The CIO's balancing act
Leading digital change by developing social skills

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Based on the qualitative analysis of expert interviews with IT managers in German speaking countries, and drawing from our own experience with organisational development processes, the paper analyses the balance between the service function of IT and its disruptive impact. Evidence from interviews and development processes suggests that within the organisational field the CIO can function as the starting point for the evolution and diffusion of social skills. According to field theory, social skills are sense-making competences that shape strategic action. Thus, the CIO must balance the necessity of taking over a challenger's position within the organisation's core business field and promoting strategic change in the digital area, with the necessity of contributing to the development of the organisation's social capital, i.e. the enhancing of cooperation, knowledge exchange and innovation.

Keywords: Digitalisation, CIO, IT, organisational change, organisational culture, strategic action, field theory

1. Social skills as interface between knowledge production and decision-making

1.1 Constant change and innovation

Despite the stabilising function organisations and institutions undoubtedly have in economic and social life, the Heraclitian phrase *change is the only constant* also applies to them. Organisational structures evolve continuously. Business models are changing frequently due to accelerating business cycles and technological innovation. Although corporate culture, routines and hierarchies are at the core of organisational continuity, they must also keep pace with the inherent change of an environment characterised by the lack of certainty (Callon, 2009). In fact, scholars, executives, consultants and experts working in business organisations, public or non-profit institutions are all used to reflecting on and debating economic structures, processes and action in utterly dynamic terms.

In his theory of economic development, Schumpeter (1911) introduced an important analytic distinction between two processes. On the one hand, he describes the fundamentally static circular movement of a market-based system of exchange that goes along with a highly specialised division of labour. On the other hand, he highlights a dynamic process of evolution in terms of *innovative* action that cannot be fully understood by continuing to apply the logic of economic exchange and productive specialisation. From a conceptual point of view, the values produced and exchanged within the economic cycle are separated by a "jolt" from those produced by innovation (Schumpeter, 1911: 223). This *symbolic* discontinuity produces *real* economic *development* when the novel modes of producing or delivering services, the new products and markets are integrated into existing ones, or when they reorganise or replace them. Focusing on disturbances in processes of value production, Schumpeter made change "internal" to economic theory, which up to that point had treated technological and social evolution as external factors.

Still, there is a "strangeness" that has remained somewhat *external* to Schumpeter's conception of innovative action. If we study a concrete phenomenon of change such as digitalisation, we see that continuous change does not only involve technology, market and formal organisation, but also social and cultural structures (Bijker, 2012). Like other theorists of his time (Bergson, 1907), Schumpeter strove to extend the findings of evolutionary theory to other disciplines committed to describing and explaining processes of development. Trying to link the realms of economy, science and technics, he portrayed the *social figure* of the innovator as a disturber or interrupter of well-established and habitual sequences of events and courses of action. Entrepreneurial action not only breaks out of the logic of *economic* exchange

and of the formal organisation of structures, but its disruptive "strangeness" also operates *within the social*, as the entrepreneur is a socially clumsy, insecure and anxious character (Neundlinger, 2007).

1.2 Reconciling the breach – not only in economic, but also in processes of social exchange

In 1911, Schumpeter's interpretation of organisational acting and decision-making emerged against the background of the authoritarian social structures that were only slowly beginning to give way to democratic institutions and processes. This authoritarian character is mirrored in his conception of leadership. In his first conception, entrepreneurial leadership is characterised as lacking the charismatic personality considered a prerequisite for political and business leaders. Rather, the "authority" of the entrepreneur seems to rest on his ability to introduce "disturbing" elements of technology, science, arts, etc. into the market or production system. In other words, the entrepreneur has the capacity to interpret technological and cultural progress in economic terms. Although he may neither be in an executive position nor have the symbolic, cultural capital to exert command over others, the entrepreneur distinguishes himself by a capacity to recombine products, processes and services, effectively linking them to technological, scientific or aesthetic knowledge. His position is at the frontier of different fields, the field of economic acting and the fields of science, technology, aesthetics etc. As he links different fields by translating or brokering (Burt, 2005) knowledge, contacts and ideas from one to another, he challenges the logic of the field from a marginal position, from "below". Actually, Schumpeter, referring to the entrepreneur's lack of symbolic and cultural power, defines him as a "parvenu without tradition" (1911: 130).

Still, from a contemporary point of view Schumpeter's conception of entrepreneurial acting appears to be insufficient in that it does not offer a way of dealing with changing social and cultural structures, and nor does it offer a means of intertwining formal organisational change and organisational culture (Schein, 2010). The discovery of a "non-authoritarian" authority in the socially awkward entrepreneur begs the question, what exactly triggers or hampers cultural change and how can it be organised. If the creative use of technological, scientific or aesthetic novelties can *recombine* economic actions, structures and processes (Schumpeter, 1911: 100), then the question is how this "breach" can be socially *reconciled*. In other words, internalising innovation comprises two tasks: that of reorganising economic exchange into the form of a new cycle, as well as that of redesigning social exchange (Homans, 1961; Adloff, 2005).

