

ENGINEERING THE NEW NORMAL

Our Manifesto for building together
a post Covid-19 world.

WHAT ARE WE DISCUSSING?

1	Our Manifesto	2
2	Our Reaction	6
3	Our View of the Market	9
4	How can we help?	18
5	Building New Normal	36
	Appendix:Our Post-Covid View on Smart Transportation	42

ENGINEERING
THE NEW NORMAL

1

OUR MANIFESTO





Let's face it. The world has changed and so have we.

It has changed in ways that we cannot even fully comprehend yet.

We do not know what the new world will look like after this crisis but we certainly know that it won't be the same as before.

Emergencies, such as this one, not only show the world clearly as it is, but also highlight its biggest cracks and weaknesses. The Covid-19 pandemic is a massive stress test for society and organizations. Like all good stress tests, it has showcased what is solid and resilient and has exposed clearly whatever was weak and likely broken.

They say crises shape history and that disruptions can have positive impacts, as they have a way of rapidly exposing alternatives to the status quo, giving light and new weight to opportunities of uncovering resilience. The challenge is not only to fix what is broken but to **reimagine what the "New Normal"** should look like. We are all going to be called upon to rebuild our world. We have a chance to build it better.

Technology has enabled us throughout the crisis to keep in touch with our institutions, as well as with our families, keeping organizations in full operating mode, think of the **Digital Workplace** and collaboration tools extended to schools and universities, to handling the medical emergency, using data platforms to act as decisively as possible. The Covid-19 crisis has clearly demonstrated to those organizations who thought **Digital Transformation** was a nice concept or simply on the to-do list that it is of vital importance for the survival of any business. In most fields, the more digitalized the processes, the less disruption they have suffered.

This crisis has also uncovered certain insights and answers that could help us as we redefine how to build what will be called our New Normal; to help us identify what **core values** could guide us as our societies and businesses adapt and evolve moving forward.

Practically, in all nations around the world, when it came to choose between safeguarding the economy or human lives, the latter was chosen. We chose what was best for humanity. Factories, offices, whole cities and nations were shut down in the hope to preserve human lives. This could change everything from here onwards. New core values, such as **sustainability** and **social responsibility** as well as **agility and mobility in the workplace**, are emerging and could shape the way decisions will be made. Based on this insight, when the world will resume its normal operations, technology will be a strong enabler.

This crisis also provided us with an answer linked to our capability to change and adapt: **to what extent and how quickly could modern societies change their living patterns?**

We have witnessed these past weeks how many organizations were able to change work and delivery patterns nearly overnight: Government, Schools, Healthcare institutions, businesses. Those that had or were able to rapidly digitalize their core processes were able to keep pushing on despite all the surrounding difficulties. Some had already been doing so for some time, and some had to rapidly expand their capabilities in these past weeks. Others were caught unprepared and are currently suffering the consequences. Change was likely ripe... but some didn't perceive it. This crisis will continue to speed up change.

Investments will grow to expand or to kick start Digital Transformation activities.





In the following weeks and months, we will all be called upon to start again, start anew, to repair and rebuild. **To develop a new today, to rebalance business and sustainability.** Technology and different working patterns represent real and viable alternatives. In this tragedy, we have the opportunity to forge a new path and not retrace old roads. We are at the dawn of a new age: a data-driven, connected era that could well be a new Renaissance. Now is the time to accelerate the Digital Transformation of our core processes and the way we do business.

In the following pages, we share our experiences of how we have reacted as an organization, and of how we are helping all our partners to:

- **Start again, maximizing resource utilization**, human or financial, leveraging all existing enabling technologies (Cloud, RPA, AI, etc.)
- **Leverage a number of Covid-19 Specific solutions** developed by us to help mitigate and manage the current crisis from outbreak to Phase 2 and further forward as we physically resume certain activities
- **Build a New Normal** by framing all activities as part of a larger transformation journey from maturity assessments to process redesign, keeping in mind that our clients' core values may be changing and that we may have underestimated our ability to change so far.

We have witnessed the **power of data**, across all domains, as the fundamental building block for a safer and more productive world, based on Digital ecosystems that could empower new digital citizens.

Can we rebuild our world, recognizing that our most critical core values are based on humans and sustainable work? **Now is the moment to build a new and better world.** This is a time to review and rethink many of our mental and societal barriers. Now is the moment to step up and change.

The challenge is not only to fix what was damaged and broken, but to think differently, try new ideas, to listen, to learn, to heal, to rise again and evolve, together.

2

OUR REACTION

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The current crisis has accelerated the mature adoption of enabling technologies. Many organizations, including ours, thanks to these technologies, were able to remain fully operational and people were able to stay in touch with the outside world, therefore completely changing the way they work and live. When the emergency is over, resuming to our old working practices will be unconceivable; digital investments and a cultural change are needed to seize the opportunities that will arise. It is too early to call, but it is certain that there will be no turning back with regards to digitalization and that the acceleration we have witnessed will continue, enabling our country to take a giant leap forward.

Paolo Pandozy

Chief Executive Officer, Engineering

Right from the beginning of this complex crisis, we immediately focused on how to best support our clients, our healthcare system and our government as they prepared to ramp up their digital capabilities.

To achieve this though, we had to first ensure our employees' safety, and we had to act fast.

We immediately switched over to remote working practices, successfully transitioning **from 2,000 employees working remotely to more than 11,000** in, quite literally, a matter of a few days, leveraging our Digital Workplace.

Engineering's Reaction to Covid-19

Internal



11,000 in Agile Working



24/7 Infrastructure - Business Continuity by Design



Internal Processes - Ranked by importance and fully functioning



2,000 people trained via 140 online classes redeployed by our IT Academy

Market



Distributed and Flexible Delivery Model



250k Workplaces Managed - High Demand to ramp up Digital Capabilities



No major disruptions in Service Delivery



+70 R&I projects remain active through our EU & Global partner network

Our continued investments and experience in this field, having managed over 250,000 client workplaces, not to mention our own Digital Workplace deployment from a few years back - based on cutting edge market solutions and involving the whole Group -, proved crucial to ensuring that there were no disruptions in service delivery. Our delivery model, based on remote development centers that dynamically distribute workload, adapted perfectly to this emergency, enabling the complete switchover to be executed without compromising service levels or activities.

Our proprietary infrastructure and our **Hybrid Multi-Cloud set up** also proved crucial in enabling us to handle all the peaks. We can ensure Business Continuity by design and, even throughout the current crisis, we are currently managing the added workload and utilization peaks without issues.

