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The Emergent Evolution of Human Risks in Service Companies Due to "Control Industrialization": An Empirical Research

Emmanuel Fragnière

The School of Management of the University of Bath, Bath, UK

Haute Ecole de Gestion, University of Applied Sciences Western Switzerland, Geneva, Switzerland

Nathalie Junod

Haute Ecole de Gestion, University of Applied Sciences Western Switzerland, Geneva, Switzerland

ABSTRACT

Service enterprises have traditionally used organizational models from the manufacturing and industrial sectors, incorporating ideas such as hierarchy, task repetition, and standardization of procedures. These disciplined production systems tend to use humans more than machines in the production of services,

however, which we posit may lead to significant organizational problems. Consequently, we conducted an ethnographic study on the notion of "human risks" in service companies from the Geneva region, which is known primarily for its banking sector. Our study is based on transcripts from more than sixty semi-directed interviews conducted over the last two years. Our findings and analyses indicate that service companies are indeed quite "industrialized," and that "process normalization," which is intended to mitigate operational risks in service industries, is actually at the core of significant organizational risks.

INTRODUCTION

Service enterprises have largely based their organizational models on those from the manufacturing and industrial sectors (e.g., incorporating hierarchy, task repetition, standardization of procedures). The "Taylor" model, first instituted in the industrial arena, has been the standard in the service sector. It calls for standardizing and simplifying tasks, while emphasizing repetition. In Organization theory, these standardized and centralized organizations are referred to as mechanistic (as opposed to less formal and central organizations; we use the term "industrialized production" here to refer to mechanistic organizations).

We note that service enterprises have become virtual prisoners to written instructions. There is an inordinate emphasis on documenting and describing procedures and their functions in detail. It has even reached a point where some enterprises believe it is possible to replace most human expertise with written instructions. We contrast that with a manufacturing plant, where production follows a linear process, beginning with the processing of raw materials, and ending with the storing and/or selling of the final goods (also known as a "Make-To-Stock" process in operations management terminology). However, service production obviously cannot follow this system.

Today, most wealth comes from the production of services. However, because of their intangible and heterogeneous nature, analyzing knowledge-based services is more complex than analyzing the

manufacture of goods. First, the life cycle of a service is determined primarily by the contractual relationship between the provider and the client. Second, production obeys supply chain logic, while the "raw material" (or the input) for a service often comes from the customers themselves, who may intervene at various levels of the production process (in the Service Science arena, this important idea is referred to as "co-production").

Most of the "production" factors of services correspond to human qualities ("soft skills") that by nature are subjective and not quantifiable. Thus, raw materials are replaced by knowledge. In service science, knowledge is divided into two main categories: explicit (or information, which can be clearly classified and is codifiable), and implicit (such as expertise, experience, or knowhow, which is harder to classify and can be somewhat amorphous). These characteristics make the production of services complicated to control. And control corresponds to an essential part of management, with four critical components:

- **Planning**: the coordination of short- and long-term objectives for the company and its operations procedures.
- **Organization**: creating a framework for the company that enables the objectives to be met.
- **Involvement**: the active participation of employees in meeting the objectives.
- **Control**: assuring that the first three components function properly.

Control is obviously one of the keys to meeting the organizational goals. However, the approaches to managing control have changed radically over the last two decades. And these changes are probably attributable more to the IT (information technology) revolution than the "servicization" of the economy. Indeed, we note that ERP (enterprise resource planning) systems and IS (information systems) are increasingly becoming the backbone of a service company.

Before ERPs were used in the manufacturing sector (particularly in the automotive sector, with a precursor of the ERP called an MRP), their primary purpose was for activities such as managing huge numbers of

components and supplier relationships. Banks were also early adopters of such systems, having developed IT systems to manage back office processes and accounting tasks.

So control has essentially moved from a paper basis to an “electronic” one. This move is also known as document de-materialization, and is today generalized within service production processes, reinforcing its intangible nature. We emphasize that IS deployments are made possible only by the standardization and centralization of service production, two important pillars of modern industrialized organizations. We thus posit that today’s control systems have contributed greatly to the industrialization of service companies.

