

## **How COVID-19 will Impact the Future of Project Management and the Work of Healthcare Technicians (But not only them)<sup>1</sup>**

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### **ABSTRACT**

For project managers the impact of COVID-19 has been hugely challenging. A reliance on working remotely has obstructed the collaborative approach often shared among a traditional team environment. Lockdowns have caused major disruption to supply chains, exponentially increasing the risks related to managing projects. In a world beyond COVID-19, project management remains the key to success for many healthcare projects and building work.

Managing the complexity - as throughout the pandemic - requires a new set of technical skills and goals can be reached with extensive communication, collaboration and innovation.

The Covid-19 pandemic has presented an array of novel and acute challenges and serves as a reminder that we live in a complex and unpredictable world. The article demonstrates the complexity from a scientific perspective, offering a framework for creating resilience and agility in an uncertain future.

One key area of focus is the creation of customized flexible spaces in healthcare and adaptive reuse. Another aspect of the article examines futureproofing and design flexibility management. In addition, the use of Value Management approach and BIM will be explored in the context of emergency accommodation providing the opportunity to transform the pandemic experience into more agile and resilient learning systems.

**Keywords:** Covid-19, design, futureproofing, healthcare, project management, reuse, value management.

### **A RESULTS ORIENTED GLOBAL EXPERIENCE**

The impact of COVID-19 has been profound for all aspects of project management, but the recent development of project management techniques will become extremely important and useful for the future, especially in the post-emergency reconstruction phase.

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The global experience in dealing with the COVID-19 emergency has been strongly "results-oriented" overcoming the barriers of professional definition and organizational ones that limited the ability to work together. Throughout the emergency, everyone had to and knew how to go immediately to the "heart" of the problems and find the best solutions together to give people an adequate response (both in the different phases of evolution of the pandemic and in the management of the largest vaccination campaign ever faced).

The joint work of all professionals (doctors, directors, nurses, pharmacists, healthcare engineers, IT engineers, clinical engineers, engineers management, architects, etc.) has highlighted a great "added value" determined by multi-professionalism and interdisciplinarity, demonstrating that the managerial skills are not something extraneous and additional to the technical and professional skills of those who work in the hospital and healthcare world, but an integral part of the professional identity.

All professional roles and positions of responsibility move in highly dynamic contexts, in which not only knowledge and know-how count, but knowing how to deal with others, in conditions of great uncertainty.

In particular, the function of middle management is precisely that of being authoritative and recognized in terms of technical and professional skills and that of knowing how to move and relate within the company by leading their group or operating unit. A more complete middle manager is thus outlined, one who knows how to make use of managerial tools through which to influence corporate decision-making processes more effectively.

The development of managerial skills comprises of in particular:

- being authoritative in providing / implementing provisions and enforcing the rules;
- being influential in the work of others, sharing increasingly complex objectives;
- being able to delegate and empower their collaborators with a view to professional growth.

Good management is closely connected to responsibility.

By placing itself in an intermediate position between the strategic top and the more operational divisions, middle management plays a fundamental role in the chain of responsibilities and in the pursuit of corporate objectives.

Having outlined the managerial skills, it will be possible to better orientate the training planning and the development and enhancement policies of the various professional figures and at the same time rethink many of the themes of innovation and challenges contained in the National Recovery and Resilience Plan (PNRR) as common construction sites, for which the ability to work together, in a more cohesive and faster way, will allow us to make a leap in the design and implementation dimension of plans and activity programs.

If we make an international comparison, it is clear that reflection and investment on managerial skills in the public sector and in the health sector are a common priority in many countries (US, GB, FR, CH). The novelty of the approach is to enhance them not as mere professionals, but as real managers, increasingly responsible and protagonists in the management of change alongside company management.

### **Covid-19 as a stress test**

The problems related to the impact of the coronavirus (COVID-19) have been (and in some respects continue to be) a real "stress test" for the ability of companies, bodies, public administrations and organizations in general to be able to carry on and finish projects and programs successfully.