The reason for this is found in a conceptual distinction. Social exchange (Blau, 1986) has properties that differ fundamentally from those characterising economic exchange, and it is precisely in this sense that a kind of "strangeness" remains in entrepreneurial acting. The question of social and cultural change cannot be "internalised" by an exclusively economic theory of change. Symbolic acts of giving and taking such as trust, sharing knowledge and competences, showing generosity, expressing acknowledgement, appreciation and gratitude, but also of denying trust, support and acknowledgement and refusing to collaborate and share one's competences, are closely linked to the concrete social contexts they emerge from and help to establish, evolve, destabilise or destroy.

Reciprocity and expectations, for example, cannot be reduced to rational calculus and the sole motive of maximising utility (Bourdieu, 2005). The evolution of any institutionalised social context depends on the development of social skills as they are defined by field theory (Fligstein, 2012). These *strategic action competences* of embedded actors create value in terms of *meaning* for others, by taking on their perspective, mediating interests and deliberately using the aforementioned acts of symbolic exchange in order to not only introduce a new way of organising, but to *reconcile the breach in sociality* caused by the introduction of technological, scientific, aesthetic or organisational novelty. Hence, the change they bring about is not only to be looked at in terms of economic recombination, but also in terms of social or cultural recombination, i.e. in terms of the production of shared views and shared meaning – as institutional work or entrepreneurship (Lawrence, 2010).

1.3 Digitalisation: questioning everything – changing the field?

This production of meaning obviously accompanies challenging existing routines, mentalities and ways of behaving and interacting. Social skills are required because strategic action in this sense addresses the existing social order in itself. Despite all the dynamic visions of structures and processes organisational theory has given us in the last decades, and despite all the uncertainty organisations undoubtedly have to face, one must not overlook that these structures and processes are stable because they are based on a *structural* distribution of power, and of diverse sorts of capital (Bourdieu, 1992). Organisations are *fields* in which a whole variety of interests are at stake and the stakes themselves are not distributed equally. The

institutional entrepreneur striving to make sense of – and establish – novelty within and across the organisation is the first one that has to take this into account.
The disruptive change we deal with in this paper concerns the fact that any business, any organisation is seized by the epochal transformation digitalisation brings and will bring about (Bersin, 2016). But within this change social structures react in different ways. But are firms aware of this topic, and what conclusions do they draw? One of the IT experts we have interviewed states that the scope of digitalisation's impact is underestimated by many firms (interview 2, see below).
In the following we will try to grasp in what sense heads of IT departments and IT departments as collective actors find themselves in a position that is comparable to Schumpeter's entrepreneur function within economic development. Like the latter, they have to reconcile marginal and central positions. While from the point of view of an organisation's potential development the IT expert's know-how is needed everywhere and all the time, in economic terms this capital turns out to be a bottleneck: know-how is a human resource characterised by scarcity and therefore must be allocated efficiently. Strategic issues can emerge at any level of the organisation involving the diffuse danger of underestimating the phenomenon. In an economic system where complexity is at the core of value creation, apparently small issues and marginal problems can have dramatic consequences, such as the misallocation of time, structural and monetary resources, or in not recognising strategic business opportunities emerging from problem-solving processes. A tight collaboration and exchange between IT and other departments is necessary in order to evaluate opportunities and estimate the time and effort for implementation. As another expert points out, the rising complexity of tasks arouses expectations in other business departments that the necessary change in processes and IT infrastructure should and can be brought about quickly, but this is not always possible (interview 5, see below). As a consequence, the disappointment of such expectations can burden future collaboration.
Hence, the pervasiveness of digital change does not imply that institutional entrepreneurship in this area is merely a logical consequence of internalising the external process of change, but rather requires the huge and ambiguous effort of challenging given social structures. As a result, social skills are required, because positions are structurally distributed and to take over the position of a competitor implies reflecting strategically on where change must be implemented, and on how it can involve the relevant decision makers, as well as doing the tough work of convincing, raising awareness and changing every day routines.