Note that the title of this paper uses a provocative term, “Control Industrialization,” instead of the more common “service industrialization.” The choice of this term is significant. We cannot assume that every sector of the tertiary economy has adopted a generic industrialized model, even if, operationally, large service companies tend to have many similarities. On the other hand, in the U.S., many organizations have adopted the COSO model (from the 1992 report of the Committee of Sponsoring Organizations of the Treadway Commission). This would suggest we can make some basic assumptions regarding control.

In fact, most internal auditing departments in public companies now rely on the COSO model. According to the IIA glossary (Institute of Internal Auditors, www.theIIA.org), the term “control” in this context is taken to mean: “Any action taken by management, the board and other parties to enhance risk management and increase the likelihood that established objectives and goals will be achieved.” In The IIA Performance Standards, standard #**2100 - Nature of Work** states: “The internal audit activity must evaluate and contribute to the improvement of governance, risk management, and control processes using a systematic and disciplined approach.” A systematic and disciplined approach is typically a scientific approach to management.

As we indicated earlier, most modern production methods rely more on human contributions by way of IT processes than on manufacturing machines. And it is necessary to formalize and centralize IT processes in order for them to function properly. Machine breakdown is typically an operational risk that is well handled through SPC (statistical process control) techniques. But how should a human production disruption be managed? The news is filled with stories of employees suffering from work illnesses such as burnout and depression. Such illnesses have been intensively studied by work psychologists and sociologists. However, we do not know of any studies thus far on how human breakdowns as an organizational risk can impact industrialized service production processes. And, at the extreme, we posit that control industrialization of service companies can give rise to human risks that could prevent companies from "achieving established objectives and goals."

This notion of human risk as an organizational risk is not yet well-defined, but we believe it is imperative that it be better understood. We conducted an exploratory study in the area of Geneva, a Swiss city known for its banks. Our fieldwork is based on ethnomethodology in order to understand the meaning of the following paradox: As control industrialization increases, human risks also increase. It is indeed a paradox, as one of the main roles of the control function has been to "enhance risk management."

This paper is organized as follows: The literature review section describes research on the industrialization of service companies, the general adoption of internal control systems (ICS), and the notion of human risk. The research design section presents the ethnomethodological approach used to investigate the emerging evolution of human risks in service companies. The synthesis section gives a detailed analysis of the context of the human risk issue in the Geneva-area service companies. The discussion and conclusion section summarizes the results of our fieldwork, and gives concluding remarks.

LITERATURE REVIEW

Service Science: a new academic field that captures the essence of service production

Service science is the study of service systems and the co-creation of value within complex groups of resources, participants, and processes that interact to create value (see Spohrer et al., 2007, 2008 and Vargo et al., 2008). A service system is an arrangement of resources (such as people, technology, and information) connected to other systems by value propositions through their evaluation and acceptance (Spohrer et al., 2007, 2008). Service providers' value in the market is based on their competencies and capabilities (skills and knowledge). This value is accepted, rejected, or unnoticed by other service systems in need of resources. The IHIP paradigm (intangibility, heterogeneity, instantaneity, and perishability) is normally used to describe service activities. Compared to the production of goods, services display a much higher degree of most of the four IHIP dimensions (Parasuraman et al., 1985).

The influence of IT systems on service production

The organizational changes that have taken place because of the new IT and ERP systems are very well described in the literature. Authors generally agree that ERP systems impose "generic processes," and are believed to provide businesses with the "best practices" (Davenport, 1998). Moreover, academic research notes that some ERP characteristics, such as integration (of business processes and data), standardization of work, and centralization of internal services, have transformed management accounting (Scapens and Jazayeri, 2003). Information technology and organizational change are the two most important change drivers in this field (Yazdifar and Tsamenyi, 2005).

How ERP system implementation impacts employees' work practices has also been studied in detail (see, e.g., Kumar et al., 2002 and Arnold, 2006). Because banking services have been thoroughly industrialized in most major financial institutions (i.e., the "Taylor-Ford" model), IT systems have enabled banks to

achieve significant economies of scales and to “manufacture” at a minimum cost. This requires standardization and commoditization. Dubosson et al. (2009) find that even wealth management, the main service provided by private banks, has become largely industrialized because of reliance on advanced information systems.

The development of ICS (Internal Control Systems)

According to COSO, an internal control is: “a process, effected by an entity’s board of directors, management and other personnel. This process is designed to provide reasonable assurance regarding the achievement of objectives in effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations.”