The COVID-19 pandemic has exposed the fragility of *work organizations* and the answers to the problem have been very varied, but it is still possible to draw a *common scenario* from a first moment of disorientation to a general reorganization of work that factors in a new balance.

It is the responsibility of the managers (portfolio, program and project managers) to create and determine all the ways and means necessary to allow a successful conclusion of their activities, using the disadvantages and advantages of the new reality that has arisen. Surely the perception of IT tools by those who, up to that point, considered them unreliable has also changed and it will be possible to resort to a greater percentage of working remotely, having acquired practices and methodologies (as well as a certain confidence) to the management of the mix of activities in presence and remotely.

The approach within companies will presumably change in terms of selection and delivery of projects as will the role of the project manager.

For many, even during the period of the health emergency, it was productive to start planning and planning reconstruction actions, taking into account the changes induced by the emergency both in the way of working and in people's attitudes. There is and will therefore be a great need for project management and also for innovation to make the best use of the new operating methods that we have been forced to experiment and / or use on a large scale due to a global health emergency that has influenced our lifestyles and our values.

### **No turning back**

Nothing will be the same again and the recovery must be supported by a large investment program that needs qualified project managers who are indispensable to manage the investment projects of companies and to support the economic initiatives that will be implemented by public institutions to encourage recovery.

Italy is usually observed and taken as an example for its ability to respond to emergency management, but we are instead lacking in the ability to prevent and prepare in advance.

To guide this reconstruction it is essential to have widespread project management skills as well as a considerable number of highly qualified project managers.

This is all the more true for the Public Administration, which must plan and guide, at the same time, both how to deal with the emergency and how to direct the reconstruction phase.

Surely the discipline of Project Management can help to tackle these initiatives with greater probability of success, most of which are real “projects” or better still “programs” (correlated set of projects).

As is well known, even if the decisions are initially political, they reverberate on the whole Public Administration (PA) and consequently on all of us.

The program and project management can help in the operational phases to deal with the emergency, and perhaps even more so in the previous planning phases, i.e. those of prevention of the emergency itself: therefore, strong management people must be involved at all levels, and related measures and actions must be planned and implemented consistently.

## **NEW OPPORTUNITIES**

New rules must be agreed, also in terms of cooperation and solidarity.

This is precisely the time to put people back at the center: in fact, stakeholder-centered values have always been valid, and can constitute a fundamental reference for living both in health and in well-being.

For example, with the arrival of extraordinary funds, in addition to “ordinary” planning, there will be many opportunities for project management in which innovation and digitization can lead to progress and benefits in the most diverse and heterogeneous areas.

Indeed, we all share two key challenges that face our world: the pandemic and climate change. The topic of Artificial Intelligence is not only important as a technology for the future, but also as a tool that can bring benefits to healthcare and make healthcare accessible to more people. We have to make sure that the technology is used to benefit the people who need it most, especially those in low-income countries or in countries where healthcare simply isn’t affordable for many.

Participating in calls for proposals, drawing up projects that are innovative requires two things. Firstly, profound *competence* in project management issues, as a structural element through whose disciplines we can create a framework capable of supporting the project initiative. The other component needed alongside project management, is the ability to coagulate, in a project proposal, multiple skills, with a *multidisciplinary* character.

In a world beyond COVID-19, project management remains the key to success for many healthcare projects and construction works.

The pandemic demonstrated that the future of project management lies in working remotely, but implementing this mode of work for project management is not easy.

### **Building a digital team**

Building a digital team requires addressing the issues of collaboration, responsibility and culture. To best manage a virtual team, project managers need to focus on clear lines of communication, clear expectations and objectives, and direct feedback.