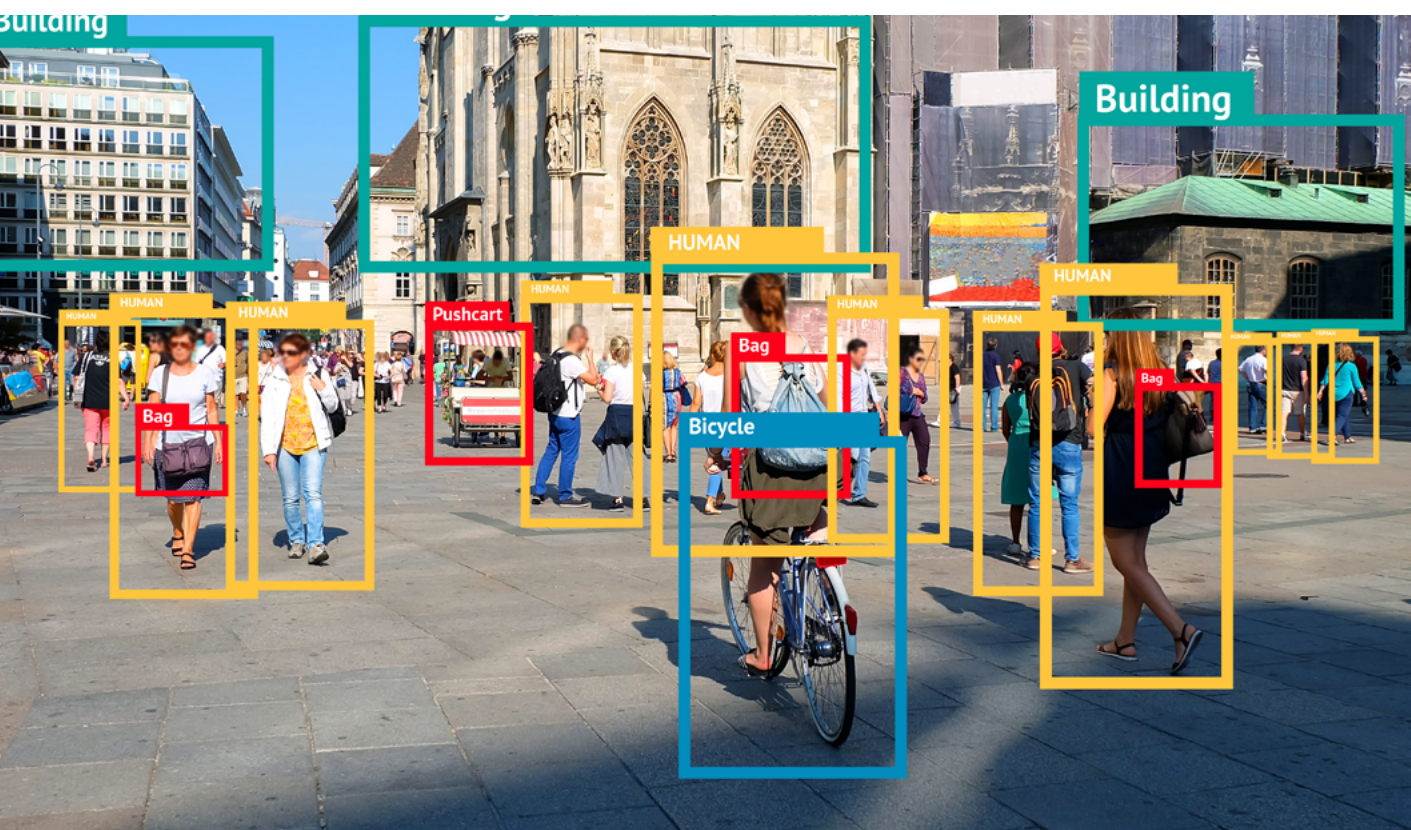
The operation of our Data Centers is guaranteed by normal supervision of the NOC and SOC service, active 24/7, and with remote and on-site activities. The operational procedures required to manage client infrastructure and protect client data continue to run seamlessly and can be fully managed remotely.

Our Data Centers are equipped with back-up power generators and refrigeration equipment, as well as continuity systems guaranteeing data integrity automatically, in case of any event.

Critical IT Infrastructure processes are being continuously monitored.

Each crisis is different, and it is certainly too early to call the full effects or consequences right now, but as our Q1 2020 results confirm, our outlook remains positive. Taking history as an example, Engineering's track record through similar crises (9/11-2001, SARS-2003, Lehman Brothers Crash 2008-2010) displayed **solidity** and **resilience** across the board demonstrating that our organizational and delivery model well-adapts even to the most critical situations. It also shows that we operate within core and non-deferrable service areas.

Times are hard but core processes across most markets will need to continue functioning and will need to be transformed. They cannot be stopped. **For over 40 years, we have built our business around our clients' core processes.** And now more than ever, we believe that the main focus of our activities must be to help transform and protect them in the coming months.



3

**OUR VIEW
OF THE MARKET**





We work and partner with stakeholders across all markets. Some of these industries have been hit harder than others, like **Manufacturing, Transportation**, Travel & Hospitality, and some parts of **Retail** (except for e-Commerce which is growing). Definitely less impacted are the **Banking industry** and the **Energy & Utility** market, whilst other industries, like **Telco & Media, Healthcare** and **Public Sector** are showing growth signs. Overall, the timing of recovery remains unclear. However, although many are telling us that is too early to call and that forecasting in current situation has more to do with gut feelings, market analysts' instincts rather than mathematical models, initial signs from China seem encouraging and point towards a direction whereby most markets will be on a growth and recovery path next year.

What we do know, from talking to all our partners is that **Digital Transformation is no longer an item on the list, it is at the TOP of their list**. In most industries, organizations that were very little or not digitalized at all are currently at a standstill. It must be said though that many core processes (from payroll to the actual running of the IT systems) cannot be halted. Non-essential spending will suffer and IT spend will be refocused on digitalizing and upgrading core capabilities.

For 40 years we have focused on bringing the **latest technologies** to improve, augment and even redesign completely the core processes of Banks, Factories, Hospitals, Governments, Utilities and so on. **As incumbents of this sector, we lead this transformation on core business processes** and a vast majority of our partners, in these past weeks, have requested our support to strengthen or kick-start their Digital capabilities.



The basic condition to embark on a **Digital Transformation** journey, is to open up to the opportunities offered by **Cloud**, of which we provide a hybrid model based on our infrastructure, in partnership with the best market players.

As the day-to-day running of all businesses becomes remote and distributed and business is digitalized, the crisis has sped up awareness for security issues. **The digitalization of work and businesses** leads automatically to a higher degree of understanding and appreciation of how important **Cybersecurity** is, both in protecting business and enabling **Digital Transformation**. Security needs are increasing exponentially. Not all business can be digitalized. Current conditions are making it impossible for skilled staff to be everywhere they are needed. Our **AR/MR/VR** tools enable skilled staff to be effective even managing remote maintenance and specialized on field activities. In addition to their most common utilization we are witnessing more frontier utilizations in other fields, like enabling virtual showrooms from CPG goods to Fashion products.

Talking of Retail, these past weeks there has been a boom of online shopping, especially linked to food shopping. This strong increase in digital business and sales, has often led to problems linked to **e-Commerce** set ups that were not designed for times like these. We recently purchased **Digitelematica**, a state of the art, innovative Start up focused on e-Commerce which is aiding many clients handle these issues through its proprietary e-Commerce platform, MARKETSUITE.

Another important area is linked to our **data management platforms** which are being actively deployed in Italy and abroad helping Governments and Healthcare organizations in their decision making processes providing dashboards, real time info, **AI & Advanced Analytics**, simulation models used to access real time data and manage information.

The World We Live In

Covid-19 has stopped our world. A sudden and global interruption: "digital" was the only way we were able to stay in touch with the outside world.

We will rely on technology, once again, in the next phases, using tools that will help us respect social distancing measures or by accessing online services that were previously only (or mainly) provided in person. Digital Transformation has accelerated, becoming a necessity. Engineering is ready to design with its partners new technological scenarios that will innovate the way we communicate, travel, and live in our cities.

Digital Media & Communication

What Happened

Throughout this crisis, the Telco & Media industry provided us with a window to the world outside. From enabling Digital Workplace practices to online schooling, from e-Commerce to accessing content on various media platforms, even throughout the darkest days of this pandemic, technology supported business continuity, as well as the social activities of citizens. This hyper utilization of the Web however stressed operators beyond any unforeseeable way, as, on one side, they had to guarantee the network's efficiency (and thus of all communications at all levels and for every need), and on the other hand had to rapidly evolve their business with new offerings and services.

Engineering's Positioning

At Engineering, we build synergies with the various market players to develop solutions that will transform their IT systems, optimize and manage in an innovative way their infrastructures and all multimedia content, as well as to ensure the actual running of the business. Leveraging these competences, also in the Post-Covid phase, our offering represents an innovation program capable of harnessing all the potential of the enabling technologies, for example leveraging AR/MR technologies for workforce management right up to ensure secure systems management and transformation, leveraging Cloud and Cybersecurity, from payment platforms to the management of all media content.