In recent years, most organizations have implemented some type of internal control system (ICS). These tools appear to be quite successful at improving corporate governance (Maijoor, 2000), although it is questionable whether instruments such as SOX (the Sarbanes-Oxley Act of 2002) have had the desired effect. However, ICS implementation may not provide the correct balance of risk management approaches. And logistical and psychological barriers may affect proper deployment (Catenazzo and Fragnière, 2010). Therefore, regulations and standards mandate that risk management and internal controls should be used as widely as possible. It is well known that regulations are most effective when each person understands, accepts, and attempts to comply with them (Hillison et al., 1999). If basic regulations appear inefficient, there is the risk that public and private boards may require further directives; and an overlapping of rules, norms, or standards on corporate risk management and internal controls would be totally counterproductive (Durden and Pech, 2006). (Note that, in this article, we use the term “norms” interchangeably with the term “standards.”)

The "hyper-normalization" of control processes

Publicly designed regulations such as the "Loi de Sécurité Financière" in France, the SOX in the U.S. (see Allegrini et al., 2006 and Dworkin, 2007), the "Combined Code on corporate governance" in the U.K. (see Spira and Page, 2003), and the new ICS regulations for SMEs (small and medium enterprises) in Switzerland (PricewaterhouseCoopers, 2006) are designed to impose risk management standards and internal control practices on organizations within their jurisdictions. Professional boards are also engaged in a process to devise a vocabulary and an established set of norms, such as the ISO 31000 standards (International Organization for Standardization). As Suddle (2009) notes, these are expected to be a thorough framework for implementing a common approach to risk management across countries.

How human risk poses an organizational risk

The term "human risk" in an economic context refers to human capital risk, which can be defined by the two main production variables: capacity and loading. A more recent use in economics, particularly in behavioral finance, pertains to human risk aversion (Kahneman and Tversky, 1979). Perceived risk is another type of risk that has been extensively studied in the field of services marketing. The effect of perceived risk is believed to be greater for some consumer services (see Guseman, 1981, Mitchell and Greatorex, 1993, and Murray and Schlacter, 1990).

In our study, we find that the idea of human risk is increasingly used to mean that company objectives may not be achieved due to a problem with a human origin. It thus corresponds in this context to a socio-psychological risk that emanates from the activities of organizations. Even if sociology and psychology are extensively investigating at-risk human behaviors (see for instance Dollard et al., 2007, Laaksonen et al., 2010, and Leka, et al., 2010), we believe human risk is not well defined within the professional practice of enterprise risk management (ERM). To our knowledge, there is no mention of it in the ERM-COSO II text (published in 2005), or in the ISO 31000 norms.

Conclusion of the literature review

Our brief literature review reveals that the notion of human risk in industrialized service companies corresponds to a new social phenomenon, control industrialization. Academic and professional studies in control and risk management have not integrated this issue yet, which confirms the need for further research.

RESEARCH DESIGN

We believe this is the first paper to investigate the notion of human risk as an organizational risk in large service companies with standardized production processes. As such, our primary research question is: Can control industrialization, whose main objective is to mitigate organizational risks, actually be the impetus for significant human risks?

Research methodology

We chose the philosophy of "interpretivism" as the most appropriate for the scope of our research. Its main objective is to understand how the human factor can become a source of organizational risk within industrialized service companies. Thus, a comprehensive understanding of this issue is necessary in order to conduct data collection and address the research question effectively. We believe this inductive approach is the most suitable for our research, considering all of these elements.

As noted earlier, we followed an ethnographic research strategy. Saunders et al. (2007) state: "Its purpose is to describe and explain the social world that the research subjects inhabit in the way in which they would describe and explain it. It is a very appropriate strategy in business, if the researcher wishes to gain insights about a particular context and better understand and interpret it from the perspectives of those involved." This approach is well suited for understanding situations facing deep structural change, such as the current global economic situation. The research constituted a vehicle for studying the evolution of large

industrialized and global services companies (for example, Wal-Mart, which has approximately 1.8 million employees).

Questionnaire and interviews

We designed a questionnaire with the goal of uncovering "meanings" related to the social phenomenon of the "emergent evolution of human risks due to control industrialization." We conducted semi-structured interviews with managers and employees of service companies, and unstructured interviews with customers and employees. We also used secondary data from various publications, reports, and special editions.

