B. Business Impact
Rethinking Businesses

Digital transformation, covid-19 crisis, digital transformation

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Abstract

This impact paper focuses on the relation between the covid-19 crisis and digital transformation. During the crisis, digital technologies have been a powerful enabler for the business continuity (and also social life continuity) in the context of confinement. Analysing what has happened, we outline successes but also limitations of this "go digital" injunction: digital divides, inappropriate systems, misunderstandings of the potential of AI. We highlight that makeshift reactions - useful for handling the crisis - are not necessarily fuelling the more profound digital transformation - neither do they necessarily accelerate it. They may also cause difficulties – shadow IT, information security breaches, psychosocial impact. However, they have forced many to consider further some IT-based tools they would not have considered previously. The crisis showed there is still a long way to go to reinvent our organisations and business models in digital transformation. This endeavour may lead to unexpected side effects, such as a shifting balance between cities and countryside.

Keywords: Digital transformation, Covid-19, Crisis, Smart city, Security

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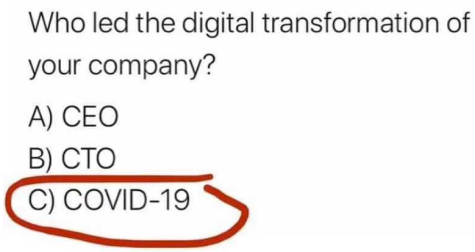
It all happened quite fast, in the time scale of the world.

A virus infected human beings for the first time – the coronavirus SARS-COV-2 – and started spreading the covid-19 disease all over the world. This triggered a public health crisis, leading in a couple of months to the sudden confinement of most of the world's population.

This sudden "stay home" injunction unleashed a sort of digital deluge – for working from home, for getting entertained from home, for keeping social relations from home, for consuming from home, etc. Like it or not, a lot of people and organizations have gone more digital.

This led some to think the covid-19 would be a powerful accelerator for digital transformation. Figure1 pictures a meme largely shared on social media supporting this analysis.

Figure 1: A social media meme supporting the covid-19 would be an accelerator for the digital transformation



The crisis creates a disruption. It follows, we tend to think to the after-crisis, we tend to imagine what the day after will be, what the world of the day after will be. The covid-19 crisis may let us think that this "world of the day after" will finally be a digitally transformed world, for the better, truly for the better…

In this paper we will question this assumption. We first draw some insights of the digital dimension of the covid-19 crisis. Then we will go one step further analyzing what the impact of this crisis could be on the longer term as far as it concerns digital transformation and how to get the best out of it.

Going digital as a shock absorber. #resilience

Resilience is a concept used in many different fields (ecology, psychology, organizational studies, engineering, crisis management, and others). Roughly, resilience is about a stable system, some change, and the ability of the system to cope with this change and to go back to a state similar to its initial state.

"Graceful degradation" can help resilience. A degradation is said to be "graceful" when the degraded system is still somewhat functional. Originally a computing concept, it aims at differentiating between systems which stop working when one of their components is deficient and systems which continue working – of course in a degraded way.

When the confinement was decided, all of a sudden people had to avoid physical proximity as much as possible and ideally they had to stay home. This broke many of the usual ways of working and living!

The use of digital tools helped the continuity of our activities despite these new constraints. For instance, tools such as (in alphabetical order) Bluejeans, Google Hangout, Google Meet, Microsoft Teams, Skype, Zoom, and others, allow synchronous interactions through videoconferencing. We can continue meeting without moving to gather in the same place!

The good old email continues allowing asynchronous communication.

Tools such as the Google suite or Office 365 enable collaborative work on shared documents.

Hopefully, you can continue working from your laptop at home the way you were working in your office with your desktop computer because you have an external access to the corporate servers of your company. Maybe you have always been working "in the cloud"! In this case you have always worked remotely from your files: it does not change much whether your distant location (from them) is your office or home!

