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The Digitized Voice Is Calling: Re-imagining Organizational Practice And “Consciousness”

Abstract: The numerous dimensions of organizational existence have been extensively examined in management studies; however, the concept of organizational imagination and consciousness has been less explored. The efforts of our research were aimed at discovering how organizational imagination impacts both social and material phenomena and how it contributes to a specific collective way of thinking, perceived as organizational consciousness, which fuels change on multiple levels and impacts the organizational ecosystem. We arrive at the conclusion that organizations that take the risks and embrace organizational imagination give themselves the chance to grow in unexpected ways and as they challenge the comfortable status quo, they are faced with some consequences because the ability to reimagine does not always sit easily with the organizational ecosystem.

Key words: digital humanities in management, social change, organizational imagination, non-human actants, Actor Network Theory

Introduction

Organizations, to borrow a metaphor from Gareth Morgan resemble human organisms [Morgan 2006]. This is a powerful metaphor because, in addition to the artefacts that constitute the materiality of an organization (also understood as the routine procedures

that are followed, codified organizational behaviour and the managed distribution of knowledge), it allows us to discern the less obvious aspects of organizational life. However, what we have in mind is what can be termed as organizational consciousness. Yet this is not an identity that invokes values and history, but a type of consciousness that is responsible for the development of an organization, for forward thinking and for invention. Though it may appear to be so, it is not the usual sum of the consciousness of the people working in an organization, but a form of synergic flow of thought and ideas, and a mode of building communicative relationships both between people and – in organizations applying new technology – between the *human and non-human*. This particular understanding of an organization will be investigated within the context of the development of Bruno Latour's Actor Network Theory (ANT). We turn to ANT because it stimulates unorthodox ways of capturing social phenomena by focusing on the interconnection of different actors; in our case it illuminates the human and technology relationship. The theory allows us to explore organizational life in a narrative way [Czarniawska 2005], recognising that time plays an important role in constituting a type of a story (genre) that shapes relationships. Because the organization is seen as a sociotechnical network [Latour 2005] that entangles together a variety of actors, it also implicates a certain methodological approach to explore this dynamic process. Rather than focusing on gathering quantitative data, it calls to focus on qualitative, induction methods that are able to shed light on flexible and changing networks. For this purpose, we selected one organization as a case study to gather rich empirical material about the object of the research – digital voice – and, as we have followed it, we have also found a way of exploring the network without being lost in its dense mesh.

The organization selected is VoicePIN, the first voice biometrics producer in Poland which explores the use of artificial intelligence in different fields. VoicePIN main product is a system that provides a range of voice biometrics solutions for the user. It allows users to log in and authenticate themselves without the necessity of remembering passwords or PIN numbers. It also acts as a system for fraud detection and proof of life. VoicePIN operates in a reality where people and technology are bonded tightly, working on the algorithms that transform individual voice into a unique mathematical model. Analysing this particular organization gave us the opportunity to lead our inquiry into the realm of human-non/human relations and observe how using technology in imaginative ways lead to organizational transformation.

In the first part of the paper, we discuss our research questions and present the theoretical background to the concept of organizational imagination. Next, we explore the purpose of using ANT theory and relate it to the proposed understanding of consciousness. Then we clarify the methodology used and present the main findings of the research, which are examined through the application of agency in ANT theory. We do so

in a critical manner to expose to what extent ANT theory can be helpful to analyse reality formed by an effort to create imaginative ways of using artificial intelligence. The paper ends with the conclusions which explain how organizational imagination and the use of metaphorical language in our analysis have shed some light on the new field of research and understanding of how humans coexist with intelligent machines equipped with AI in a work environment made up of advanced technologies. We end the paper by indicating possible questions for future research.

Objectives and theoretical background

Our research efforts are centred around two key questions concerned with this theme: How do organizations conceive their limits and how do they exceed them when wishing to create a new business reality and initiate social change? What influence does the *non-human* factor, the technological actor, have on organizational "consciousness" when, as we suspect, and as we attempt to verify in the research, speaking its own "language" of computer code, algorithms or AI, it becomes a factor influencing relationships and organizational learning and, above all, a component on equal terms with all others in the contemporary organization? The presence in the organizational ecosystem of *non-humans* that "speak" inevitably causes people to listen to this "voice" intently. The use of inverted commas here is only the expression of a certain linguistic powerlessness which appears when certain concepts, such as conversation, voice, listening, learning or pursuing social relationships, which in traditional discourse are attributed only to humans, extends their fields of meaning into ambiguous contexts associated with the technological voice of a subject that is no longer an inanimate object, but a dynamic factor that speaks in organizations, is heard in them and produces effects in them. This has an influence on strategy and on the concept for growth and development, initiating, and, in certain cases, taking over the processes involved in devising new products and new services or, as we framed it in the title – re-imagining organizational practice and "consciousness".

