefore, we believe that any technological advance softens profoundly alters our social and economic mechanisms in which the human factor plays a major role.

### **1. The role of human skills in the digital era**

Now, all industrial and economic activity, based on information and communication technologies (ICT), is inseparably part of industrial and financial production systems, in which the individuals must find their economic balance, working on multiple important parameters: 1) innovation management, takeover, etc.; 2) sharing and exchanging the information necessary for the proper functioning of the production process, etc.; 3) the profitability of production, the profits and the economic growth that help maintain the longevity of this production; 4) the creativity of employees and the control of the skills essential to the production itself, which are linked to the protection of intellectual property; 5) the digitization of human relations, which transforms different activities into telework, mediation and negotiation platforms with strong externalities. In this text, ICT, as tools, are well capable of storing, processing statistically and rapidly circulating a large amount of information. Second, ICT allows companies to access new markets for input spending (raw materials, instruments, machinery, technology and recruit qualified employees, etc.). Finally, ICT facilitate the implementation of quality approaches within public and private companies through the computer communication system between members of the same society. Therefore, if knowledge is seen as a pre-innovation basis, then ICT, as a knowledge broadcaster, becomes a catalyst for all innovation in society. In addition, ICTs provide a significant amount of information about their clients - buyers or intermediaries- in order to better understand current and future needs. Therefore, ICT contributes to product

innovation and the creativity and motivation of the individuals who work on this innovation. It should be noted that the motivation of individuals is actively involved in the process of problem solving, creation and innovation. In psychology motivation is characterized as the set of dynamic factors that determines the conduct of individuals and the nature and strength of their desires to engage in the activity. Thus, Deci and Ryan's motivational theory (1985) is based on two essential needs: a) the need for competence, b) the need for self-determination. Deci and Ryan (1985) distinguish three types of motivation: "1) intrinsic (related to cognitive persistence and the more time the subject has spent on activity, the more motivated it is on cognitive activity), 2) extrinsic (refers to rewards or environmental compensation after a problem has been completed), 3) amotivation (lack of a relationship between subject behaviour and results)".[1] In keeping with this theory, we have also found in our empirical studies that the more original the solution, the more productive the intrinsic motivation. From a point of view of Radtchenko-Draillard (2011), this link between the originality of solutions and the productivity of intrinsic motivation can stimulate the emergence of the mechanism of "optimum creativity" which intervenes at the crucial moment for the process of problem solving, so that to promote its progression and at the same time block all other negative impacts at intrapersonal, interpersonal and situational levels that may prevent its performance from being achieved. Radtchenko-Draillard thanks that "In other words, at the time of the maximum development of the thought process during problem solving the individual is most adequate with himself." [2] In addition, anyone who has to make a decision in an organization or in his or her personal life must take into account the main aspects: a) their rational and analytical aspects, b) their emotional aspects and their individual character who is still suffering, pressure of a third factor- c) the time of its realization. The creativity of individuals in their innovation is therefore the indispensable source of economic growth and profitability in modern society. However, companies often prioritize innovations and creations that provide them with quick profit than important creations and innovations, but which can bring the later benefits. And to protect this investment in creation and invention, this modern society has created legal regimes for intellectual property rights over creations, innovations, technological inventions, conferring on the holder of these monopolies to exploit the knowledge on which these rights relate. A property right is characterized by a number of terms, its period, its extent (for example, from what modification and under what conditions is the right of ownership questionable, in what context the access of a third party to the use of the knowledge is recognized, what are the constraints that should be put on these property rights in order to facilitate a kind of economic and social optimum, etc.). Therefore, it can be said

that there are the close interdependencies between the creation itself by the inventor, the society that produces this creation and the use of that creation by other companies or consumers. The digitization of knowledge renews it through the following three impacts: 1. digitization makes it increasingly easy to duplicate knowledge and thus disseminate it, but opens the door to increased piracy of this knowledge, that is, the difficulty in implementing legal exclusion schemes; 2. digital technologies claim to provide technological solutions to the question of possible control of broadcasting in exchange for rights paid the Digital Rights Management (DRM); 3. dissemination of networks of access to digital knowledge raises the question of diversity differently by allowing for a better potential value of innovations and creations. It must be noted that the digitization of production and consumption eliminate severing the routine tasks of human activities and develop highly skilled tasks that are both analytical, interactive and non-ordinary. By analysing the different psychological studies we also distinguish the three different types of decisions that can be applied to them: a) strategic decisions concern the company's relationship with its environment; b) tactical decisions are related to the management of the human factor within the company; c) operational decisions about the profitable production of the business. From the point of view of the timing of the decision in time and the scope of action (number of people or number of services involved in the decision-making) we believe that it is also possible to distinguish in this modelling: (a) the decisions of planning (e.g., localization of premises, merger) b) piloting decisions (e.g., launching a promotional and advertising campaign); c) regulatory decisions (e.g. stock renewal, supplier change), etc. These findings highlight a high concentration of risk of failure, uncertainties and conflicts with workers with low qualifications or diplomas. Issues associated with information and communication technologies (ICT) uses, those related to interactions between new technologies and business organization, and questions about assessing the impact of ICT on business performance therefore need to be studied with precise eyes and therefore in a multidisciplinary way.