Smart Transportation

What Happened

The Covid-19 emergency represents a stress test for this industry and for its operators: public and private transportation companies, airports, ports, railways, etc. How should they react to the current liquidity crisis brought on by a collapse of demand? Local transportation's condition is even more delicate, as it must guarantee access without any service interruption, for people and goods, to cities and other areas. Technology investments must be made to streamline travel, balancing service delivery methods, carefully managing all available spaces, ensuring maximum safety for people (social distancing on docks, airport gates, etc.) as well as public transport's frequency. This involves synchronizing communication (to operators and users) and rebuilding trust with passengers (e.g. ensuring enough space within all means of transportation, sanitation, etc.).

Engineering's Positioning

Engineering supports the evolution of this market, right from the management of safety for people and infrastructures. We adopt Digital Twin technology to perform simulations to understand and predict real-time behavior of infrastructures, acquiring data from IoT sensors. We provide Virtual Collaboration solutions for remote field activities with AR / MR / VR and support construction sites management according to all Covid-19 safety protocols. We offer solutions to manage controlled access to common areas, Video Analysis systems, simulation tools to manage flows and analytics tools to manage open areas (terminals, parking lots) and users.



Smart Energy & Utilities

What Happened

A monthly reduction of demand for electricity by over 10% gives us a measure of the impact of the pandemic on this sector. The entire oil supply chain has also been similarly affected, from the slowdown in the production of oil-based products, up to a nearly complete stop in transportation and travel (a trend that could partly continue also post-crisis). Operators of this sector are focused on guaranteeing employee safety and operational continuity, evaluating costs, revenues and cash flow according to the characteristics of their customers. In redefining investments, by balancing short and long-term priorities, they will leverage, at the core, the skills of their managers, to guarantee the security levels that need to be ensured for the provisioning of network services and to be fully compliant with an ever changing regulatory environment because of the pandemic itself.

Engineering's Positioning

The severity of the interruption generated by the crisis suggests that the way out will not so much resemble a simple recovery but more of a complete re-building characterized by two distinct moments: short term recovery and building New Normal. In the recovery phase, technology will play a key role in ensuring security and continuity, enabling us to reach the rebuilding phase where the human factor will prove essential at every level, in redefining product focus and value proposition, in how to engage customers and manage the technological waves of innovation.

Augmented City

What Happened

The impact of Covid-19 on Municipalities has further exposed the need for digitalisation within local Government bodies, to ensure the proper functioning of the whole administrative apparatus, to protect employee health, to maintain an open and active dialogue with citizens-users, to collect and manage data.

The keywords are: simplification, Cloud and data security to baptize a new age of "digital renaissance" where people are at the center. Phase 2 will prove crucial and Municipalities, due to their institutional role, will be called to meet the citizens' needs, managing solutions in a faster and more precise manner.

Engineering's Positioning

At Engineering we support Public Administrations, leveraging innovative technologies to transform various processes:

- welfare and social services
- workplace safety
- ensuring social distancing
- connected communities.

Collaboration and digitalization platforms enable to:

- manage food and shopping vouchers
- integrate local and national databases to optimize resources and identify timely responses
- monitor the evolution of social phenomena in regions and areas
- create, while ensuring data privacy, representations of proximity relationships and rebuild the map of relationships among people over time
- monitor in real time the number of people in one place
- digitize all documents to make them always accessible and explorable
- offer citizens the opportunity to choose how to best interact with public entities.



The World that Takes Care of Us

This pandemic has demonstrated the power of data. In fact, by studying and analyzing data we managed to monitor and often predict the evolution of the epidemic. This created new digital collaborations between Public Administrations, healthcare structures and law enforcement agencies, which have combined their information databases to protect citizens' health.

We have always had data at the core of our business and hence we are ready to support Government Bodies in transforming what was achieved during this crisis into a new Digital Citizenship that will enable citizens to access administrative and healthcare services in a faster and safer way, enabling a better communication with the institutions.

Smart Government

What Happened

The Covid-19 crisis exposed how unflexible Italian Public Administration's information and organizational systems were; often incapable of adapting to the new emergency driven context that would have required fast, scalable and interoperable decisions and responses. Awareness is rising when it comes to designing "ecosystem" solutions supported by "citizen centered" service models to break down the boundaries of systems, data, processes and vertical legacy responsibilities (Central & Local Government, Healthcare).

Engineering's Positioning

As leaders of the Smart Government market, we ensure the continuity of national critical services: from the preliminary investigations and delivery of extraordinary subsidies to support the income of citizens and businesses, to the management of the Civil Protection contact center services. We have also created a new territory management and protection system for the current health emergency.

With respect to Phase 2, we are planning new public service models aimed at:

- data governance to manage health and safety of citizens and territory
- Cybersecurity for all physical and logical assets of the information systems (GDPR)
- robotic automation of the State's administrative activities and management processes
- distance teaching and training
- digitalization of the relationships with the citizens through digital assistants and machine learning
- digital & data marketing of tourist offerings and cultural heritage
- virtualization of the activities and services of local offices and elective bodies.





Digital Defense, Aerospace & Homeland Security

What Happened

For some time already, the Defense sector has been increasingly adopting enabling technologies that can also be reused within civilian settings. During Covid-19 emergency, technology represented a critical enabler for the whole sector, both to adopt social distancing measures when it was not possible to deploy staff remotely, and to optimize their activities by removing as many as possible from routine and repetitive tasks.

During Phase 1 of Covid-19, the Ministry of Defense managed the health emergency alongside the Armed Forces and in coordination with the Department of Civil Protection, the Ministry of Foreign Affairs and of Health. Military infrastructures were made available to support military personnel, doctors and nurses, and flights for medical transportsa cross the country.

Engineering's Positioning

Engineering is concretely supporting these needs with its own solutions. We are proposing Smart Proximity to monitor social distancing, our integrated platform that analyzes, monitors and predicts potentially harmful behavior within the workplace. It operates in real time, sending warning messages to operators who do not respect the appropriate safety measures. We are also implementing RPA solutions to optimize repetitive processes, especially administrative ones, to allow operators to focus on higher value added activities.



E-Health

What Happened

Healthcare is the field that has most been impacted by the Covid-19 emergency: it is transversally affected, requiring immediate support for unexpected volumes of activity and a quick reorganization of most services. The role of digitalization has been strategic. We've observed a speed-up of IT maturity in supporting operational processes, albeit with the limitations of Data Governance. With respect to privacy, a new balance between individual protection and public health needs has been revealed to be necessary, while the use of remote assistance to support local medicine has been modest thus far.

Engineering's Positioning

We immediately responded to new the organizational and information needs with evolutionary interventions and through the development of new solutions, particularly with regards to Data Analysis. We are continuously evolving and consolidating what we've learned, integrating it into our application offering and exploiting the potential of enabling technologies:

- AI & Advanced Analytics and Big Data for bio-surveillance and research
- telehealth for remote assistance and care
- IoT for the acquisition of patient clinical data and community behavioural data
- Cybersecurity and Privacy Management for personal data security and use
- digital collaboration for professionals of different specializations
- mobile health for patients and caregivers, during prevention, surveillance and treatment phases
- Risk Management for reducing clinical and biological risks
- real-time analytics to measure clinical outcomes and resources used

The World We Work In

Restarting our economies by ensuring workers' safety is the most important objective for Phase 2. A phase that will have to lead out of the current crisis, both the organizations that were more digitally mature and those that will need to design important innovation processes.

A perfect balance between real and virtual worlds will have to be created, creating a Digital Workplace that will respect the new rules brought on by the virus. With the experience gained in deploying the most innovative enabling technologies, we will support organizations in using Cloud, AI & Advanced Analytics, IoT, Digital Twin, RPA, to make their structures more agile, safer and ready to develop new business models.

Smart Agriculture

What Happened

Modern agriculture needs to digitalize processes to improve efficiency and guarantee business continuity. Now more than ever the Agri-food sector needs new digital solutions to best recover from the Covid-19 crisis and find its new position within the Market.