The term 'organizational imagination' has a presence in academic literature. Charles Wright Mills refers in his book *The sociological imagination* [Mills 2000] to a particular tension between individual experience and something he named 'social imagination'. This is a particular feature of group experience, or rather perspective, that allows an individual to take a voyage of self-discovery on a collective level and engage in a public sphere.

The sociological imagination enables its possessor to understand the larger historical scene in terms of its meaning for the inner life and the external career of a variety of individuals. It enables him to take into account how individuals, in the welter of their daily experience, often become falsely conscious of their social positions. Within that

welter, the framework of modern society is sought, and within that framework the psychologies of a variety of men and women are formulated. By such means the personal uneasiness of individuals is focused upon explicit troubles and the indifference of publics is transformed into involvement with public issues [Mills 2000, p. 5].

In the science of organizational management, imagination, as a subject of theoretical interest as well as practical interest, appears thanks to Gareth Morgan, who in his book, *Images of organization*, offers not only a new way of thinking about an organization, but also conceptualizes different kinds of organizational problems by using tailored metaphors. Thanks to Morgan, we can think about organizations as machines, organisms, brains, cultures, political systems, physical prisons, flux and transformation and instruments of domination. Morgan emphasizes a strong relationship between the theory of management and organization, using imagination and a metaphorical way of thinking about organizations.

This book explores and develops the art of reading and understanding organizational life. It is based on a very simple premise: that all theories of organization and management are based on implicit images or metaphors that lead us to see, understand, and manage organizations in distinctive yet partial ways [Morgan 1986, 2006].

Organizational imagination can be itself read as a metaphor. Is it legitimate to talk about organizational imagination rather than the individual imagination of the people employed in it? Why is it important in the context of organizational management to assess the role of imagination? In our opinion, it has the potential that allows an organization to move existing and historically made borders of its function. Organizational imagination is derived from a particular organizational culture. This organizational culture allows people that make up the organization opportunities to be involved in discussions and free communication, but also even more importantly, it encourages people to take risks and engage in lateral thinking. Organizational imagination therefore emerges in a dialogue and with the conviction that new ideas, if capable of influencing the organization itself and its products or services, are desirable and can be perceived as the fuel that drives organizational development.

Imagination, as discussed above, brings to the study both collective and individual actors, who through the act of imagining become the subject and the object of transformation. The act of transformation might be seen as a spectrum of different occurrences and, however useful (and tempting) it is to narrow down the trace of research when studying it, we attempt to embrace this variety of different states by using ANT theory to penetrate below the surface of the obvious.

ANT does not designate a domain of reality or some particular item, but rather is the name of a movement, a displacement, a transformation, a translation, an enrollment. It is an association between entities which are in no way recognizable as being social in

the ordinary manner, except during the brief moment when they are reshuffled together [Latour 2005].

This perspective, which is offered by ANT to understand how different actors (in the case of our research, people and technologies) relate to one another in time and space, puts emphasis on interactivity and a polysemic treatment of organizations that is highly complex and entangled yet possible to explore by using the act of translation [Czarniawska 2009, pp. 424-426]. According to ANT, translation prevents the constant movement and interplay of different actors from ending up in a chaotic, inoperable mass, stripped of sense and meaning; we, however, point to consciousness.

For Latour [2005], translation prompts two mediators into coexisting in a process of finding meaning, but to find the meaning there is a need to understand each other. On the other hand, consciousness is much more freely associated with knowledge or understanding that is needed in translation. The common expression – *I am conscious* means certain awareness, which is closer to feeling or sensing. In our understanding, consciousness gives a sense of purpose and a sense of identity, hidden deeply and hard to define, but yet observable through actions and decisions.

Paradoxically, consciousness, as a fragile and difficult to locate essence (is it the brain, the heart or the soul?), preserves organizational integrity and helps to respond to its dilemmas. It stabilizes the life of an organization by allowing ways of doing things to appear.

Qualities associated with consciousness [Prusan 2001], such as the ability to reflect on existential matters, help to answer questions, such as who are we?, what do we want to achieve?, and what is permitted?, which also introduces ethical considerations.

Methodology

In this paper, our methodological imperative was directed at finding the way to construct empirical accounts that reflect the transformative and dynamic character of the organization as approached by ANT theory, which treats the social as a network of interests between various actors entangled in complex interplay [Cecez-Kecmanovic et al. 2004, p. 814]. Therefore, data was gathered by outlining links and tracing dependencies in a dense network of socio-technological relations. It occurred that the network could be explored systematically, as we followed the non-human actors and analysed how the digital voice is calling and how it has been called upon. This methodological principle is designed to ensure the richness of empirical material [Plesner, Philips 2013]. The methods employed in our research were based on qualitative, face-to-face interviews with semi-structured questions that evolved into differentiated discussions depending on

interlocutors' roles and levels of experience in a particular organization. Actors were treated as mediators [Latour 2005] that could offer guidance in exploring their reality and explaining how they perceive it. In total there were four interviews (each lasting about 90 minutes) with people working in the organization and one (60-minute) interview with a business client that uses VoicePIN as an authorization system for its employees to allow access to digital accounts and physical access to some parts of the office building. There was also one observation of an individual using his voice to log on to a banking system and use a call centre to resolve an issue. During the research phase, we were also granted access to company documentation, different case studies and we were able to exchange emails if we needed clarification on different matters.