## **2. The key changes in interpersonal and management relationships in the economy and the society at the digital era**

Information and communication technologies (ICT) have altered the articulation between, on the one hand, tangible reality (e.g. goods that are traded in a market) and, on the other hand, all human beings who are used for these exchanges, who prepare and extend them: interactions, services, recruitment, training, promotion, etc. The digitization of processes and products therefore presents two contradictory facets: 1) by increasing fixed production costs, digitization contributes to the concentration of the productive system; in this

sense, it reduces competitive pressure in many sectors and raises increased regulatory issues; 2) by allowing greater modularity of technical devices, it promotes the disintegration of value chains and the recomposition of the productive system around shared, integrated or global informational functions. The modern economy is primarily concerned with the management of goods and services. The development of the Internet has raised awareness that choices, such as ideas, are confronted and exchanged in different kinds of markets whose mechanisms are constantly evolving. In a sense, these interactions are real: they are real people exchanging real-world data, which has real economic and social consequences. According to Castronova (2004-2005) "But these interactions also form a virtual world: avatars volunteer to provide information, which has required work to be collected; these avatars may have objects, or virtual terrain; they can produce intangibles of real-world value". [3] For Craig (2006), "In the case of virtual production economies, the exchange is also two-way, but some intangible goods or services are common to both worlds». [4] It can be said that ICT and the Internet (with the various social and communication networks) then enabled the development of the virtual by offering multiple means of simulation: either at the level of technical software and interfaces; or social software and networking, such as interaction platforms that offer multiple opportunities for relationships between their users. The Business Process Management (BPM) brings together a company's business processes and it-models their management. The objective of this modelling is to create an overview of the actual operation of the company. We specify that the BPM is a tool for optimizing the productivity of the company that includes: 1. Objectives, 2. Analysis of the company in order to set the activities of the different trades within the company. 3. Modelling business processes to hire, pay or move managers into the company. 4. Management and development - optimize managers' business processes and apply these optimizations according to the objectives and profitability of this company. On the other hand, it will also be possible to describe the strategic and operational indicators and link them to the processes concerned, to verify that each indicator is well defined according to an objective and to ensure that these objectives are consistent with the company level. This approach is a prerequisite for the implementation of the BAM (Business Activity Monitoring) tools that will enable continuous measurement of the performance of the company's key business processes. Standardized policies and procedures in business process flows define deviations through simple rules. The lower the hierarchical level, the more business rules should help in the decision-making process in organizations. The creativity of managers is also the precursor to innovation aimed at securing a competitive advantage in a context of globalization and increased competition. Schematically, a situation of action

is defined by three elements: (a) the presence of participants engaged in collective action; b) spatial extension (places and physical objects); c) a time extension subject to an external economic performance judgment. The multi-level model of Woodman, Sawyer and Griffin (1993) is based on the idea “that creativity is the result of the interaction between different social areas and takes into account individual characteristics (cognitive skills, attitudes of personality, motivation, emotions, etc.) interact with group characteristics (standards, cohesion, size, roles, task, diversity, problem-solving techniques) and organizational characteristics of the company (culture, economic resources, rewards, strategy, structure, technology)”. [5] These are obviously psychological and economic issues. Emotions also play an important role in the process of a manager’s activity in a company. In our empirical study of 119 managers (working in industrial, financial and retail companies in Paris and the region Ile de France) we found that 69.8% of them consider positive emotions and fun are main factors of creative motivation and the search for innovative solutions and 81.3% among them consider that pleasure and personal satisfaction are indispensable in the management of interpersonal relationships and effective teamwork. We have clearly defined that between individual property and collective sharing, between absolute property and questionable property, between valuing knowledge and valuing access to knowledge, between direct remuneration and remuneration economically and socially acceptable solutions to make the prosperity of a knowledge-based economy more constant. Then, ICT is therefore an indispensable resource to strengthen these links. The uses of ICT also raise the question of social link from the perspective of the integration of human factors into collectives within each company. The social link re-equipped by ICT is therefore the seat of recurrent tensions between autonomy and control of these links, between secrecy and monitoring of uses. It should be noted that this field of study was approached simultaneously by researchers from several disciplinary fields: psychology, psychosociology, ergonomics of human-machine interaction (HCI), information and communication sciences, linguistics, sociology, technology and engineering sciences, economy, philosophy and technology. These interactions are constantly traversed by a series of mediations, including technical ones. The Actor-Network Theory (ANT) was developed by researchers at the Centre for Sociology of Innovation (CSI) and often used in the analysis of the human factor in the company. This organizational environment includes not only groups and networks of human actors but also a number of external cognitive media acting as mediation bodies in the appropriation and use of technical devices. Suchman thanks (2006): "These approaches, inspired by ethnomethodology, psychology, anthropology, cognitive ecology, sociology and analysis of the action located, put forward a