The semi-structured interviews (Combessie, 1999 and Fenneteau, 2002) were designed to provide respondents with enough freedom to discuss and share their experiences with the analyst, who would then either redirect the interview to explore additional patterns, or conduct further interviews (Gavard-Perret et al., 2008). The structure was as follows. The analyst first met the respondents, and asked for a few details on education, professional path, and experience. Each respondent was then asked five questions:

1. How do you perceive human risks in your organization?

This was an introductory question to obtain respondents' general definitions of human risk. Because there is no commonly accepted definition as an organizational risk, we wanted to understand how it is viewed by our respondents.

2. Do you observe at-risk behaviors in your organization?

This question was designed to help us understand what types of risks respondents observe in their own organizations.

3. According to you, is there a way to measure human risks?

This question represents a first link with the assumption that large service companies are industrialized. According to the tenets of management science, every production step is measured objectively (in a formula with input and output variables). Consequently, we need to learn how respondents, all service sector employees, would characterize human risk measurement.

4. Is normalization a way to protect the organization from human risks?

This question is underlined because it is at the core of our study. We have noted afterward that there was no need to explain normalization, as it seems respondents were well aware of its meaning (formalization or industrialization of the organization).

5. What are the tools to deal with human risks?

This question logically follows from the previous one. We wanted to learn whether respondents believe their organizations are specifically equipped to deal with human risks.

Population

Our empirical research focused on perceptions among the Geneva population regarding the emergent evolution of human risk in service companies. Geneva is located in the heart of Europe, and is home to numerous local and international organizations. The population is composed of about 38.4% foreigners and 61.6% Swiss citizens, with a further 60,630 people who work there but live in the surrounding French territories (Source: Cantonal Office of the Statistics of Geneva, 2007). Several banks, insurance companies, logistics firms, and other service industries have chosen Geneva for their offices, European branches, or headquarters. Geneva is thus an interesting place for social research, especially on topics of international interest related to the service sector.

Our research was conducted from February 2010 to June 2011 by the LEM (Laboratoire D'Etudes de Marché) of HEG (the Haute École de Gestion of Geneva). The data collection consisted of more than sixty semi-directed interviews, with transcripts by the authors and our postgraduate Risk Management students. HEG created LEM five years ago, with the goal of teaching students about social data collection and analysis (e.g., survey research, ethnomethodology, social experimentation). We tended to choose topics of public interest for the Geneva population, where the economy is composed primarily of tertiary sector employers. Thus, the notion of human risk in service organizations there could include the risk of information pollution (Dubosson and Fragnière, 2009), or of resistance to change when implementing an ICS (Catenazzo and Fragnière, 2010).

As we noted, our respondents were mainly employees of large service companies (with more than 250 employees) in the Geneva area. The banking sector was particularly well-represented in our overall sample of more than sixty individuals. However, respondents also came from professions such as risk management, operations, human resources, and IT, and they held different hierarchical positions (upper and middle management, employees, etc.).

RESULTS

We first provide a summary of the transcripts obtained during our fieldwork. To simplify the analysis, we use the five open questions from the questionnaire as an outline, and illustrate with actual respondent quotes. The discussion section then develops several hypotheses related to our main research question.

Question 1: How do you perceive human risks in your organization?

The survey results show, almost unanimously, that human risk is considered one of the most serious organizational risks. The respondents felt that human risk resulted mainly from a lack of supervision and management in the organization. Over 60% had experienced problems related to inefficient resource

management and a lack of clear organizational structure. Human resources also played an important part in this risk, with policies that were nonexistent or weak, poor hiring practices, and a lack of emphasis on managing and retaining key employees.

> *Senior HR Specialist: "[In] HR today, we have no responsibility identified [or] organized to work with management on human risk. There are no expectations on the part of management. We have no tools or methods except specific aspects of standardization. We do not have any behavioral methodology to help us ... and we're in a large bank!"*

Another problem frequently mentioned was absenteeism, and the risks it creates for the business and other employees. Companies tend to handle this issue by relying on statistical analyses based on objective criteria, such as absenteeism control, staff turnover, and leaves of absence. Some companies, however, do not use any kind of objective analysis, which can be another important source of risk.