The research started by attending one of the meet-up events set up in Krakow by a global organization focused on attracting women to technology. The meeting gathered specific type of people from different fields but with shared interest in programming, AI and coding. The VoicePIN Sales and Customer Experience Director presented a talk tilted "Passwords and PINs are neither strong nor sexy. Your Voice is!".

The main part of the talk explained how the organization operates and what values it holds as the most important, but significant time was also spent on technology that deals with machine learning and comprehension (natural language understanding and natural language processing), the development of the digital voice and its market implementations. Numerous statistics were shown to indicate that using a voice to gain access and confirm identity has been the safest security option up to now, especially in a banking system.

Research results and discussion

In the first part of the presentation of the company, the audience was positively interested and the ideas of simplifying the process of authorization and escaping the need of remembering the passwords were praised. But when the algorithm was introduced, the mood changed. The discussion that followed the presentation was to certain extent confrontational; individuals praised the company (its values and innovative way of thinking), but strongly questioned the capacity of the AI being able to recognise the user in various circumstances. Problems mentioned were connected to the algorithm's ability to recognise the voice because of a faulty device or background noise. A long time was spent discussing whether sickness, a husky voice or puberty would have an impact on effective voice recognition. In general the questions asked and issues raised were indicative of a lack of trust in the technology, limiting belief in its ability to create safe solutions, and its unethical potential. Our attendance at this event triggered our interest. We were able to schedule a follow up meeting that started the process of getting to know the organization.

The organization evolved from a small software company offering development of dialogue systems for call centres that were dedicated to create an automatic agent for handling queries. The organization saw the potential of the technology and envisioned a more complex and innovative way of using it. At this point, strategic changes were implemented; the organization decided to rebrand and re-open under a different name, with a different product and address the market with a new marketing strategy. The decision to leave a safe and known market segment was driven by the ambition to develop the technology in a way that would have made the organization independent from other software suppliers and provide it with the potential to use the technology on a global scale. Changes in the code transformed the organization, but also fuelled the need to reimagine and redesign itself against risks and uncertainties. It took the organization three years to develop a new algorithm; it was possible to spend that much time in the development phase because the owner of the company was able to find an investor who granted financial support for the envisioned future.

Today the organization has 24 employees, working in three different, similarly-sized departments: R&D, Software/Product development and Sales. The structure is flat and flexible, so it can embrace change and support innovative ways of thinking. The main office is in Kraków in Poland, but as the demand for the product rose in the US, the company opened an office in Sunnyvale, California.

The VoicePIN is the main product offered on the market, but the organization is prolific in finding ways to utilize the developed technology in creative ways, re-imagining constantly the use of its know-how. This approach has resulted in a range of implementations, one of them being the Proof of Life for the South Africa Social Security Administration. The most technologically advanced project, which the company is hoping to launch next year, is closer to personalized prediction and emotion recognition. Despite the fact that the project is now in an advanced phase, the possibilities of using it are still open to the extent of even being unknown to both the market and to the creators. Utilizing technology has also been the subject of collaboration with ZoraBots, the robot assistance that worked at a Belgian airport during the Christmas season.

ANT theory application to non-human actor

So far, we have presented the organization in a narrative that hopefully is able to capture the general picture of the socio-technical net of relations and the role imagination plays in it. In the next few paragraphs we would like to present specifically the influences of an algorithm, a non-human actor, on organization to illustrate an array of outcomes. To do so, we will use the classification of agency and its contribution to social life offered by

Sayes [2014], who, in the article titled *Actor–Network Theory and Methodology: Just what does it mean to say that nonhumans have agency?*, introduces four types of non-human agency with corresponding impacts on social life:

1. A non-human gives agency seen as a condition for the possibility of human society and becomes necessary stabilizers of the human collective.
2. A non-human acts as a mediator that is able to transform relations between actors and adds value to the chain of interactions.
3. A non-human becomes a member of moral and political associations.
4. A non-human brings together actors of different temporal and spatial orders.

The broad categories of the possible roles that non-humans engage in do not make a comprehensive list, but rather evoke some epistemological order, which, apart from being systematic in utilising the ANT theory, allows us to reach a new depth of understanding of organizational existence in relation to non-human actor.

