



B. Business Impact
Rethinking Businesses

Industry: A prototype that is better prepared than others for the end of the crisis?

ESCP Impact Paper No. 2020-38-EN

Géraldine Galindo

ESCP Business School, Directrice Scientifique de la chaire Une Usine pour le Futur

Chaire Une Usine pour le Futur – en partenariat avec



ESCP Research Institute of Management (ERIM)



Industry: A prototype that is better prepared than others for the end of the crisis?

Géraldine Galindo
ESCP Business School

Abstract

This paper questions the industrial sector which has almost become a barometer of the crisis and is under the spotlight of the media and analysis. We wonder whether these companies might not be better equipped than others to emerge from the crisis, having become accustomed to managing constant change and already begun their digital transformations. Based on our research conducted in the "A Factory for the Future" Chair, we stress that this preparation for the exit from the crisis implies putting the human being first. It appears that the industrial sector is already focused on four key questions that are central to its future challenges: what skills are expected, how to manage them tomorrow, what adjustments to expect and what future for the HR function. These are questions that must remain central in the post-crisis period, in our opinion.

Keywords: Industry 4.0, Human, HRM, Digitalization.

Industry: A prototype that is better prepared than others for the end of the crisis?

The Coronavirus crisis is immense, leaving no sector of the economy or society untouched. One sector is particularly under the spotlight of the media and analysis: Industry. It has almost become the barometer of the crisis and the activity of factories in particular has served as a signal at the various stages of this crisis.

From January, the shutdown of the electronic component manufacturing plants in Wuhan paralyzed global giants such as Apple, Nintendo and Hitachi.¹ At the same time, car manufacturers started to close their Chinese factories² and France discovered its reliance on producers of raw materials for its medicines.³ Each new announcement of closure, often unprecedented for the company making it, became one more step in the inexorable advance of the pandemic, everywhere and for everyone. It also pointed out the diversity of activities within industry, with some no longer considered essential (automotive, aeronautics, maritime, railways, etc.) while others continued their vital activities, sometimes in a reduced manner in order to preserve the health of their employees (energy, medicines). The decisions of each of the divisions to close or reduce the activity of their plants were often experienced as electric shocks, not only for the employees, but also for the company, which is used to the continuous activity of these flagships of the economy.

Secondly, industrial companies have demonstrated their ability to react and adapt. Many of these companies have succeeded in transferring their knowledge and know-how to serve the health sector. A Givenchy perfume factory (LVMH), for example, began producing hydroalcoholic gel in just a few days,⁴ while Michelin developed and produced masks at the end of April,⁵ and many others have also transformed their production systems, sometimes far removed from their initial activities, to equip healthcare workers and then all citizens. This industry is therefore one of the symbols of the necessity but also of the concrete implementation of solutions to the health crisis.

Today, when Renault, Arcelor Mittal or ST Microelectronics start up their business again in France, they are signaling a drop in temperature in the crisis, without however signifying the end of the panic fever. These industrial companies certainly show that it is possible to think about preventive gestures, to rethink the organization of work on assembly lines, or to generalize teleworking for certain categories of employees. While they are in the process of getting their sub-contractors back to work, they also point out that this will be difficult for everyone, including huge industrial companies.⁶

¹ "Apple, Nintendo, Hitachi... Comment le coronavirus paralyse la fabrication de produits électroniques", L'Usine Digitale, 6 February 2020.

² "Renault prolonge la fermeture de son unique usine chinoise à cause du coronavirus", L'Usine Nouvelle, 13 February.

³ "Pénurie en vue : le coronavirus menace la production mondiale d'antibiotiques", Atlantico, 19 February 2020.

⁴ "La mode se paie le luxe de la solidarité", Le Monde, 30 April 2020.

⁵ "Comment Michelin va fabriquer des millions de masques", LesEchos, 14 April 2020.

⁶ "We are experiencing a crisis of unparalleled magnitude in aeronautics and we learn every day" Philippe Petitcolin, CEO of Safran, 27 March 2020.

Thus, industry is considered a thermometer of the crisis and could, in our opinion, be better armed than other sectors to emerge from the crisis.

Through our research work in the "A Factory for the Future" Chair at ESCP BS,⁷ we can identify two key factors for the future of our industry:

- its preparation, due to its familiarity with crises and the digital transformation processes already underway,
- and the place already given to the human being and the questions associated with this role in the reflections conducted on productive systems.

An Industry prepared for the post-crisis period

A continuous preparation for difficult situations

Industry has almost always had to deal with unforeseen and/or difficult situations. Proof of this is to be found in its key words: delocalization, deindustrialization and de-structuring. All these words, which characterize its history, share the same Latin suffix "de". This suffix alone sums up the losses, situations of cessation of activities and/or destruction of productive capacities that have marked industrial history. Many companies have been forced to question their business models, sometimes repeatedly, to think about a new division of labor in the world, to part with non-strategic parts of their activities, and to constantly face increased competition and economic, environmental and societal uncertainties. Many industrialists were already familiar with the management of shutdowns, business slowdowns and reorganizations, etc. Of course, they were certainly not prepared for the magnitude, duration and multiple uncertainties of this crisis, but they do have practices to hold on to, and systems already in use to refer to. They are therefore one step ahead of other more protected sectors.