We have witnessed a significant rise in food sales at large retailers as well as smaller, local markets, where the main suppliers of quality "KM 0" local food have started to offer home delivery services, to contain the spread of the infection. What is clear now is that these players will need new digital solutions to ramp up their sales capabilities whilst guaranteeing the quality and transparency their customers expect.

Engineering's Positioning

At Engineering we offer e-Commerce solutions to enable large and small distribution players to meet market's demand and offer requests. We also offer digital solutions, based on food quality certification processes that leverage enabling technologies (such as blockchain for the notarisation), to help virtuous producers monitor and certify the quality of their products and position them on the market accordingly.

To enable the Digital Transformation of Smart Agriculture we are developing solutions that range from internal processes to fulfil bureaucratic requirements. Leveraging data and new technologies, our solutions support operators from the field by limiting the need of them being present in person, thus safeguarding health and streamlining the control process of EU funds provisioning.

Digital Finance

What happened

The new scenarios created by Covid-19 are accelerating the transformation of Finance. However, the push for change generated by the emergency indicates an evolutionary trajectory that requires a different and quicker approach to respond to changes in the areas of Customer Experience, technology adoption, competition with Fintechs and BigTechs, and regulation. Moving in this direction, financial and insurance institutions are becoming ever more Customer Centric, Open and Data Driven.

Engineering's Positioning

In recent years, Engineering has invested, also through acquisitions, to consolidate its excellence capable of supporting the transformation process of the sector.

Our proposals start from a cultural and training approach, to then a business consultancy and process orientated approach, to IT infrastructure, to the implementation of enabling technologies (AI & Advanced Analytics, Cloud, Blockchain, Cybersecurity, RPA, IoT), and finally to proposals of specific solutions and their on-premise or as-a-service delivery models.

Working with us, financial and insurance institutions become Open & Data Companies, because our innovative as-a-service models provide solutions that transform applications into modular ecosystems. Our clients decide which parts of the process they want to delegate to Engineering, always remaining in continuity with their business processes, leading to seamless, on-demand, pay-per-use, and multicloud models.



Digital Industry

What happened

Digital Industry, from Manufacturing to Pharma to Automotive is at a critical point, but one thing is clear: business-as-usual is no longer an option. Digitalization – defined here as having real-time, remotely accessible digital collaboration systems to support manufacturing operations – becomes critical for survival. The current crisis highlighted not only how unexpected changes in demand and supply can throw the manufacturing sector into chaos, but how only the most flexible producers with the right digital tools in place will be able to understand what is happening as well as be capable of adjusting and controlling their operations accordingly to survive these challenges.

Engineering's Positioning

Now, it is no longer a question if Digital Transformation needs to be done, but whether it can be done in time. In order to be able to re-establish operations in the post-lockdown/remote world, we believe manufacturers will focus their resources towards: Supply Chain transformation; Demand Planning & Forecasting, Manufacturing Plant & Process Simulation, Remote Monitoring of Manufacturing Performance & Overall Equipment Effectiveness (OEE). Applications such as AR/MR/VR for Virtual Collaboration, **Smart Proximity** & Social Distance Monitoring for Worker Safety, Industrial Cybersecurity will be fundamental. These are the areas in which manufacturers need solutions most urgently, and where we will focus our efforts in order to help our partners get back to business as rapidly as possible.

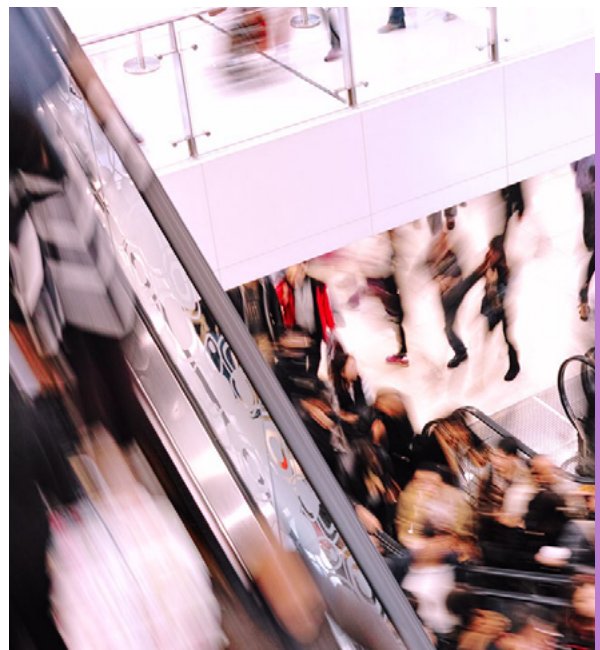
Digital Retail & Fashion

What happened

The Retail, Luxury and Fashion sector has certainly been hit hard despite there being cases in which a growth has been witnessed. Brick and Mortar stores have been shut down due to lockdown, personnel issues as well as clients' behaviors tending to avoid in person shopping wherever possible. Many large retailers, with struggling store businesses, may completely rethink their business models. Online sales and e-Commerce instead have witnessed a strong growth and peak in demands, in some cases forcing retailers to further revisit their digital strategy and investments (including mobile app developments). All of the above is testing an already disrupted supply chain.

Engineering's Positioning

Digitalization will affect their payment methods, in store technologies, client engagement practices, leveraging AR/MR/VR for Product showrooms, contactless payment systems, integrated e-Commerce platforms. Retailers will be focusing spending on AI/ML, algorithmic retailing for supply chain, merchandising, planning and forecasting functions. Unified fulfillment and delivery solutions. We have recently launched a Supply Chain focused Centre, acquired a state of the art e-Commerce Start up (Digitelematica), our simulation modelling capabilities (including Digital Twin) and RPA are already part of our day to day business and our AR/MR/VR (OverIT) capabilities could well expand into Retail where we have been already testing virtual showrooms.



ENGINEERING
THE NEW NORMAL

4

HOW CAN WE HELP?

ENGINEERING THE NEW NORMAL

We are all called upon to react to this crisis. Our decisions must solve issues today and hopefully **shape a better tomorrow**, starting off with both tactical and strategic activities such as:

- maximise resource utilisation
- assess maturity
- identify First Steps to recovery
- build a New Normal.

Digital Transformation is certainly back at the top of your list. You must certainly increase or accelerate full remote working capabilities. This comes hand in hand with an increase in your Cybersecurity capabilities. Delivery of services and goods need to be enhanced by autonomous activities, less dependent on human presence, from digitalizing the office all the way to virtualizing showrooms, from enhancing on line service delivery to rethinking the way you and your clients will meet and interact.

This could also be a time to be creative and spend a little time **thinking outside the box** to create potential accelerators and differentiators. You could consider investing in small experiments/innovations leveraging our research centres and cross business experience. As you **rethink your business** model bare in mind that your peers and partners are too.

Now could be the time to **standardize and consolidate strategic partnerships** in an effort to maximise resource value.

This could be a great time to see what best practices **from other industries** could be useful to you to accelerate your recovery. We are discussing with our partners on how we can help them meet their objectives. Some of these in the short run, and others hopefully as part of a unique plan, more strategic and longer term.





Here is a list of business objectives mapped to business outcomes and linked to technology and business domains on which we have experience and are currently active. These could be your first steps to manage the post Covid-19 phases.

First Steps in a Post Covid-19 World



Technology is enabling us to transform the way we work. New technologies generate new ways of thinking, collaborating and working, where human contributions and automated performance must coexist. Humans increasingly focused on value added activities that enhance skills like judgment, creativity and decision-making abilities and technology automating and managing tasks, learning from data and context (from **RPA** to **AI & Advanced Analytics**). These days, technology can really help us reduce error and waste to a minimum while enabling us to improve or even reinvent how we carry out our business.