The first category captures the ability for a human to be able to distinguish himself/herself from the other, non-human actors and, because of that, maintain the solidity of human society [Sayes 2014]. In the case of the digital voice that limits for a our identity to the sound short time and later to the mathematical model we expect it to be exactly like we are because this is the principle of the authorization process.

We are used to validating our identity using our biological code – DNA, fingerprint, eye – but if we are limited merely to sound, which is so fragile and vulnerable, how can we trust that our voice will not fail us and that the algorithm will correctly confirm that we are who we say are? This question about identity, philosophical or theological at its root, changes into a form of a test that is considered successful if one's voice matches its mathematical representation in a digital environment. This way of approaching technology blurs the border between the human and the non-human but in the case of VoicePIN has some right to be expressed. If we take a closer look at the work architecture of the VoicePIN developer, it almost makes the human-non human relationships in the organization seem inseparable and in some cases even ontologically undetermined. This can be seen in the following extracts from the interviews:

- *There is no human element during the process of working with a voice;*
- *The human element is present during the implementation process, when we check if the technology is well integrated;*
- *The only alive person is the user and our system.*

The code also can be analysed in the conjunction to the second category mentioned above, indeed it acts as a mediator that is able to transform relations between actors and adds value to the chain of interactions but when doing so often destabilizes the collective, puts pressure on the organizational identity by bringing conflict and tension. The code is constantly being developed in the organization, it is being used and tested

outside, by the customers, it changes its functionality and requires new solutions. The code is not simply a tool, or a placeholder [Latour 2005] that produces a digital voice, but it also has its subjective presence that impacts the interaction process. It may centre people around it, literally in a team and metaphorically as it impacts the relations, but also brings struggle and loosens the relationships.

There are times that we feel we've hit the mathematical ceiling, because mathematics limits us. In a way, it doesn't deliver the ability to translate some phenomena into a model. You need to have lots of faith and trust in the idea, team and algorithm, so that you will not give up. Failures are part of the process and a lesson for all of us.

The algorithm can be also seen as a member of moral and political associations, it raises questions about the social responsibility of the organization and legal accountability.

We understand that our technology is making some aspects of people's lives easier, but it doesn't make them change. So, the way to develop is to look for a model correlated, for example, with big data and individual users, to create something with a big impact factor.

The algorithm also changes society on a larger scale, because of the organization's experience in the field of AI the government has been consulting it to develop new policies concerning use of technology and access to data.

The last category pointed by Sayes [2014] directs analysis of non-human to its ability to gather different actors together which is particularly interesting when applying to AI.

"Sapiens often use visual marks such as a turban, a beard or a business suit to signal 'you can trust me, I believe in the same story as you'" [Harari 2016, p. 167].

When working with or for algorithms, this lack of clear set of rules, lack of visual clues, lack of shared stories and myths will impact how we build relationships with others whose behaviour we sometimes cannot predict but more often, as noticed by Domingos [2015], we cannot explain. Non-human gives meaning to the organization – awareness of what we are for, why we are together it gives understanding of togetherness as oppose to otherness. Yet at the same time the AI polarizes people and creates divisions, it offers wealth to some but at the same time makes the work of other scarce, it and escapes the categorization and simple judgment.

Conclusions

When we contemplate what creates organizational frames and what sets organizational borders, we arrive at the conclusion that on the one hand it is the infrastructure, the buildings and the particular address on a geographical map and on the other hand it is the documentation, the status of the organization, its regulations and its wider procedures.

The bureaucratic layer of an organization is, in a sense, a skeleton on which non-material aspects of culture are placed together with human relationships. Organizational imagination violates the current order, undermines set rules, pushes the boundaries of organizational taboo, generates new values and also creates a foundation for inventing new and previously unknown organizational relationships, for example human with machine, of which the latter stops being only a material artifact, but, in some circumstance, responsive and imagined in an AI 'person'.

So, we arrive at the conclusion that implementing new ways of doing things requires new ways of thinking associated with finding innovative solutions, which in our case study occurred on the borders of meaning of human non-human where the relationship formed by different actors starts to form an entangled unity. This transformation is rooted in the constant perception of change as a desirable goal in itself, bringing thrills and satisfaction, but also frustration and struggle.

The human-non human relation [Latour 2005] generates new fields of research to ask questions about the institutional continuity of an organization and fosters the ability of organizational metamorphosis which helps an organization to fit into new social and technological contexts, and also provokes enquiries concerning organizational identity and culture. Taking all of the arguments into consideration, we believe that the following questions are valid:

What is the impact on the redefinition of the term "multicultural", which is used more generally to describe the relationship between people representing different cultures, and how could this be applied to describe the relationship between man and things that also "learn" from him? Does a long-term period in an environment where there are intelligent and reactive machines have an impact on developing hybrid identities in people cooperating with them? Finally, what significance may it carry for an organization's values in a deeply ethical sense?

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