When managed properly, working remotely offers many benefits to an organization, project managers and teams including:

- Increased productivity
- Access to the best talent globally
- Reduced turnover rates
- Reduced stress levels
- Better work-life balance

It is essential to pay more attention to the control of suppliers and operators necessary to complete the project, to carefully analyze contracts and perform risk analyses to prevent the risk of interruption arising from a lack of reliability.

Border lockdowns and closures have created serious problems for supply chains, resulting in higher costs and longer lead times.

Project managers need to be proactive to limit the potential threat of a supply chain disruption. This can include the storage of critical materials or the procurement of local alternatives.

For better or for worse, the way project managers work has changed. With this change comes the growing need for retraining staff to improve operational practices and achieve successful project results.

To manage people, given that cultivating the best talent and inspiring innovation does not come easily through a computer monitor, it is essential to improve skills in order to learn new collaborative approaches and lead in a virtual environment.

Project managers thus help guide companies in terms of futureproofing, which is why improving everyone's knowledge to keep pace with emerging technology is critical for long-term success. Finally, small budgets leave little or no margin for error in managing a project.

## **Agile management**

Agile management has also become a common way to manage the organization and the unexpected. Decisions in conditions of uncertainty, short planning horizons, adjustment of activities which are based on pandemic indicators.

Among the impacts that COVID-19 has produced on the skills of the Project Manager, one of the most relevant is the change in communication inside and outside projects (internal and external communication) which occurred very quickly.

Among the negative aspects, the loss of some pieces of informal communication on the context of the project and the nuances that are acquired in normal conversations over coffee should be emphasized: there is no face-to-face contact and online communication requires more effort and concentration.

The main key competences of project managers at the time of COVID-19 and POST-COVID-19 are:

- Communication skills in a virtual environment and mastery of technologies
- Personal agility: adaptability and rapid reaction to changes in the environment
- Resilience and stress management
- Coping with complexity and the ability to select the most valuable information
- Knowing how to motivate people using empathy and emotional intelligence
- Leadership based on human values, values of sustainability and trust.

## **Complexity science**

Complexity science views healthcare organizations as complex adaptive systems operating in highly complex and unpredictable environments. The view assumes that much of organizational life is unknowable, uncertain or unpredictable and therefore cannot be standardized and controlled.

In this context, already highly complex for the ordinary, all the effective responses to the Covid-19 pandemic proposed by the top and middle management of hospitals and health systems, consistently with the principles of the science of complexity, have emphasized communication, collaboration and innovation.

Insights from complexity science can help healthcare organizations increase their agility, resilience and learning to more effectively cope with future surprise events. The Covid-19 pandemic is a powerful reminder that we live in a highly complex and unpredictable world and that, from the perspective of the science of complexity, when the future is unknown it is necessary to create resilience and agility. Furthermore, an “open” (humble) leadership is necessary, favoring interaction, interdependence and creative tension and identifying the right person at the right time (beyond roles and hierarchies).

All of these processes have occurred in health organizations that have responded effectively to the Covid-19 pandemic. In the construction field, hospital and healthcare construction was one of the few types of non-residential buildings that increased over the course of 2020.

## **IMPACT ON HEALTHCARE ESTATE**

Contagion control and security protocols put in place at the start of the pandemic are becoming standard for new projects and renovations.

The pandemic has created opportunities for design and construction, as it is understood that health systems must continue to bring their services closer to where patients live and the system is looking for ways to design and build "*futureproofing*" by organizing structures to accommodate whatever happens next, which are flexible and able to cope with present and future crises.

It is essential to rethink current and future space needs, deconstructing buildings in order to understand what is and what is not essential.

These re-evaluations have opened the door to more flexible design options that include adaptive reuse, so as to leave patients in their own environments as much as possible.

Alternative forms of patient care are being embraced, particularly telemedicine.

With the help of technology, telemedicine will bring about changes in the physical building and plant environments; waiting rooms in the outpatient and diagnostic areas will give way to waiting for patients in the individual examination rooms.