A collective preparation for digital transformations

Industrial history has been marked by four revolutions since the end of the 19th century and the introduction of mechanization. Today, "Industry 4.0", described as the 4th industrial revolution by the German government in 2013⁸ (Johansson et al., 2017), is based on organizations in which many digital tools are introduced, or even widely distributed, ranging from the use of robots and artificial intelligence to the implementation of "closed door machining" and the processing and sharing of computerized data. The crisis has highlighted the need to deploy these digital tools everywhere and for everyone, while controlling the associated data. By having no other choice than to digitalize their production systems, to think about security or the use of their data, industrial companies are one step ahead of other sectors. This lead is all the more crucial today, in that it was organized collectively. In the case of France, many industrialists have joined forces to think together about these digital processes, benchmark their practices, and anticipate the effects of this digitalization. Through these groups, they knew that their organizations would have to be rethought in the light of this inevitable digitalization. Of course, not all of them were engaged to the same extent in these major transformations, but they all knew

⁷ <https://www.escpeurope.eu/fr/faculty-research/chairs-and-professorships/chair-factory-for-future>

⁸ Recommendations for implementing the strategic initiative Industrie 4.0 – Final report of the Industrie 4.0 Working Group (Kagerman, Wahlster, & Helbig, 2013).

that to remain competitive, they had to deploy them more widely. The crisis has certainly led them to accelerate certain processes. It is also forcing them to consider the digitalization of some parts of their activities which are sometimes relegated to the background, for example the digitalization of support functions which are now more particularly concerned by the introduction of remote work.

Thus, industrialists have assets to manage and must find an exit from this situation. For us, their preparation is based on a key resource: people. The partners of the "Factory for the Future" Chair, the Safran and Michelin groups, met to discuss the place and ways of managing human resources in the digitalization of factories. The discussions on this subject are a rich source of information to consider a way to get out of the crisis.

The human being at the center of preparations to emerge from the crisis

Manufacturing companies do seem more prepared as they have already asked themselves four key questions about their strategic resource for emerging from the crisis - their employees.

What skills for the future?

Digital transformations initiated in industry appear to be inseparable from questions about work methods and workplaces, new organizations and the skills required to accompany these transformations. The quantitative effects of these changes in terms of job reductions or, on the contrary, the creation of new jobs (according to the Swedish report, e.g. Johansson et al., 2017), have been a particular focus of study in recent years. But beyond that, the industrial sector had also become aware that all these changes could not take place without reflection and action on the qualitative aspects of these transformations, i.e. the skills expected of these workers in the factory of the future. Contradictory movements were thus identified, of upskilling of "operators 4.0.", i.e. with augmented, collaborative or analytical skills (Romero et al., 2016), or conversely, a loss of skills (deskilling), with tasks that are more fragmented and less knowledge-intensive (Abrahamsson & Johansson, 2006). And the answers to these questions can only be plural. In the context of research in the Chair, we are studying the fact that the famous "soft skills", which are very much in vogue today, will not be the only skills expected tomorrow. The challenge is also to think about the technical skills that will be indispensable tomorrow, for example those in data management, analysis and security, but also others that are sometimes manual, and the systems that will make it possible to acquire and transmit these skills that are often rare on the labor market. Industrial companies are therefore already familiar with these questions about the skills expected in the future. The challenge lies more in the cohabitation of skills than in the substitution of skills. The ambidexterity of operators or of certain functions, i.e. the ability to be both in the use of existing knowledge and know-how while moving towards innovations, is therefore key for tomorrow. In this sense, the reflections on the value of the man/woman in relation to machines and on the expected skills will have to be pursued in this crisis context, and become key for other sectors.

How to manage these competencies in the future?

Industry 4.0 refers to new techniques and methods, but also to new modes of management and human behavior (Sousa and Rocha, 2019). It therefore raises questions about how to manage human resources in this change. It is not a question of "simply" asking who or what strategic skills will be needed tomorrow, but also of knowing how to identify these human resources, attract them, encourage them to develop internally, develop them, and potentially also how to help them remain employable in order to work elsewhere. This makes the roles of Human Resources Management (HRM) even more strategic. Together with the Chair's partners, we have initiated work on these issues, which are now crucial to managing the crisis. The short-time work plans set up in many companies are not just a question of quantitative workforce management. They require prior reflection on the career paths of employees, both internally and externally. And those who had already understood the importance of this HRM, as is the case in industry, have already reached a first level of answers.