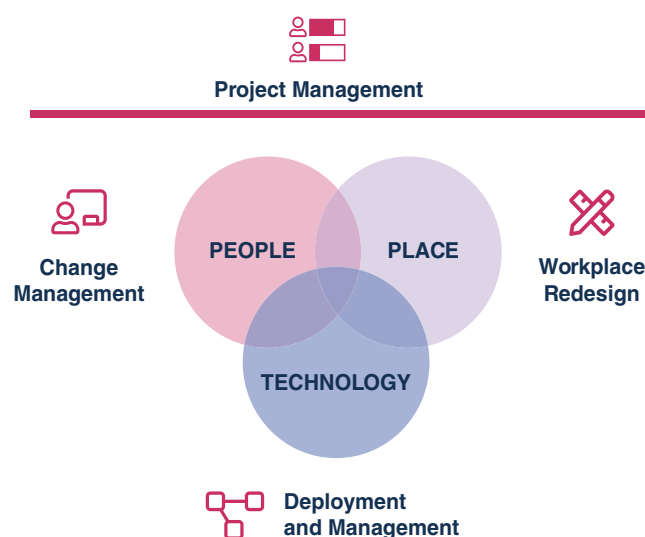
From **Cloud** that enables Digital Transformation, and therefore a **Digital Workplace**, to **RPA**, a fundamental element to free up resources and increase efficiency. From simulation models (**Digital Twin**) based on data and **Artificial Intelligence**, to **Cybersecurity**, which enables a safe digitalization, up to the world of **e-Commerce** or that of balancing between the **real and virtual** worlds to manage remote activities. All this must be part of a wider and more complex path that, starting from the analysis of internal maturity up to change management, can transform the way of doing business.

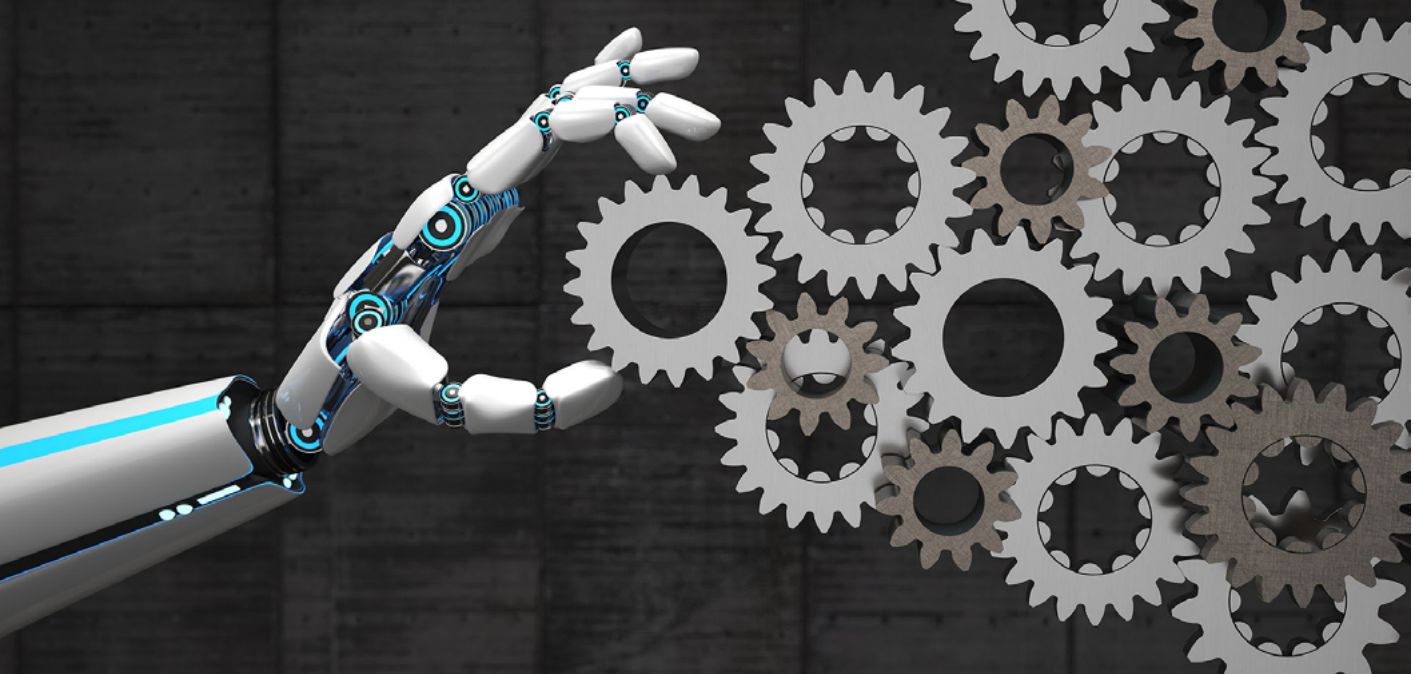
Cloud

Cloud is the founding technology of **Digital Transformation**: it enables the whole digital ecosystem where this transformation takes place. It enables to access resources and digital services immediately, with virtually infinite availability and rapid scalability. We use Cloud to guide the Digital Transformation of our Customers by **designing and implementing** cloud technologies and services. To meet the needs of **agility and flexibility** of our clients, we adopt a **hybrid cloud model**, which integrates our 4 proprietary data centers with the main hyper-scale market cloud players to provide our **multi-cloud offer**. The offering hinges on our proprietary Cloud Service Orchestration Platform that provides a one-stop shop for service configuration, orchestration, metering and enables service purchasing, billing and provisioning.

Digital Workplace

Our approach to transformation from the traditional workplace to the Digital Workplace is based on three pillars: Design, Change Management activities and technology selection. We are focused on delivering this transformation, from design through change management activities, selecting innovative tools and platforms and managing projects through our consultants and specialists offering both best of breed market solutions (Microsoft Office365), as well as our own open source, secure, solutions (LiveBox).





RPA

We leverage Robotic as well as Advanced Process Automation solutions to free up economic, physical and human resources from basic-skill working activities, enabling organisations to redirect resources towards value added domains thus enhancing the human dimension of work, improving user satisfaction, increasing work efficiency, quality and productivity. We provide, through our dedicated competence centre, resources to help design, implement and manage RPA services. We deliver these services in Back office environments, Contact Centres, Local tax management systems, Fraud detection, Audit & compliance, e-Commerce delivery.