2. Linking technical to cultural issues – the research process

2.1 The approach and the sample

Our institute has been doing organisational development work over the last seven years and has specialised in issues of corporate culture with a particular focus on cooperation and involvement. The principles and methods of these consulting and development processes have been illustrated in detail in a management book (Gucher, 2015). In addition, we have published various papers dealing with the theoretical implications of our consulting and development processes (Neundlinger, 2014; 2015; 2016).
Recently, we have been developing and implementing several processes dealing with the organisational integration of IT departments in public and private organisations within the manufacturing and the service sector. Hence, our aim was to link the specific issues arising within cooperation between the IT department and other specialised departments to the general issues regarding organisational transformation and development in the era of digitalisation. To try to find a connection between an organisation's specific internal IT and digitalisation problems and the epochal external transformation triggered by technological evolution, in our view, requires an approach capable of analysing the cultural aspects of organisational change (Kohnke, 2017; Wokurka, 2017). It is therefore of crucial importance to analyse the social exchange processes, the social dynamics and the social competences that emerge and evolve in the context of organisational processes involving digitalisation.
One could argue that the social dynamics concerning organisational transformation in the digital era concern above all the executive level (Bongiorno, 2018), i.e. if the CIO has "role effectiveness" (Hütter, 2017), or at least if an effective exchange and cooperation at eye level exists between the head of the IT department and the members of the executive board (Preston, 2004; 2009). As Arnitz (2017) points out, other than in the US the relationship between CIO and CEO (Benlian, 2016; Karahanna, 2013) is still a neglected theoretical and practical topic, and has to be addressed in terms of organisational culture, in terms of an interaction based on trust, and on a sort of social capital that is at the core of a cooperative,

integrative mode of shaping strategy building and decision-making processes. Moreover, the intensity and velocity of digital change has induced corporations to separate "classical" IT from digitalisation issues and introduce another executive figure with the exclusive task of strategically preparing and implementing digital transformation: the Chief Digital Officer (Walchshofer, 2017). But the success of this management figure depends not only on specialised professional skills, but also on social skills and their embeddedness in the organisational as a social and cultural space.

Our approach is to analyse these social skills, the interaction and the embeddedness of IT executives and their departments on the basis of social exchange theory rather than a theory of (economic) utility, which means that exchange is to be interpreted against the background of shared values and a common practice, a culture of trusting that has *collective preconditions* not reducible to calculable individual expectations. In addition, a given common practice of trusting should not be taken as a substitute for rational action in a context characterised by insecurity and lacking information (Endress, 2002; Hartmann, 2011). Our theoretical focus is therefore on the organisation as a field not only of personal relationships between actors, but of structural relationships between (individual and collective) institutional actors, and of the conditions and dynamics of institutional entrepreneurship, i.e. the challenging of organisational structures. As already stated, positions within the field are distinguished by a diverse endowment of economic, cultural, social and symbolic capital (Bourdieu, 1992).

What seems to characterise the relationship between the IT department and other divisions across organisations is the fact that IT's expertise and knowledge are widely seen as crucial for future development, and its cultural capital is deemed high. Yet, this attribution of a high *potential* influence on organisational development is often in contrast with the way IT is *structurally positioned* in terms of its actual economic, social and symbolic capital. IT is frequently still perceived as a service division responsible for the smooth functioning and maintenance of core processes. Frequently, it is not sufficiently involved in investment decisions or in the strategic redefinition and redesign of these core processes. In other words, the capacity of IT experts to contribute to the reorganising of business within digitalisation is not only often used inefficiently, but is simply not acknowledged. Even if the IT department participates in decision-making with other departments, its influence is not to be taken for granted. As one of our interviewees explains, IT's actual involvement in strategic governance needs to be "re-conquered" everyday. Indeed, in his experience other departments do not try to involve the IT department in strategic issues and processes (interview 2, see below).

For this reason our analysis of social exchange processes at the frontier of digital innovation does not focus on the personal relationship between the CIO and the CEO, but rather on the shaping of the social and institutional relationships within and across the specialised departments. Nevertheless, for the collection of empirical data, our approach was to consider the testimony of CIOs (or heads of IT departments that are not formal members of the executive board) as the most qualified for allowing us to establish a field theory approach.

In order to construct guidelines that conceptually link the technical issues and problems IT has to handle in daily business, and in the move towards digitalisation, to questions regarding organisational culture, we conducted a small survey among 16 CIOs of companies located in the D-A-CH region. In the survey, the experts were asked to describe the challenges of digitalisation within their organisation as well as within the business context, the educational system and the administrative aspect of their business. The answers submitted were organised according to the four dimensions of social productivity we have developed and been using in our consulting and development work (Gucher, 2015): *culture*, *interaction*, *motivation* and *structure*.

Based on this preliminary mapping of the central issues from the point of view of the CIOs, we set up an interview guideline divided into three parts:

- The first part contains questions regarding the situation of the respective organisation in relation to business data, the state of intra-organisational technological evolution, the present and future transformation of core business as well as the state and requirements regarding qualification, knowledge and training of their collaborators;
- the second part contains questions regarding the quality of internal and cross-departmental collaboration;
- the third part contains questions on the involvement of IT expertise and the CIO in strategic processes and decision making on executive board level.