Thanks to these IT tools, a part of professional activities has not been stopped by the confinement. There may be some degradation in the way of working and the output of this work, but there is continuity.

This is the same for students (and their teachers!): let's go from learning to distance learning!

Fortunately, life is not only work! What about friends, family and entertainment? The tools we have mentioned already allow to organize friendly (distant) meetings (including having a drink together but in a distant way – popular "apéro-vidéos" in French, video-drinks, cocktail-videos…).

For your entertainment, video streaming platforms such as Netflix, Amazon Prime or Disney Plus may be useful. So are online video game platforms.

Thus, faced by a sudden confinement, digital tools can contribute to graceful degradation and resilience.

This is true… except when this is not. Indeed, what about network coverage? What about availability of relevant equipment? What about skills (to use the tools)? What about authorization?

We have all experienced video freezing, people speaking "from a fish tank", people getting disconnected, reconnected, disconnected again… The truth is that a video-conference is still not as simple and reliable as a phone call, with situations - better or worse - depending on the physical locations of the participants.

We have all experienced the live tutorial to explain how to share a document / deactivate the microphone / invite an additional participant… This is not because a tool is available on a computer that the user of this computer knows how to use it!

Authorization is an interesting topic. When the confinement started, some people realized they did not have the right to remotely access the corporate servers whereas some of their colleagues did. For example, some did not have VPN accesses whereas some others did. This raises the question of trust in management. Information security reasons may explain

this discrimination among staff members, but they have to be clearly explained… and have to be relevant!

What we are shaping here is a set of digital divides, from technical origins, from skill origins or created by management/organization choices. These digital divides are grounded in social divide, in generational divide, in access to education, in how roles, rewarding, gratitude and trust are designed and implemented in an organization.

Going digital may reveal existing flaws. For some preexisting problems, going digital makes them explicit and exacerbates them. We may blame it on digital practice, but sometimes the problem was there before.

Digital transformation? Bricolage is not construction

Facing the crisis, everyone did his/her best with available resources. This is the same at the organizational level. Unless some plan was ready to cope with a sudden confinement, this was a stage of bricolage – a mix of improvisation and DIY. Bricolage is a very good thing! It is related to an entre-/intrapreneur mindset.

However, doing so, all the constraints, all the possible implications have probably not been considered. Here we will focus on two aspects which could have negative consequences: shadow IT and Information security.

In an organization, the choice of information technologies (IT) is usually coordinated by the IT/IS department. This choice is driven by the assessment of different technologies, by their compatibility with what already exists in the company, by budget constraints, by an anticipation of needs, etc. Shadow IT is IT selected, deployed and used by part of the staff of the organization, without going through the usual selection process handled by the IT/IS department.

Shadow IT is likely to have dramatically expanded during the covid-19 crisis. If there was no recommendation as to which videoconferencing tool to use, everyone picks up one among all the freely accessible tools. Some may have chosen a different tool than the one recommended because they felt it fits their situation better (network constraints, technical constraints, need for some functionalities…). Some may have created a Whatsapp group with the colleagues they work the most with. Some may have shared documents through their personal Google drives…

After the crisis, IT/IS departments will have to shed light on the shadow. Which technologies have been used? Do they raise issues within the perspective of the global information system? Should they be integrated? On the other hand, should we force the staff to abandon them and to use other tools? Did their use cause problems which have to be solved?

In addition to shadow IT, and overlapping it partially, there is the topic of information security. The more an organization goes digital the more it is at risk in terms of cyber-attacks. The digital transformation is necessarily a two-sided endeavour: creating more value out of digital information and better protecting the value created out of digital information. If one focuses on creating value, without adapting security to this new type of value creation, value is created for others: it will be looted!

In the rush to find answers to the new constraints imposed by sudden confinement, companies went massively digital - and so did we in our personal lives. The purpose here was to maintain the ongoing creation of value. Nevertheless, was enough attention paid to the subsequent new risk exposure? Indeed, was any attention at all paid to information security?