Regardless of space decisions, structures must be made as controllable as possible with respect to the spread of infections. While it was recognized during the pandemic that healthcare facilities lacked the infrastructure design to be converted quickly and efficiently to meet infection control needs, new designs must have those requirements. As a result, the pandemic has triggered a "dramatic need" for building controls, improved air quality, increased HVAC capacity and overall facility resilience.

Futureproofing is now part of the planning lexicons of most health systems. "Every aspect of each facility, from arrival to discharge, is reviewed and reconsidered during the design of new or renovated spaces".

During the pandemic, emergency facilities were built very quickly. That "design and build speed" mentality now permeates all hospitals and healthcare projects internationally, even if there is no real consensus on which delivery method is the most efficient. In this regard, in countries where it is possible, more new delivery models are being developed that can accelerate projects.

These include Integrated Project Delivery (IPD), Progressive Design Build (PDB) and Modular Design and Construction (MDC).

Fixed point is that the project will fall within the budget and on schedule.

### **NEW TOOLS FOR A NEW TIME**

The pandemic has made it more difficult to keep up with the demands of healthcare companies and hospitals. To this end, prefabrication and modularity have become important tools.

Even if we return to a new normal, some principles will be fixed points in imagining the places of territorial and hospital health care.

*Telemedicine* will continue to expand and the evolution of telemedicine could establish new patient-health system relationships especially in rural areas where services are often scarce.

It will be possible to create real "*command centers*" that are powering telemedicine solutions, allowing doctors from all over the world to consult and maintain visibility on the condition of a remote patient and to act as a "central call center" for the facility or the system.

The energy consumption of hospitals is typically three times that of other commercial buildings and attention must certainly be paid to controlling and ideally limiting/reducing energy consumption.

### **CONCLUSIONS**

Today we have to work with new technologies, new project management tools, and we have to be agile in the way we work and in how we communicate, with new working models as well as new engineering processes. We need to develop flexible working systems, whether it is remote work or up-skilling to improve operation practices.

Above all, we have to keep our people safe, inside and outside our healthcare systems and hospitals, from COVID-19 and future pandemics and we have to do that without harming our planet and ecosystems. We also have to guarantee that we don't compromise our fight against climate change in our preparation against pandemics. This is our great challenge.

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## About the Author



### **Daniela Pedrini**

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Engineer **Daniela Pedrini** lives in Modena (Italy) where she earned Classical High School diploma; she holds a bachelor's degree in Civil Engineering from the University of Bologna. She has a long career in the health sector, with important roles in the management of technical aspects of the hospital. She was Director of the Technical Department and Planning, Development and Investments until 2021 and now Director of Asset Management of the Hospital-University Sant'Orsola Polyclinic, one of the major hospitals in Italy, and Health Authority of Bologna. She has directed a multimillion PFI contract for the total renovation of the hospital's energy production.

She is an Expert in Economic Engineering (AICE / ICEC certificate - International Cost Engineering Council n. 60). Project Manager of complex procedures for renovations and new hospital constructions, she is certified by CERTing, the National Agency for the Certification of Competence for Engineers, Certificate number MOB-4621-IT21 Advanced – “*Expert Building Systems Engineer, specializing in Project Management and Hospital Construction Processes*”.

She is Project Manager certified PMP® by PMI (n. 3200285), ISIPM-base, ISIPM-Av® and AICQ SICEV (Project Manager UNI 11648 n.0403). She has served as speaker in many conferences in Italy and abroad, and teaches in many healthcare engineering courses and university masters.

Daniela is Co-founder and present President of “Italian Society for Healthcare Engineering and Architecture (S.I.A.I.S.)”, President of IFHE (International Federation of Healthcare Engineering, 2020-2022) and Past-President of IFHE-EU. She has been honored with a medal of the *Italian Republic Order of Merit*. She can be contacted at [info@siais.it](mailto:info@siais.it).