Apart from health and safety risks, whose standards are increasing within organizations, other related topics of concern are information leakage, fraud, and employee sabotage. The latter issue may be related to a lack of interest in building employee commitment and loyalty, which can cause employees to disengage. Managers may also be lacking in emotional intelligence, as well as listening and empathic skills. Respondents cited the need for employees to be in close proximity to management and to be able to conduct open dialogues, and how many feel these are lacking.

> *Project Manager: "Exclusion, lack of motivation, demotivation of some employees [who] do not feel sufficiently involved."*

To conclude, the inadequate or inappropriate behavior of employees or managers is considered an important human risk. Three-quarters of respondents expressed human risk in terms of cause, and one-quarter in terms of consequences. The emphasis was on "absent" management, and organizations concerned too much with profitability and not enough with human capital. Consequently, we find that

human risks in enterprise cannot be reduced to quantitative management problems. This seems paradoxical, as most risk management approaches are based on the quantitative formula: Risk = Probability * Damage.

Question 2: Do you observe at-risk behaviors in your organization?

Respondents identified risk behaviors related to employees and to the organization, for example, a negative influence from poor staff organization. Fraud, manipulation, and excessive criticism were all cited as hidden costs, and, consequently, major risks to the hierarchy.

Other risky behavior, such as the irresponsibility of managers and employees, willful neglect of duties, lack of helpfulness (« manque de serviabilité »), and excessive individualism, were also cited. If the delegation of tasks and power is overly controlled, it can result in employees feeling powerless, and can breed a lack of commitment to the job and the company.

> *Senior (IO):"Yes, there are risk behaviors that are manifested by individualism, lack of communication, ownership of good results and no failures on the objectives, trends in cheating for the benefit of personal advantage or to discredit others, lack of initiative, the refusal to share information…resistance to change, [and] too rigid and authoritarian leadership."*

> *Service Audit Manager (Bank): "We can say that people [who are] "dissatisfied," unrecognized or find that the behavior of the company is unfair may develop problem behaviors. There is also the anxious person that has the constant fear of losing his job, his salary[…]he may hide things just to cope with his family. Then there is the "player," who is found in jobs such as traders; if we see that he will play in the casino for himself, he is not necessarily in the right position."*

Regarding risky behaviors related to organizational factors, we find problems such as a lack of commitment of key personnel, or a general lack of due diligence. The respondents also identified the perceptions of fairness and justice (or lack thereof) as posing significant corporate risks.

> *Director, clinic: "The main risk is characterized by the retention, poor circulation or monopolization of information. Despite the establishment of internal processes, it happens that deficient practices occasionally reappear."*

Thus, the deterioration of behavior, dissatisfaction, work overload, overly long decision-making processes, and excessive overtime costs are all risks for the organization. Respondents felt that risk behaviors related to employees were significantly greater than those related to the organization. We thus observe a marked sensitivity to these behavioral questions.

Question 3: According to you, is there a way to measure human risks?

Respondents believed that measuring levels of expertise or incompetence has become more efficient through the use of more sophisticated performance scales. But respondents noted that some managers appear to prefer qualitative scales that reveal experience and feelings, because they are considered more reliable.

We also observed that satisfaction surveys are on the increase, and feed an increase in internal statistics. Audits, internal controls, and various statistics such as absenteeism, overtime, and turnover have become the basis for managing human capital. It seems as if companies today believe using concrete standards and procedures will ensure quality and productivity. The reporting and scorecards are valued as an aid, a part of standard operating procedures, and a potential method to prevent at-risk situations. There is a consensus that human risk can only be measured through objective dimensions, even if a few managers do not fully believe in these kinds of measurements.

Question 4: Is normalization a way to protect an organization from human risks?

About 50% of respondents noted that standardization/normalization helps prevent and minimize all or part of human risks. The arguments in favor of standardization are as follows:

1. Companies can use standards as part of a coherent framework for fostering constructive change in attitudes and mentalities.
2. Because modern production has essentially been "dematerialized," standards act as anchors, providing concrete principles for institutional reference. They are the touchstone of companies in a world with fewer physical boundaries.
3. Standards provide clear instructions for all, and ensure employees are aware of what is expected from them.
4. In the form of manuals (e.g., FIM = Fundamental Instruction manuals, GSM = Group Standard Manual/process), standards and norms become the "bible" of a company, illustrating for employees how they are connected to the company's goals.
5. They foster "best practices."
6. They allow for better planning and anticipation of human risks.