What adjustments to expect?

In one of our research projects in the Chair (Galindo, Garbe & Vignal, 2019), we showed that the digital changes initiated in factories led to a return to the gaps classically identified in the literature between the policies initiated, practices implemented and feelings towards these practices. Contrary to the "myth of HRM fits" (Lengnick-Hall et al., 2009), it is almost impossible to have a perfect alignment between strategy and HRM, and even between HRM practices (Wright and Nishii, 2013). The digital transformations initiated in factories were thus, in our research, associated with gaps caused by excessively centralized organizations or the short term view, by a lack of human and IT resources, or by the diversity of employee profiles, for example. These gaps between intentions and achievements therefore lead to a certain prudence in terms of the actions initiated, and to a gradual approach to implementation and effective use of these tools. Post-crisis management is associated with this question of the expected effects of the policies that are initiated. Any decision is, and will be, associated with a chain of decision-making, translation, appropriation by different actors, and therefore a potential succession of gaps between the initial project and its effects on the actors concerned. Foreseeing this issue from the outset will prevent these industrialists from falling into known pitfalls.

What roles for the HR function?

Although the focus is on the management of companies when announcing plant closings, factory reopenings and partial layoffs, the actions are largely carried out and rely heavily on the HR function. The actors of this function have occupied the role of a business partner more than ever before, setting up teleworking systems, managing the illness of certain employees, the repatriation of others, and short-time working. Industry 4.0 was already questioning their roles and the future prospects of the function, a subject we are currently studying in the Chair. Post-crisis management makes this question even more crucial.

These four questions must, in our opinion, remain central to managing the exit from the crisis. Although we do not have definitive answers to these questions, it appears that the industrial sector has already placed them at the center of their future challenges.

Conclusion

More generally, the crisis has turned the spotlight on the human being and on all the questions related to their place in organizations, today and tomorrow. Whatever the situation, it appears that workers are central to the challenges, both to preserve their health and their activity, which are intimately linked in countries such as India and to a lesser extent in all other countries. It also appears that the human being will be at the origin of the necessary changes to get out of this global crisis. And with their ongoing digital transformations, at least some industrial companies had already asked themselves these questions and sketched out the first avenues of response that will be an undeniable asset for the future.

Our research therefore shows that some manufacturers are therefore benefitting from policies and practices initiated several years ago. Nevertheless, it must also be pointed that not all industrialists had started these thinking processes, often due to a lack of resources, whether in France, Europe or even more so in certain regions of the world. The situation is even "apocalyptic" for some. If the generalization of the situation of large French industrial groups is difficult, however, their cases show that industry occupies a more symbolic place than ever in this period of crisis. It allows us to weigh up the gravity of the situation, the need to urgently review production methods, and the capacities of each individual to face these unprecedented parameters. Above all, it brings us back the debates on human issues that may have been lacking in recent years, overwhelmed by financial and technological challenges. Let us hope that this human urgency is not volatile, and that it becomes permanent, at last.

References

- Abrahamsson, L., & Johansson, J. (2006). From grounded skills to sky qualifications. *Journal of Industrial Relations*, 48(5), 658-676.
- Galindo G., Garbe E. Vignal J. (2019). Des idéaux à la réalité de l'accompagnement de la GRH dans la digitalisation : le cas d'une entreprise industrielle, @GRH, n° 30, 11-46.
- Johansson, J., Abrahamsson, L., Bergvall-Kåreborn, B., Fältholm, Y., Grane, C., & Wykowska, A. (2017). Work and Organization in a Digital Industrial Context. *Management Revue*, 28(3), 281-297.
- Lengnick-Hall, M.L., Lengnick-Hall, C.A., Andrade, L.S., & Drake, B. (2009). Strategic human resource management: The evolution of the field. *Human Resource Management Review*, 19, 64-85.
- Nishii, L. H., Lepak, D. P., & Schneider, B. (2008). Employee attributions of the "why" of HR practices: Their effects on employee attitudes and behaviors, and customer satisfaction. *Personnel Psychology*, 31(3), 503-545.
- Romero, D., Stahre, J., Wuest, T., Noran, O., Bernus, P., Fast-Berglund, A., & Gorecky, D. (2016). Towards an Operator 4.0 Typology: A Human-Centric Perspective on the Fourth Industrial Revolution Technologies. Conference: International Conference on Computers & Industrial Engineering (CIE46), 1-11.

Sousa, M-J., & Rocha, A. (2019). Digital learning: Developing skills for digital transformation of organizations. *Future Generation Computer Systems*, (91), 327–334.

Wright, P., & Nishii, L. (2013). Strategic HRM and organizational behavior: integrating multiple levels of analysis. In : Paauwe, J., Guest, D., & Wright, P. (eds), *HRM and Performance: Achievements and Challenges*, Chichester: Wiley.