As we are still continuing our series of interviews, we have selected a sample of 5 testimonies for qualitative evaluation, focussing on the importance of social skills for the successful management of

digital change. By selecting these 5 interviews, we tried to include a diverse range of organisations, including public and private as well as service and manufacturing companies. We also included experts in various positions, e.g. both heads of IT and a CIO. Furthermore, the interviews were selected in order to shed light on how the role of IT departments evolves within their respective organisations, according not only to their specific conditions, but also to the particular culture of the organisation. The interviewees' organisations operate in diverse branches such as plastic manufacturing (n. 3), public energy (n. 2), component supplies (n. 1) and data analysis as well as digital publishing (n. 5) in the automotive sector, as well as the (state-owned) gambling industry (n. 4). In these organisations digitalisation concerns the operating and controlling of manufacturing machines and processes as well as data analysis and, of course, security at all levels of manufacturing and service provision.

2.2 The CIO's balancing act or the double risk of IT expertise

Before presenting some insights that emerged from the interviews, we will briefly explain how we linked the issues raised by the survey to those of organisational culture that are central to our attempt to better understand the importance of the quality of working together for successfully leading digital change.

Asked about the major challenges they face in their own organisation and the most important issues to be reflected on regarding "digitalisation", the 16 CIOs (or Heads of IT departments) submitted a series of short answers or headings covering a wide range of topics. Out of this variety of answers emerged a common point of view that described the difficulty we refer to in the paper's title. It points to the balancing act not only the CIO, but also the IT department has to achieve between building up (or being in possession of) crucial knowledge and expertise for a potentially radical change of the organisation, and having to constantly give technical support to other departments.

There is a double risk deriving from this balancing act (Stackpole, 2017). On the one hand, the IT department is overcharged and constantly under pressure due to the urgency with which all tasks and problems must be solved ("Everything at the same time and immediately, please!"). Thus, the department has to counter the bottleneck it finds itself in. It has to fight for sufficient time, space and financial resources and for continuity in the department's staff. Otherwise, if staff turnover is persistently high, expertise that has been built up within the organisation is lost and must be re-built. Hence, the more digital evolution is *not* taken for granted, the more time, attention and commitment can be invested in achieving this evolution. It is exactly at this point that social skills as sense-making competences enter the scene, for *interpretative* capacities are required in order to make digitalisation understandable as a process that does not leave the organisation unaltered and so requires a culture of working together. Still, the process of sense-making can only be effective if the processes of communicating, mutual understanding and common practices of decision-making are coordinated.

The other risk is that the support and service tasks, no matter how stressful they might be, will sooner or later lead to demotivation because they demand relatively little advanced knowledge, creativity and problem solving skills. Considering the fact that IT staff often operate at organisational points of intersection where friction and lost efficiency is found, this specific knowledge should not be wasted. It is precisely this knowledge of intersecting points that is strategic knowledge, because it is not only technical knowledge but also knowledge about how departments, project teams, human beings communicate with each other, and how they inter-act.

As a result, the complexity and attractiveness of these tasks rise. In the best case, spaces for a more demanding and therefore motivating work emerge. For example, this interface function is particularly salient in an organisation such as that the energy provider interviewee 2 works for, where digitalisation causes a shift from huge technologies with long-term service issues (e.g. power stations) to new sophisticated, customised services based on applications. This requires a transformation of core business and therefore a close project-based cooperation with other business units, which involves a transformation of organisational culture.

Trying to conceptualise this shift from technical to cultural issues, we structured the answers submitted according to the aforementioned model of the four dimensions of social productivity.

2.2.1 In our model, *culture* stands for the involvement of team and department members, for the distribution and taking responsibility for tasks, processes and structures. With respect to how decision-making should be re-organised, CIOs seem to plead, on the one hand, for more open, courageous modes of debating with and involving people, departments and expertise; on the other hand, they seem to be well aware of the fact that involvement requires time and effort to build up a common understanding.

Obviously, without the personal conviction of the CIO this cannot be achieved and without the involvement of all collaborators implementation will be difficult. This is less trivial than it sounds, as CIO involvement and more open processes go along with the possibility, if not the necessity, of seeing things from others' perspective. Consequently, CIOs consider it essential to establish the diversity of requirements and points of view within the organisation as an added value. Promoting the personality of collaborators seems a prerequisite of innovative acting, but the more diversity is being furthered, the more conflicts are likely to come to the fore, especially between different generations. The "cultural" clash lying behind these conflicts is attributed, by the CIOs, to the fact that innovation is always experienced as a problematic area where established working and mental habits are questioned and a way has to be found to connect dynamics and flexibility to an appreciation of the existence, the stability, as well as the integration of the value added by innovation; a value, as stated above, initially separated by a "jolt" from existing values (Schumpeter, 1911). The transformation of the mind-set of IT staff concerns the conception of their own role, from a service technician to a fully integrated member of the organisation.