For those in favor of norms, they represent a legal and contractual framework that protects employees and businesses. For those not in favor, they are ineffective as a method of preventing human risk. Those arguments are as follows:

1. Even if the standardization process were formalized, we cannot fully control humans.
2. Standards foster too much complexity and subjectivity.
3. They cannot prevent all risks, because there are too many different types of people and perceptions.
4. Standards do not prevent financial crises (!).

5. Common sense, rather than standardization/normalization, should prevail in all processes.
6. Norms do not guarantee quality results.
7. Norms may not be appropriate for smaller companies.
8. Norms are used too widely to protect the manufacturing stages of products.
9. Anything and everything can be standardized so that processes are respected, but in the event of a crisis, norms may be disregarded anyway.
10. Norms are generally established only after disasters have already occurred (!).
11. Norms exist more as "window-dressing," i.e., for an organization to have a clear conscience and a good image.
12. Norms are too often used for commercial purposes, to attract investors and customers.
13. Organizations use norms as insurance for good company operations.

> *Director, HR: "There is a substitution of the HR department played by software and computer systems. We create HR portals through computer tool[s] that remove responsibility from the employee and give power to the hierarchy."*

In all cases, normalization is expanding in the field of accounting analysis of production, and tends to spread with the same tools that control human resource management. The trend toward industrialization is here, for better or for worse, particularly during this era of control management.

Question 5: What are the tools to deal with human risks?

Respondents cited communication (listening, dialogue, openness) on the part of management as the most important tool. The concepts of attention and positive reinforcement can promote motivation and prevent conflict. Sharing information and goals are also seen as important to prevent human risks. Having more personal relationships with employees should be of interest to executives. Managerial intelligence and respect for employees were seen as guarantees of success.

> *Chief Risk Officer (reinsurance): "[A] manage[r] is to love his staff. Tools to manage risk are primarily human intelligence and managerial attention. A manager can make many careful observations and gain information…. Listening and dialogue [are also important]. These tools require that the manager must be close to his team…any behavior out of habit will be quickly detected."*

Respondents also noted that managers tend to strongly rely on HR departments. They expect HR executives to stay up-to-date on things like technical tools of personnel management and dashboards to measure HR activities daily.

> *Executive Director (hospital): "The best tools are recruitment and [the] sharp definition [of tasks] after analyzing the employee profile. [E]stablish[ing] specifications and business processes specific[ally] to enable us to have maximum quality [will] reduce the risk level [of] employees and more generally of the company. Ratings and customer satisfaction surveys are needed to [take] the 'temperature' of the business, leadership, and service."*

Motivation was another serious issue cited. In our transcripts, we found the use of evaluation interviews, development plans, burnout screening, recruitment and training programs, and personality profiles can all be effective at preventing human risk. Many respondents again believe management should be more supportive and available. Some even argued that leadership has shirked its responsibilities.

> *Finance Controller, SME: "A management and a corporate culture that places the human being among his first priorities will significantly decrease human risk. This must be more than intent and should occur in practice."*

Finally, some managers did not endorse any specific tools for human risk management. They did not agree about the importance of this issue. This can represent a cost to the company in the form of wasted time, both for employees and for managers.

> *Administrative manager, team leader, doctor: " I do not think a management tool for human risk can bring real solutions [or] improvements [to] a company. A more intuitive approach might even give better results. A management tool for human risk [would] probably [just mean] an additional workload for staff responsible for the system."*

DISCUSSION AND CONCLUSION

Discussion

Modern management in certain service organizations follow the tradition of mechanistic organizations: bureaucratic, rigid, and compartmentalized. The idea behind mechanistic theory is that if the organization is working properly, as planned and controlled, the human factor will naturally find its place (Morgan, 1997).