COGNITIVE COMPUTING

generates intelligent
solutions by
interpreting reality

RPA

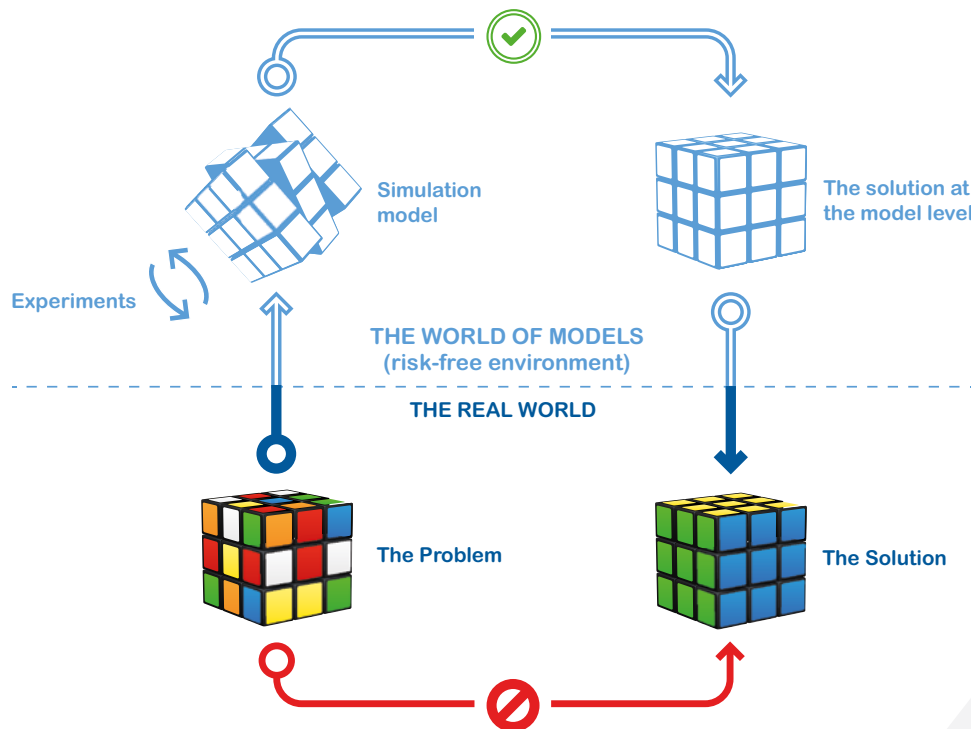
repetitive and
autonomous activity





Digital Twin

As enterprises are becoming increasingly digitalized, they are experiencing a higher availability of data at their fingertips that can be leveraged to improve business performance. Utilizing data, organizations can create digital copies (or Digital Twins) of some aspect of their reality, such as a process, machine, factory or system. The coupling of the physical and digital worlds enables you to monitor both systems, preventing issues, developing new opportunities and simulating future outcomes. In fact, the Digital Twin provides organizations with a risk-free environment where they can test scenarios and assess optimal operational conditions by simulating their business processes. As a result, they can make better decisions in the real world, minimizing risks and maximizing their chances of success.



Cybersecurity

The more we digitalize our businesses, the more we will need **Cybersecurity** services to enable and protect our data and transformation. The exponential growth in the quantity and value of data – code, text, images, infographics, video, signals – must be directly matched with the adoption of the right cybertechnologies, methodologies, skills and IT security to protect these proprietary company assets and critical data from the risk of attack. With our specialized company Cybertech over 550 security specialists and a dedicated Security Operation Center (SOC), we are able to provide the resources and services organizations need to govern digital identities, block cyber-attacks and protect their data in the digital era.

GOVERN DIGITAL IDENTITIES

- Get Ahead of Compliance
- Create Trust and Balance Risk

BLOCK CYBER ATTACKS

- Leverage AI Driven SOC
- Automate for Consistent IR

SAFEGUARD DATA

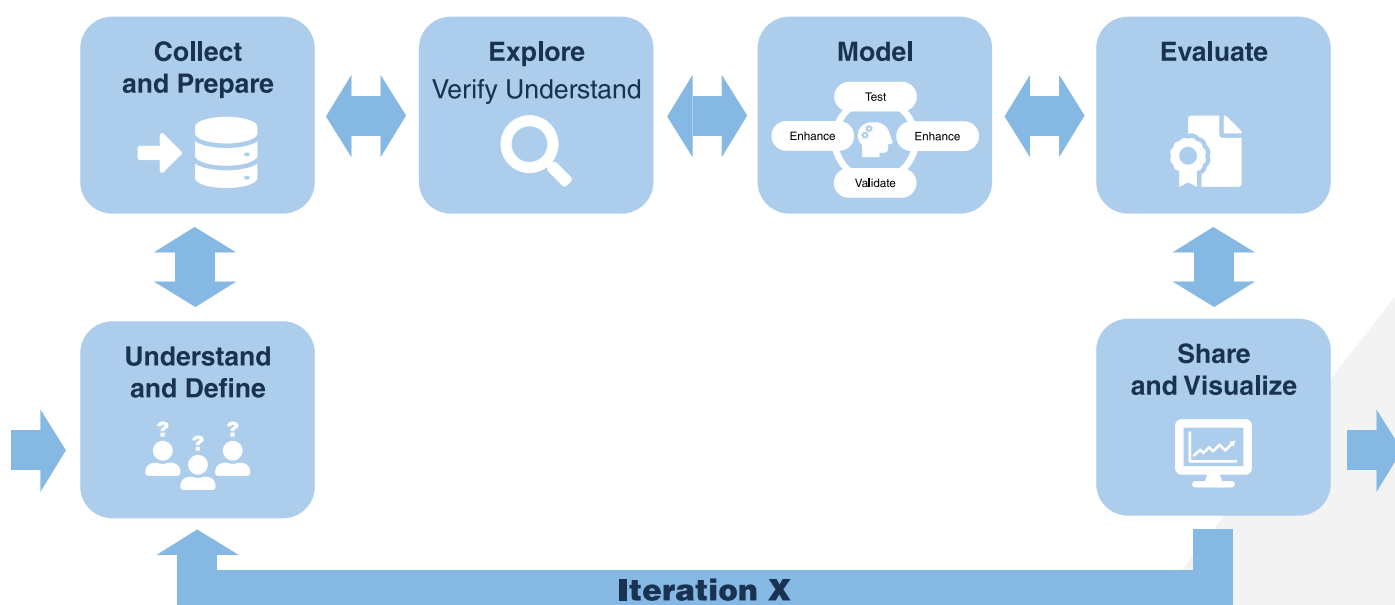
Protect your brand
and enable Digital Transformation





AI & Advanced Analytics

The interconnected world in which we must operate is increasing our need for access to data in order to make decisions better and faster. We need to "connect the dots" with smarter techniques in order to understand, streamline and be more effective in our decision-making activities. Artificial Intelligence and Advanced Analytics are the answer. They help tackle even the most complex tasks by predicting situations, automating analysis, enriching contexts and drawing conclusions, both as they are happening and far into the future. The expertise of our Data & Analytics Competence Centre, with over 250 dedicated data scientists, covers the entire data lifecycle from data collection and management, to data quality and governance, all the way up to the data visualization stage and covering the whole analytical process. We blend R&D with best-in-class analytical techniques to help organizations harness the power of data for the greater business good.



E-Commerce

Integrating AI, we are able to deliver world-class e-Commerce competences and software solutions to large-scale distribution organizations. Leveraging a comprehensive offering of professional services and proprietary solutions, such as MARKETSUITE provided by Digitelomatica, our recent acquisition in this sector. Our team of experts creates customized web and mobile applications for customers across many different industries, enabling e-Commerce to become a strength for their business.

AR/MR/VR

Augmented, Mixed and Virtual Reality can be leveraged to improve and transform processes regardless of the market and sector in which they operate. Starting from our deep knowledge of these technologies as well as our customers' business processes, we are able to develop new experiences and enhanced applications to satisfy specific business needs, enabling our customers to fully take advantage of the capabilities and benefits AR, MR and VR have to offer. Thanks to OverIT, our specialized company and its market leading proprietary products Geocall and SPACE1, we design, plan and develop solutions that support field service people and activities, including maintenance of production facilities, virtual collaboration, remote training and knowledge-sharing, real-time virtual assistance, sales and marketing tasks, digital work instructions, integrated cartographic components and even virtual showroom creation.





Changing and evolving towards the New Normal

As a result of the current crisis, we will need to rapidly change many aspects of the way we work and live. **Processes will need to be redesigned and new technologies will need to be adopted to support them.** Organizations will change. And not only that, but they will have to change while facing a skills shortage, a continuous wave of technological development and, most likely, a very limited IT budget. For these reasons, they will need a trusted partner that has deep knowledge of core process, a finger on the pulse of the continuous development of advanced skills linked to frontier technologies, the ability to evaluate both the "as-is" status of your organization on the digitalization spectrum and your readiness for enterprise transformation. They will need a strategic partner to help them define and co-design their New Normal leveraging **maturity assessments, idea generation workshops** and our proven methodologies for **change management**. And when it comes to delivering "**best fit**" solutions, IT projects and transformation programs, we have always considered ourselves not as a technology provider, but as a collaborator, partner and advisor to our customers.

OUR COVID-SPECIFIC SOLUTIONS

Engineering immediately assisted Government bodies and Businesses around the country to help them respond to and manage the Covid-19 emergency. We were able to do this using our expertise of new technologies combined with our knowledge of clients' core processes. We built solutions aimed at monitoring the virus, that could control and help prevent it spreading, thus guaranteeing the safety of citizens and those working on the field. We also have tools and methodologies that will prove useful during Phase 2, when, probably between various "Stop & Go", our social and professional lives start again.