2.2.2 The dimension of *interaction* refers to the dynamics of communicating and processing relevant knowledge and information within the organisation. Social productivity is higher if common rules have been established of how to communicate and interact with each other. According to the CIOs' answers, it is particularly important to establish modes of communicating and interacting across business units and departments, especially because the intensity of the interdepartmental exchange of knowledge and information has significantly increased (interview 2). Interviewee 5, the regional Head of IT of a data analysis company in the automotive sector, reports that while cooperation between the IT and another department of his company had previously been based on a monthly data delivery, now the data delivery is made on a daily base, and the IT staff is working on the development of real-time applications for data analysis.
As mentioned above, digitalisation issues emerge at the interfaces between process stages and structures. As a result, digital change can contribute to overcoming bunker mentality, i.e. it can enable organisations to organise processes beyond the logic of specialised work in separated departments. From the CIOs' perspective, it is important to promote internal communication and to try to establish a trusting, appreciative relationship as well as a clear distribution of responsibilities between specialists from other departments and IT specialists. This can help to establish a common understanding and facilitate evaluation and decision-making processes with respect to investments, software or hardware acquisition and the opportunities of digitalisation in the other business units. It should also be helpful for the process of prioritising tasks within strategic processes.
Overcoming bunker mentality is only possible if qualification, formation and training are organised differently. Often the skills of the staff are not at the required level, as this is constantly changing and evolving. As well, the balancing act required to achieve this is palpable: while CIOs deplore the difficulty and time it takes to find specialised staff, specialisation itself is no longer sufficient for the accomplishment of current tasks and problems.

2.2.3 In our model, *motivation* is also looked at from the perspective of collective acting, in that it indicates the extent to which individual values are in accordance with the organisations' values and objectives, in other words, to what extent personal commitment matches with the actual short and long-term objectives of a firm. CIOs face the crucial problem of how an organisation can manage to remain an attractive employer, which means that they are more open to flexible working arrangements, such as working from home or an organisation of the workflow "by objective" rather than "by time". Thus, by raising the specific issue of how to keep motivation high among qualified employees, they find themselves able to question – sometimes – the organisation of the company as a whole.
In doing so they foreground the problem of how to harmonise individual and organisational values, expectations and objectives. In addition, they pose the problem of the conflicted role IT has within the organisation, that is, whether its focus lies on development or on support. As we have seen, this amounts to an issue of resource allocation. In an ever more complex technical environment with ever shorter production cycles, IT's resources are absorbed by its involvement in "daily business", i.e. support, maintenance and service jobs. Its huge responsibilities and rather stressful working conditions reduce the availability of time and creativity necessary for sophisticated research and development.

2.2.4 Eventually, this conflict between IT's service function and it being a process co-designer also concerns organisational *structures*. From the point of view of social productivity the crucial question is if all collaborators, teams or departments can participate in the building up of structures and processes. The most obvious contribution an IT department can offer to the re-designing of structures is described by the CIOs as a change in perspective. From the user's perspective however, digital technology is seen as a tool. If actually involved in the re-organisation of structures IT could transform the perspective of the others by making them see digital technology as questioning and potentially reorganising all business processes.
The task for the CIO and the IT department, which also requires social competences, is first to take over the business perspective and to then develop a new business model based on the opportunities given by the specific branch and organisation they work in. Still, tough work is needed to build up an understanding of the importance of digital technology for the core business, especially as IT solutions often appear to be available as complete solutions that can be outsourced. Furthermore, specialists in other departments can misinterpret the IT taking over their perspective as a transgression of competences (interview 2).

3. Points of intersection – empirical evidence for taking positions

3.1 Relationships and positions emerging from the expert interviews

In the remainder of this paper, we will present insights from the qualitative content analysis (Gläser, 2010) of the selected 5 interviews with CIOs we have carried out. In section 3, we want to shed light on the *structural relationships* between IT and the other departments, as well as on the *positions* expressed by the CIOs (Bourdieu, 1992). That means that we intend to analyse the power (i.e. capital endowment) of the IT departments within the organisational field (3.2) and the opportunities the CIOs perceive their departments have to intervene or to be involved in strategic decision-making as well as in the designing of organisational change with respect to structures, processes and business models (3.3).
In section 4, we will present evidence on how the CIOs reflect on the importance of embedding change and innovation in the social and cultural context of the respective organisation. We will show how they conceive of social skills as strategic competences insofar as they create shared understanding and collective meaning (Fligstein, 2012) that promotes social exchange and therefore enhances the quality of cooperation (Gucher, 2015). In section 5, we will draw conclusions.