However, the reality is that the human factor can be unpredictable, and this can pose a real risk of failure for an organization's plans. We study the reasons for this. Our conclusions, drawn from our fieldwork, indicate that it is largely due to this "mechanistic" view of management. While recognizing the need for leadership, initiative, kindness, justice, and motivation, firms nevertheless tend to adapt better to the needs of machines than of humans. Management typically approaches organization as a technical matter, but with the stated goal of achieving harmony between the technical and human aspects. But we find that this goal is not apparent to most employees in organizational environments.

For example, managers fail to recognize that today's tasks are much more complex and less clearly defined than those done in the past by machines. The development of new management methods, the streamlining

of budgets, and the design of organizational information systems are subtle enough examples of a mechanistic type of command. As evidence, the respondents to our interviews described in detail how scientific methods are being used to determine what and how work needs to be done. They mentioned information systems used for surveillance as a way to maintain profitability levels, manuals of standards about how to execute tasks in a very formal manner, customized recruitment programs and training, and comprehensive systems of work assessment.

The consequences of these conventional models are also reflected in our transcripts. Because they can be dehumanizing and discouraging for employees, and promote a lack of initiative, they can ultimately generate significant human risks for the organization. Employees start believing their primary focus must be obeying orders and keeping their place, rather than considering how to do their jobs more efficiently. The dichotomy can cause tremendous distress at work.

We emphasize that we believe organizations have worked extensively to increase efficiency and employee satisfaction. Our interviewees revealed that human resource management is increasingly being asked to improve production quality and reduce absenteeism and staff turnover, while encouraging employee motivation. Companies seem to recognize the interdependence of human needs and technology. However, it is worrisome that so much of management remains reliant on purely technical organizational structures.

Conclusion

One habit inherited largely from industrial organizational models is that the service sector tends to develop low-cost models based on the Taylor model. However, we posit that today these models have reached their limits. Due to the intangible nature of services, classical control approaches may not provide the relevant safeguards to enable a service company to reach its objectives. The value and quality of services are generally too complex to measure objectively. Additional difficulties may arise in monitoring risks in management information systems. Indeed, if we assume that the most prominent risks encountered in

service industries will be the consequence of “invisible threats,” it is obvious more appropriate approaches need to be implemented.

Although organizations believe they are protected from uncertainty by formalizing internal control systems, the reality is much more complex. Organizations remain the product of visions, ideas, and beliefs. Normalizing the control system simply gives a false sense of security. Our investigation seems to be relevant because there is certainly a point of no return for organizations where high rates of absenteeism, staff turnover, and poor product quality will badly damage their reputations and businesses. Nowadays, promoters of norms and standards advocate that formalization leads to transparency of work procedures. However, it also requires employees to become more responsible at the same time. This is a paradox as well as a weakening of the psychosocial state. In practice, employees’ requirements of independence and empowerment are not in line with their perceived feelings of injustice (such as non-recognition of their “commitment” to the company). This situation can create personal distress and a chain reaction that risks affecting the whole organization.

On the other hand, hyper-investment in physical and mental work has already been found to cause significant observable effects on humans (for examples, see the results of a European survey, http://www.eurofound.europa.eu/ewco/studies/tn0611018s - Fondation de Dublin, quatrième enquête sur les conditions de travail en Europe, 2007). This study notes that work is sometimes perceived as responsible for pathologies such as musculoskeletal disorders (MSDs), which occur from poor physical working conditions (repetitive efforts, extreme joint positions), and psychological strains (from a lack of autonomy, social support, and recognition, and general “stress”).

In this paper, we posit that human risks may be an underlying cause of organizations failing to meet their objectives. To our knowledge, this is the first paper to investigate that notion of human risk from this angle. We used an ethnomethodological basis to develop research hypotheses that we intend to validate in

subsequent research using quantitative surveys. Thus, the lack of validation of our hypotheses is the main limitation of our work.

Nevertheless, we believe service companies need to begin considering this key notion of human risk in parallel with the proper definition of business processes. Individual and collective “unawareness” must be examined closely to understand how motivation is nurtured. This means, of course, entering a previously inviolable sphere for organizations. But psychology and sociology can provide answers to these very relevant and subjective issues.

Finally, we firmly believe the topic of human risk should be investigated on a multidisciplinary scale, because it is such a widespread issue. Considering how natural it is that we service our cars regularly in order to prevent breakdowns, wouldn’t it also make sense to service ourselves as workers in order to increase our companies’ chances of success?

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