One of the first areas where we intervened was in support of **INPS**, which faced a huge workload peak: on one side due to the change of its employees working methods (many of whom started working remotely) and on the other side having to manage, in very tight timeframes, all the Covid-19 regulatory procedures under their responsibility. We were able to support them in managing an increase of external accesses (by end users as well staff working remotely), by installing and extending VPNs, VDI and remote desktops in a very short time frame allowing them to be fully operational and efficient. We also supported INPS by managing the implementation of Government assigned special subsidies and allowances: from the Earnings Supplement Fund (CIG) proceedings to the release of the new single insurance contribution payment certificate (DURC), to the handing out of subsidies for citizens.

From the beginning of the Covid-19 emergency, we also supported the **Civil Protection**, whose contact centre we have been managing for several years. As the crisis worsened, the support service quickly saturated due to the growing number of requests and their complexity. In order to handle this situation, we rapidly ramped up our support services (e.g. training, personnel, etc.).



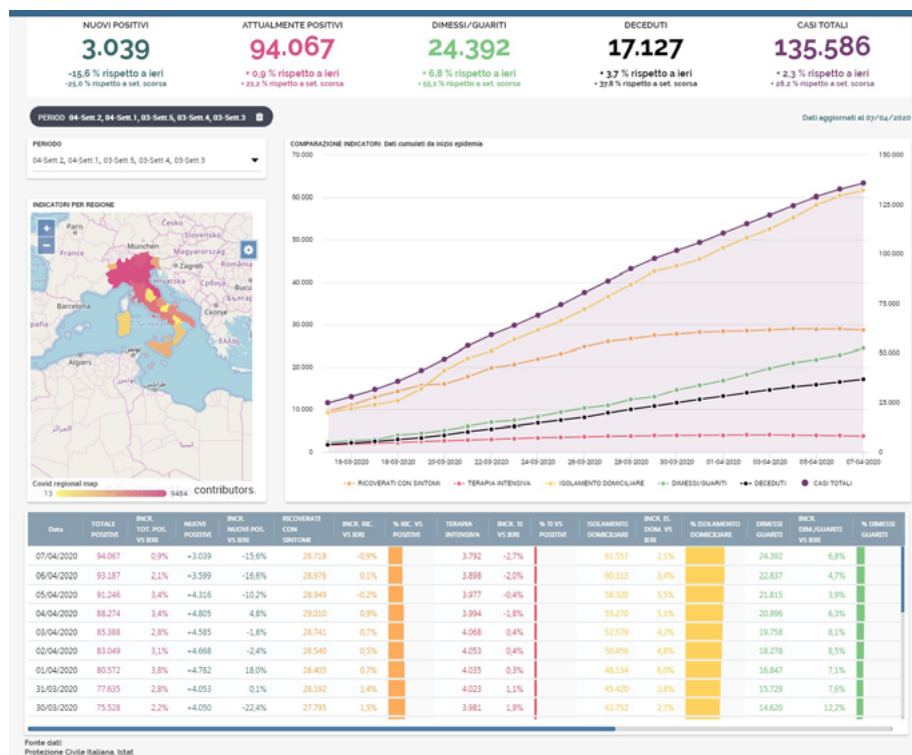
We also supported Italy's Public Administration via **Municipia**, which provided sharing platforms to digitally manage income and food subsidies for citizens during the crisis.

With **Cybertech**, our cybersecurity specialized company, we are supporting hospitals in the Lazio Region to defend themselves from cyber attacks, by offering, free of charge, our Incident Response Team and our Control Rooms, to protect data and ensure a timely recovery of systems and operations.

Engineering365, our Microsoft specialized company, offered to schools its expertise in digital tools for sharing and distance learning: its experts have in fact organized free training sessions where they have illustrated and explained to over 1,000 teachers the main features of Teams, a Microsoft Office365 communication and collaboration platform.

Thanks to our **Competence Center on Data & Analytics** and our **Knowage** visualization dashboards we are also able to support institutions in monitoring epidemic evolution. Monitoring is carried out through predictive models that use **Artificial Intelligence and Machine Learning** algorithms to predict the spread of infections, both at regional and provincial level.

Based on epidemiological schemes that reconstruct the fundamental dynamics of the virus' evolution and on real data related to specific aspects of the Covid-19 infection, these models show, through dashboards and **Data Visualization** tools, both estimated measures and the extents of uncertainty. Data provided relates to the total number of positive subjects (identified & not identified), healed subjects (identified & not identified), overall subjects and deceased ones.



During the emergency phase, we were able to support Government bodies also thanks to our Covid-Specific solutions.

Eng-DE4Bios is an integrated cloud-native and data-driven solution, based on our Digital Enabler ecosystem platform, resulting also from European project partnerships. It is a bio surveillance platform that enables to gain a real time overview of epidemic's evolution, mapping and geo-localizing infected people, and identifying clusters that require special attention.

This solution, which harmonizes, synchronizes, integrates and displays data from different sources is currently adopted by the Veneto Region.

Eng-DE4Bios supports health authorities in making the most appropriate decisions regarding the application of restrictive rules on the mobility of people and access to critical areas. It also allows to carry out a predictive analysis of the evolution of the infection, identifying the areas where Covid-19 is more likely to expand, so as to organize health services in time.

It provides **General Practitioners** with:

- a **view of their patients**, detailing who has carried out screening tests (both molecular and epidemiological)
- a tool for applying the **correct protocols** and **approaching patients safely**.

It provides **occupational doctors** with:

- **real-time indicators of positive Covid-19** cases within the businesses they assist
- a **view of the workers of the businesses** they assist, with details of those who carried out the screening tests (both molecular and epidemiological)
- the ability to **record the results of screenings carried out** with rapid tests, if they are done directly by the business
- a tool to apply the **correct protocols** and **safely approach work activities**.

“

The biosurveillance system developed by Engineering allowed us to monitor in real time the spread of the pandemic and provided us with data to predict its impacts in advance. All this allowed us to implement preventive actions to govern our emergency system, avoiding further infections, containing the number of deaths and, above all, saving lives.

Lorenzo Gubian

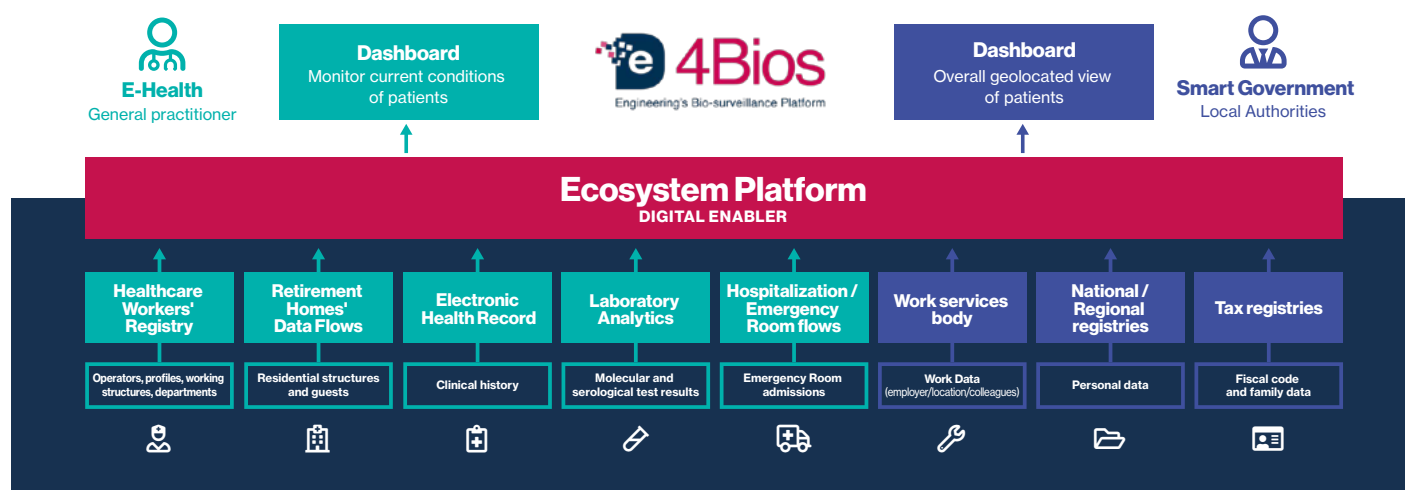
CIO, Veneto Region Healthcare System

It provides **operators of healthcare organizations** with:

- a **view of the main indicators of the evolution of the epidemic** in the reference area
- a **georeferenced view of the tests carried out** on the territory, their outcome, the analysis of the family, residence and work context of the examined subject
- a **view for health workers** to evaluate, real time, the available workforce within organizations and those affected by Covid-19
- **monitoring of clusters at risk** (nursing homes, housing contexts with many positive cases).