The crisis unleashed the best and the worst of human nature. Several public bodies (among which, the Council of Europe, Interpol, Europol, ANSSI, CERT-EU) stated that cybercriminality increased dramatically, taking advantage of people going digital rapidly, without being prepared enough. Several hospitals – at the heart of the crisis response – have been cyberattacked (for example Paris hospitals were cyber-attacked on March 22nd).

This raises multiple issues:

- Evaluate the damage of cyberattacks which may have occurred and resolve them when possible;
- Evaluate the risk for the future of possible misbehavior during the crisis;
- Accelerate the increase of Information Security Awareness within the company (and in society)(Meiller 2019)

Digital transformation? Reaction is not action

IT has a direct impact on time and space. In a nutshell, they reduce distances and duration and they offer new possibilities for temporal parallelism and rapid interlacing of activities (see (Meiller 2018a) for a deeper analysis).

These possibilities have been exploited to cope with the confinement. All of the sudden, we could not physically move therefore we have used IT to free ourselves from physical constraints.

It has been shown that these possibilities contribute to a feeling of acceleration of society (Aubert 2018; Rosa 2013). This can lead to positive outputs but also to negative ones (such as burnout). This crisis, with its rapid and unlimited use of technologies, is pushing this acceleration, including its negative effects, leading to people suffering from exhaustion, nervousness and irritability while working from home.

We reacted faced with such adversity with the tools at hand. There is no strategy, no optimization, no thinking of what the best way to get the most out of these technologies would be. This is just a reaction.

This step was useful for handling the crisis, but this is not digital transformation.

There are two ways of creating value out of IT. The most valuable one is to consider the new possibilities of IT and based on them to reengineer processes and to improve business models. This is complex, but this is what creates the most value.

Another way, easier but yet valuable, is to equip existing processes with IT tools. This is just the tip of the iceberg of digital transformation, but this is already something.

This is not what has been done during the covid-19 crisis – remember: bricolage, reaction… However, the awareness of the existence of some IT tools has increased. A lot of people were forced by the exceptional context to consider these tools: to realize they exist, to know more about their functionalities and even to step up and use them. In a classical model of

integration of an IT tool in an organization, this is the assimilation aspect (de Vaujany 2009) ref. As of now, two other aspects are missing:

- Adoption by the organization – which implies some analysis on the subject
- Appropriation by the users – not only to use some basic features to palliate at least partially the changes imposed by the crisis, but to create usages which get the most out of these tools in every context.

Digital transformation? Understanding decision making better

At the heart of the digital transformation is the processing of digital information.

Let's focus on decision making and data processing during the covid-19 crisis. First, a simple example: to make decisions in the face of a pandemic, we need data about how the pandemic is spreading. Collecting these data (in particular the number of deaths) may seem easy, but the reality proved to be the opposite. There is no right or wrong here, just a blatant illustration showing that data collection is not straightforward. Interconnections between systems do not necessarily exist. An information system is designed for some purposes and it may be difficult to use it for something else. There is no magic behind digital transformation! Just tools and methods offering great opportunities but coming with their own constraints.

The second example is the one of Artificial Intelligence (AI), and more specifically the one of machine learning. Some expected a lot from machine learning to find a solution to the covid-19 crisis. This is a sign of great misunderstanding! Machine learning identifies (if any) correlations in a set of data. Within AI, machine learning is on the artificial experience side: based on past observations, identifying regularities.

In considering the covid-19 crisis, there are no past observations… This is not our second or third covid-19 crisis! Consequently, machine learning is useless here.

Machine learning can help to solve specific problems related to the covid-19 crisis. This is the case for instance in medical research, because some of the characteristics of the current virus are shared with other known viruses (which have already been studied).

However, you should not expect these tools to solve an issue which has never been faced in the past. Machine learning may anticipate a new occurrence of something which has already happened, but it cannot predict a "new future".