premise of method that the organizational context practices can be seen as an extension of the cognitive abilities of the human beings who make up them." [6]. Individual mental maps of these informational objects arise in a broader social context; there is therefore an inter-influence between these individual mental representations and the stock of social representations that constitute the space and time of social activities. The informational artefact can be described as a communication object, that is, a device that induces possibilities for practical communication simply because of its presence in the cognitive environment. Modern society, by generating the division of labour, economy and their social bond, strengthens the complementarity between men by forcing them to cooperate. In other words, cooperation is necessary in modern societies because no individual is likely to perform all the functions alone at once. In the business economy, it is also important to involve all managers in negotiating and setting objectives, which helps to limit tensions and conflicts of interest or increase their business capacity and economic profits. Currently the négociation often takes place in telecommunications. In this case, the commercial negotiation concerns all the steps to conclude, immediately or in the future, a contract (deed of sale, contract, order, transaction, etc.) binding two or more parties. In our opinion the analysis of commercial negotiations must also be distinguished: 1) negotiations on industrial property (patents, licences, trademarks) and technology transfers, including digital technologies, 2) negotiations related to mass distribution (a face-to-face of industrialists and multi-tiered purchasing centres with specific characteristics and terms within the country or abroad), 3) banking negotiation (discussions between a bank and customers for the purchase of banking service. It should be noted that by opposing the negotiation, the parties can develop opposing views on the negotiating strategy, which they intend to adopt: distributive or integrative. We point out that the distributive or competitive strategy leads to the view of trade negotiation as a war of positions in which each party wants to win at the expense of the other. Integrative or cooperative negotiation directly linked to a "problem-solving" orientation and is primarily aimed at maximizing the common outcome of each party. The development of a negotiating strategy leads the negotiator to set some major axes in the conduct of his action that correspond to the modelling of strategic directions. From Radtchenko-Draillard's point of view (2012), the main strategic directions here are:" 1) the choice between a strategy of cooperation and confrontation; 2) the choice between frontal and direct actions, and bypassed and indirect actions; 3) the choice between fast and slow flow; 4) the choice between full or partial agreements, or even deferred or conditional or even concluded subject to renegotiations". [7] In international commercial negotiations cultural factors and stereotypes can play a key role in the outcome

of a purchase or sale contract. Our empirical studies with 64 managers of different nationalities show that: managers who have negative stereotypes very often choose (78%) the distributive strategic direction of the negotiation, based on the hard-fought competition, unilateral argument and pressure, which they exert on the adversary in order to persuade him to accept their proposals to enter into a contract and managers with positive stereotypes often choose (82.5%) integrative strategic orientation, based on cooperation, respect for the adversary, exchanges in the development of satisfactory solutions for all and facilitating the conclusion of a contract. On the other hand, we must add to this, the architecture of a technical object will be determined not only by the function of the object chosen by the individuals: it will also be delineated by the social significance attributed to the object by individuals and by users in the light a cultural and political horizon made up of all the presuppositions that constitute the social fabric of the economy of modern society. It is also necessary to clarify that: implicit modelling of digital technologies is primarily the inductive process by which managers receive and perceive patterns that surround it during its activity; explicit modelling is essentially the process by which managers apply these perceptions in the economic process of the company. For Norman (1991) “this organizational environment is equivalent to a set of cognitive resources (memorization, calculation, topography, space organization) in which human actors draw to accomplish their actions”. [8]. Virtual production economies are new and obviously raise questions in terms of stability and the overall evolution of goods and services specific to the virtual world, but a set of intangible goods and services are common in the world virtual and real. [Von Hippel, 2005; Warnier, 1999]. In addition, let us say that ICT participate in a redistribution of knowledge and information related to these models.

## **Conclusion**

In view of our research and analysis, we believe it is essential to include research, development and reflection around Information and Communication Technologies (ICT) in order to help on a daily basis, in close proximity to all the actors who work to produce, preserve and strengthen this approach in the economy and modern society. Scientific researches needs to be done to better understand and develop these collective actions with a large part in the issue of mediation, whether by ICT professionals or anyone else. Indeed, ICT and the Internet have enabled the development of the virtual by offering multiple means of simulation: either at the level of technical software and interfaces; either at the level of social software and networking, for example, interaction platforms

that offer multiple opportunities for relationships between their users, between consumers or between sellers and buyers. In fact, in these virtual worlds, as indeed on the web as a whole, we find the mechanism of playful simulation: the relationships between Internet users form simplified but effective models of real social networks important for economy and human life in modern societies. It also means continuing the work on the concepts of ownership, dissemination, and adoption of these methods within companies. In this sense it is important to strengthen negotiation and coworking within multidisciplinary teams combining the humanities, social sciences, economics and engineering sciences. In order to strengthen dialogue and cooperation within multi-sector teams, it is necessary to involve researchers, economists, executives and managers of public and private companies and representatives of public authorities and private associations. These techniques can quite play the game of this organic solidarity by helping to strengthen social ties, help with general reflection on current or potential economic and social changes, develop the values of integration social security, etc. Therefore, the concept of social integration refers to an idea of the unity of global modern society, in particular by bringing back within it those of its members, individual or collective, and by relying on the sharing of values, ideas, norms laws, policies and natural, economic and human resources.

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