3.2 Structural position, power and influence

3.2.1 IT-dependence

It is not at all clear who actually holds the power within organisations if one only looks at the organogram. The question is not only who makes an organisation work, but also who has the capacity to stop them. While in the past the workers operating the production line were considered to have the power to block the whole production process, this power has now shifted to logistics. This is due to the fragmentation of production processes and the internationalisation of value chains. But IT as a part of the "critical infrastructure" has also gained an enormous importance within this process. As interviewee 1 states, the entire production process would halt if IT did not function.
This kind of power, described above as knowledge or cultural capital, is not necessarily translated into symbolic or social capital within the organisation. Yet, in the case of the component manufacturing company, IT's power within the process seems to correspond to its symbolic and social capital. Interviewee 3 describes the high reputation his department has within top management and links this to the crucial importance of IT.
In some cases, the perception of the importance of IT is also translated into economic capital. Answering the question if management perceives how important IT has become, interviewee 4 refers to the fact that it has grown more than others and is endowed with a higher budget. Since IT services are not cheap, he attributes the generous resource endowment of his department to the fact that its contribution to the firm's value is recognised, something he says was not always the case.
Sometimes, the importance of IT can become a factor of structural influence for the whole organisation, as in the case of the plastic manufacturing company interviewee 3 works for. He reports that because his company is running a plant in the countryside, and is therefore the most important customer of the regional energy provider, he was able to get this provider to install an optical fibre conduit in a very short

time. Also in his case, cultural and social capital have been translated into economic capital and even decisional power. With respect to the purchasing of very expensive machines and mainframes, he states that his department has exclusive authority over both the technical and economic decisions.
But this is not true in all companies, and often power over the process corresponds to the level of participation and involvement in strategic decision-making, as interviewee 5 reports. He describes it as "a pity" that there is no formal CIO position. In his case, strategic planning of IT related issues is made at the department level and has to be communicated to the COO who is not an IT expert. Therefore, the relation between the executive board and the IT department involves much less trust and mutual recognition.
Thus, what emerges from the interviews is that IT departments possess considerable structural power insofar as they control core processes and hold crucial knowledge for strategic developments. Operating as critical infrastructure and being responsible for critical intersection points, they strive for major involvement in strategic decision-making. Still, the awareness is high that "relational work" in terms of building up mutual trust, acknowledgement and reputation is required in order to achieve change.

3.2.2 Security

There is another type of relational work to be done – that of raising awareness about security issues that CIOs deem to be particularly unimportant. Interviewee 3 describes the enormous responsibility of the IT department of having to guarantee a 24/7 production rhythm while trying to raise the awareness regarding security issues that could endanger the functioning of the entire plant. The growing dependence on IT as critical infrastructure exposes firms to huge risks, like that of the hijacking of data by encryption software (interview 1). This opens up a new field of activities that IT can offer to the executive board, like the modelling of possible risks. Some IT departments are developing predictive analysis tools in order to be able to support the executive board (interview 3).

3.3 Opportunities of strategic involvement and position taking

3.3.1 New business areas

As we have seen, not all the interviewees are involved in strategic decision-making, a fact that also applies to interviewee 1, whose position is defined as "Head of IT" meaning he is not formally a member of the executive board. He clearly states that issues like the acquisition of other firms or the adoption of a new technology are taken without him. Yet, when he is asked if he thinks it would be useful to be part of the executive board or at least participate in the decision-making, he claims this is only partly the case, referring to specific topics on which he could give some input. He relates his ability of contributing to opening up new business areas to the technological competence of his department, and gives the examples of e-mobility, lightweight construction and prototype construction.
Interviewee 2 points out that the IT department, due to close relationships with software producers, gets information about new opportunities earlier than other departments. He states that it is particularly important to communicate with other departments at eye level and carefully decide together which department will hold the leading role in a new project. Especially when the IT department questions the purchase decisions regarding IT products, the "old" conception of the role of IT as only serving and supporting the others re-emerges. Asked if there is a strategic involvement of IT, he reports that this is above all the case in single projects regarding innovation and, naturally, digitalisation issues.
Still, points of intersection can also turn out to be points of friction, as interviewee 5 reveals. There still seems to be a lot of work to do in order to build up a common understanding and to develop new business models together with other departments. Specifically, he refers to the problem of the level of standardisation of data packages. He reports that it is sometimes difficult to communicate to the sales agents which data packages can be offered as such and where additional data analysis work has to be done by the IT specialists. He defines this as a "communication-interface" issue. Conversely, interviewee 5 reports that the transformation of the core business from a publishing company based on print products to a data analysis provider and digital publisher was quite successful. This development toward digitalisation was endorsed by all departments. He declares that he was very satisfied to have participated in this process, because "you don't find that easily in other companies." This has given way to completely new products and services, based on a very intense inter-departmental cooperation.

3.3.2 Core business processes / structures

As we have seen, the involvement of Heads of IT in strategic decision processes has been growing, although their expertise is not always integrated at the same level. While in the case of interviewee 1 strategic decisions are taken without his direct involvement, in other cases, like in that of interviewee 4, a CIO in an organisation operating in the gambling industry, the influence is much more visible. He defines himself as strongly integrated in strategic issues like restructuring and organisational change, underlining his involvement in a changing of the ownership structure that led to a new strategic orientation towards becoming a "digital company".