Now that a variety of responses has been tried to handle the crisis (strict confinement, no confinement, confinement with exceptions, etc.) we will have data to fuel machine learning algorithms so that they help us determine what seems to work better… for next time.

This leads to two key points concerning digital transformation:

1. The potential and limitations of decision-making tools have to be clearly understood by their users and we should think carefully how to integrate these tools in decision making processes.
2. Decision makers are the ones making decisions. They have to make decisions even when they do not have all the information. Of course, they must exploit as much as possible available data and tools rationalizing decision making (AI tools for instance), but they should not be blocked when data and tools are not sufficient to determine

which decision would be the “best”. Organizations and individuals will always need to be able to make choices under uncertainty(Meiller 2018b).

From smart cities to smart countryside?

Another aspect of the Covid-19 crisis in the perspective of digital transformation is to show cities and countryside in a new light. Many people have experienced that their work can be done away from the office. Therefore, professional criteria would not be a part of the attractiveness of cities anymore. As cities come also with high rents, air pollution, higher risk of contagion during an epidemic, etc., this may create an alternative to the ever growing megalopolis, with more and more people in the countryside, linked to their companies, to entertainment, to distant medical services, and so on, through efficient digital equipment and associated organizations.

It is not obvious whether it would be better for the environment. Such a major increase in the use of networks and IT would come with more energy consumption. Spreading people would prevent mutualization of transport (subway, buses…). For the same reason, it is easier to optimize some services in a city. Of course, this would facilitate local agriculture and short food supply chains, this would reduce issues related to high densities of population, and this would better optimize the use of space (merging living space and working space), etc.

Socially, it would create new divides, between the ones who can choose not to live in the city and the ones who have to because their job is not compatible with distant working.

Conclusion

For sure, the ongoing digital transformation of our societies and companies has helped coping with the confinement imposed by the covid-19 crisis. It has been (and still is) a major contributor to resilience.

However, the crisis showed a lot still needs to be done in terms of digital transformation. The digital divide is blatant. The networks, tools and organizations need further improvement.

Will this accelerate the overall digital transformation?

We cannot be sure. The actual impact of the crisis has been to give more visibility to some digital tools and to help hesitant people to step forward and to use them.

Now the more complex is yet to be done. At the very least, reflect on the bricolage-based practices emerging during the crisis and think of the ways the use of these tools may improve the existing processes in companies, in a perennial way. Then go further: reinvent organizations and business models based on the changes IT can bring.

By focusing attention on the tools, the current crisis may be counterproductive. Indeed, the digital transformation is also about persons and about organization. It is about management, business models and creativity.

Let’s be optimistic and think the will to leave the crisis behind, the will to change things, will lead to reinvent organizations and ecosystems, boosting the digital transformation. Let’s

not solely rely on the crisis but on our understanding of digital transformation and on our willingness!

References

Aubert, N. (ed.). (2018). La Recherche Du Temps - Individus Hyperconnectés, Société Accélérée, Tensions et Transformations., (érès.), Sociologie Clinique, Toulouse.

Meiller, Y. (2018a). Technologies de l'information, Temps et Espace : Nouvelle Topographie Du Monde Informationnel et Nouvelles Relations Au Monde Réel., in @ La Recherche Du Temps - Individus Hyperconnectés, Société Accélérée, Tensions et Transformations. (érès.), N. Aubert (ed.), Toulouse.

Meiller, Y. (2018b). Intelligence artificielle, sécurité et sûreté, Securite et strategie (28:4), Club des Directeurs de Sécurité des Entreprises, 75–84.

Meiller, Y. (2019). Should MBA Programs Teach More about Information Security? Yes, They Should!, Ambition - The AMBA Magazine.

Rosa, H. (2013). Social Acceleration: A New Theory of Modernity, (J. Trejo-Mathys, tran.), New York, NY, USA: Columbia University Press.

de Vaujany, Fr.-X. (2009). Les Grandes Approches Théoriques Du Système d'information, Editions Hermès Lavoisier.