As we have argued, the challenge deriving from the epochal change associated with digitalisation concerns organisations as a whole, and its core processes. The contribution that comes from IT consists not only in questioning existing business models and the presentation of new ideas. It is also evident in questioning the organisational model. The balancing act not only concerns the claiming of greater decisional power, and of more influence within the existing hierarchies or structures. It also concerns the fact that the process of *organising* has to be re-thought. Interviewee 2 gets to the heart of the argument when he rejects the traditional conception of the IT department as a service provider and proposes an agile organisation in which the various departments cooperate on the basis of projects and across organisational structures. Interviewee 4 and 5 also report that they prefer agile methods like SCRUM and that organisational structure and, above all, the way of cooperating within the other departments has been changing. This *challenging of the organisation in its essential structures* is obviously a reason why the perception of the changing role with respect to core processes causes conflicts and why initiatives taken by IT are not always well received.

In this sense, interviewee 2 describes the relationship between IT and other departments as "charged". How does he, as CIO, deal with this issue? His answer shows how he combines the challenging of the whole organisation with a strategic social competence that allows him to make sense of the current technological change in the context of the organisation. He does so by taking over the role of a moderator, as he says: "In one of the major fields of tension, I try to intervene the best I can under the title 'divisional strategies' by assuming, together with some of my key colleagues, a kind of moderating role. The crucial point in assuming this role is not to immediately adopt the latest technological evolution, but to ask: 'What is the bigger plan?'" What interviewee 2 has created out of this intervention is, as he explains, a kind of *requirement management*, a set of methods allowing the building up of a common understanding of the necessities of the single departments as well as of the technological opportunities and evolutions that could be used for the novel needs of core business.

Similarly, interviewee 3 reports that in the complex environment of high-tech production his company operates in, the IT department has become an important consultant in many questions and at all levels. While it has implemented control technologies for the whole production process, it also carries out research activities necessary for the future orientation of strategy. Again, he underlines the close relationship to the management board on the basis of delivering just-in-time information regarding production processes as well as knowledge and expertise for long-term projects and strategic visions.

4. Social skills

4.1 Connecting *virtual* and *actual* social space

Innovative acting - this was the initial point we made - has to deal not only with the repairing of a breach in economic logic, but also with reconciling a breach in sociality. What this breach in sociality means for the context of digitalisation emerges from the interviews. As we have seen, digitalisation pushes organisations towards less rigid, more agile forms of organising. It creates a connectivity that renders work organisation more independent of physical space and organisational hierarchies. People can work together while being connected in a virtual space. Yet, organisational forms like home office and a highly fragmented company in terms of sites and tasks seem to raise awareness that basic forms of social exchange cannot be replaced and maybe even have to be re-introduced in modern organisations.

As interviewee 5 reports, "social contact" seems to be an issue that has to be addressed explicitly when it comes to formation and training. The lack of social contact in an organisational form where only a third of the employees actually has a desktop in the office has to be counterbalanced by coaching and mentoring measures. Training concerns not only familiarisation with remote cooperation, but also social skills in the narrow sense of the term. He estimates the contribution of competences like the ability to

communicate, to convince others and to mediate in cases of conflicts as important as professional competences.
Interviewee 1 also raises the issue of how to organise cooperation in a more complex environment. On the one hand he considers a more flexible organisation of the working space a necessary tool for enhancing the access to knowledge, expertise and competences across the organisation without having to respect given, ineffective hierarchies. This is possible, on the one hand, because of a much higher interconnectedness and potential integration of competences by the virtual organisational space. He refers to the example of a colleague working in a subsidiary in the United States whose competences he can draw on via the virtual space. Without this connection, he would be limited to the competences of his local team. On the other hand, he is well aware that the effective use of competences is not guaranteed by virtual space, but it is a result of a socially organised space of cooperation. He has in mind a flexible, project-oriented structuring of organisational spaces in order to promote cooperation on the basis of competences rather than on the basis of the organisational hierarchies predetermined by the line-organogram. From his point of view, the advantage of this more flexible work organisation is that cooperation can evolve beyond plants, offices and countries, without having to give priority to organisational hierarchies. He links this organisational question to the issue of leadership by pointing out that it would not be possible to lead teams and shape cooperation on the basis of an authoritarian command style, as in the past. Rather, the responsibility of an executive is to motivate people by assigning them purposeful and interesting tasks.
On the other hand, interviewee 1 also states that the virtualisation of working environments endangers the possibility of cooperating in a really inspiring way. He believes that the factor of spatial proximity is still crucial for working together. It is not only competence, but also the intensity of relationships that determines the quality of cooperation. Social learning (Bandura, 1977) can be achieved only on the basis of the exchange within the projects between the different generations, between experienced and new forces, between peers.

4.2. Social competences becoming strategic

In several statements, interviewees underlined the necessity of building up a common understanding. This concerns interpersonal communication as well as interaction between different departments, but also the training of social skills is an important issue for organisational development. As interviewee 2 states, not everyone is convinced of the importance of these skills to the success of the organisation. And yet, being able to listen to each other, to talk to each other seems to be at the heart of the future capacity to keep step with technological evolution. Allegedly "soft" skills become strategic competences, as interviewee 1 states referring to the necessity to enter new fields of knowledge, competences and potential new products and services. In order to be able to do so, an organisation has to focus on social competences. Asked, what qualifications will be required in the future from a strategic point of view, he replies: "It is becoming more important that one be able to communicate with people from other disciplines. Added value is created by the fact that […] you connect the technological opportunities of IT to the business case and the knowledge of the department in which you apply it. People have to be able to talk to each other. Thus to listen, to understand, to ask informed questions: 'What is this about?' 'What is the aim?' […] Finding answers to these questions is absolutely necessary."
Interviewee 4 states that while in the past software was simply programmed and handed over, today much more communication between departments is required. Also, from his point of view the strategic importance of social skills is a consequence of the higher complexity of tasks, the fact that intense communication, i.e. a relationship experienced as such has replaced the old schemes, characterising line organisation, order-production-deliver or command and execution. With the tasks, the environment has also become more and more complex. As the relation with the suppliers becomes more complex and demanding, the challenge regarding digitalisation lies in the fact that both sides have to evolve (interview 2).
Social skills are becoming strategic because complex forms of social exchange take place within the production process. Cognitive skills are embedded in a process of paying attention and respect, listening, explaining, asking and being able to answer, to take over the other's perspective, to socially integrate by showing empathy and an authentic interest in the cooperation with others. This process consists of acts of giving and taking that presuppose the longing for reciprocity (Adloff, 2005) and are not reducible to the economic exchange model and a *homo-oeconomicus*-conception of agency. It is not the narrow motive of

self-interest that forms the basis of social exchange in organisations, but non-instrumental forms of relating to others such as respect, appreciation and acknowledgement.
Given the complexity of these organisational relationships, it is also impossible to reduce cooperation to the traditional command schemes and hierarchical forms of exchange characterising line organisation. Organisational hierarchies are challenged by the attempt to introduce less hierarchical forms of interacting. Yet, the strategic dimension of this attempt to challenge lies in the fact that organisations do not cease being fields of power, in other words, the new organisational forms do not replace power relations. At best, they succeed in transforming them by introducing elements of reflexivity.

5. Conclusions

We started our reflections by stating that change has become ubiquitous in organisations and that therefore the discourse on organisations draws on *dynamic* terms, preferring process over structure, transformation over continuity, change over stability, innovation over routine. Innovation does not concern only products or processes, form or technology, but has seized organisations at the level of their culture.
The largely shared conviction that organisations have to be continuously restructured has made visible a *breach in sociality* that often is the consequence of organisational change. On the one hand, IT departments are capable of offering valuable impulses and initiatives with respect to *rendering organisations more dynamic*. They have been forerunners in the development of agile management methods and are often in favour of abandoning ineffective hierarchies. In addition, operating at the frontier of technological evolution they strongly opt for leaving behind bunker mentality and fostering cross-departmental cooperation. On the other hand, by challenging hierarchies and structures and by advancing agile forms of work organisation, they *contribute to raising uncertainty* in organisational environments.
The question remains how this breach in sociality can be *reconciled*. Our hypothesis is that *continuity* is to be sought in *organisational culture*. This does not mean that we conceive of culture as something that, like organisational identity, cannot be transformed. Rather, our conception of organisational culture effectively accompanying change refers to *reflecting on and re-organising social exchange*. It is striking, for example, that the specialists in virtualising the possibilities of cooperation point to the importance of *spatial proximity* and of *intense personal and group relationships* within firms.
From the perspective of *digitalisation*, there are two elements of organisational inertia: *line organisation*, i.e. hierarchy stemming from pre-digital times, and the *cooperation of teams* that is only in a limited way extendable into virtual space. To try to overcome inertia in a top-down manner by abolishing formal hierarchies, as well as by tearing apart teams working together in the same place or by overcharging them with opportunities to extend cooperation in the virtual space, is obviously counterproductive.
What needs to be furthered in terms of organisational culture is *reflexive social exchange*. Social skills such as the capacity to take over the other's perspective, to pay attention and listen to each other, the capacity to appreciate and further develop others' ideas, to convince others of one's point of view, to interpret new evolutions in technology, culture and society, have to be addressed, reflected on and trained. Only in that way will the capacity of making sense of the epochal challenge of digitalisation be successfully translated into a high quality of cooperation within and across departments and contribute to developing concrete strategies for the future.

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