It provides **members of the Task Force / Regional Crisis Unit** with:

- a **view of the main indicators and real-time monitoring** of the epidemic
- **tools to carry out epidemiological simulations** on real data of the evolution of the epidemic
- **tools for immediate identification of clusters** that require high attention (nursing homes, positivized families)
- a **georeferenced view of the tests carried out on the territory**, their outcome, the analysis of the family, housing and work context of the examined subject
- a **georeferenced map of the positive cases** aggregated by territorial incidence
- a **view dedicated to health workers** for monitoring the operational status of all regional structures.



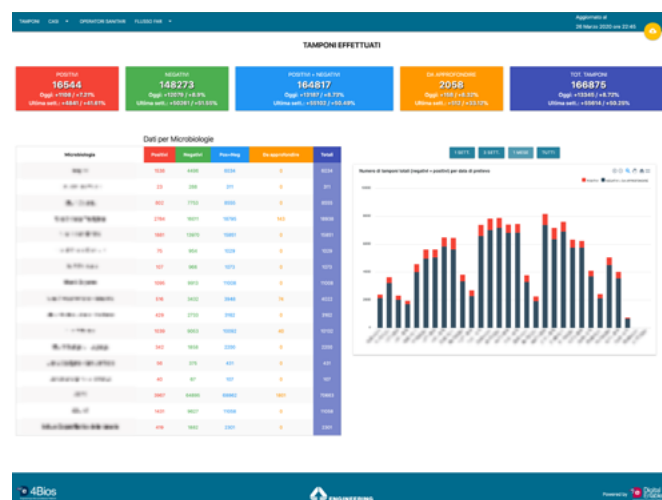


The Covid-19 emergency allowed us to perceive the actual value of data that Public Administrations already manage. Ecosystem platforms capable of integrating heterogeneous and transversal data sources, combined with data analytics models that extract knowledge from these crossings, have created and will create important tools to support public health governance.

We have to focus on these aspects to avoid being unprepared when the next pandemic hits our country. In order to protect the community, public health must in fact have a global and integrated vision of all data relating to the clinical-health sector, families, workers and the safety of production activities, students and training activities, to residential in nursing homes. The management of all this information allows immediate prevention actions and a real time control of the evolution of epidemics both from a clinical and social point of view.

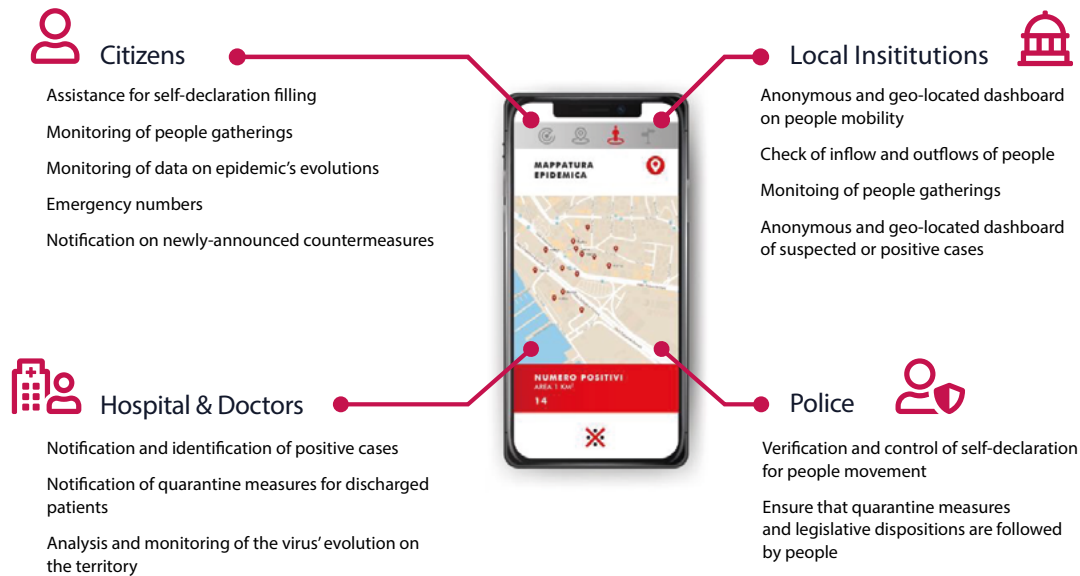
Arianna Cocchiglia

Director Innovation & Partnership Healthcare, Engineering



Engineering built an app for **Regione Sardegna** that allows citizens to communicate and certify their movements, supporting health authorities, local institutions and law enforcement agencies in verifying self-declarations and compliance with legal provisions. The application therefore allows the monitoring of possible clusters and the flow of people's entry and exit from the Region. Additional functionalities are also being evaluated.

App Functionality Roadmap



Safe Eye is our **AI based, Video & Picture** analysis solution to monitor that social distancing measures are maintained by people in public places. Thanks to AI & Advanced Analytics technology, it provides an **end-to-end video and image-based, real time 24 x 7**, analysis of humans and objects to recognize / detect / highlight potentially harmful behavior in public places: such as squares, streets, offices, stations, shops, public transport and generally wherever video and image systems can be leveraged.

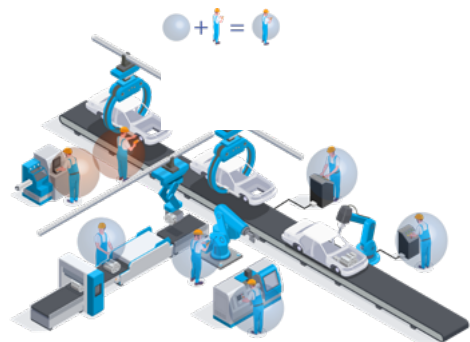
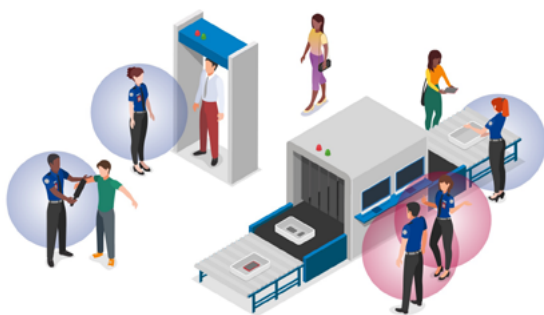
If social distancing measures are not respected the solution can automatically generate **warning messages** (push messages, calls, screen warnings, etc..) to those who are entitled to monitor those areas.

ENGINEERING THE NEW NORMAL

In order to support organizations in managing their work environments to protect their employees' health, we have developed a **Smart Proximity** integrated platform that analyzes, monitors and predicts potentially harmful behavior within the workplace. It operates in real time, sending warning messages to workers who do not abide by the appropriate safety distances.

Each operator is equipped with a wearable proximity sensor, which communicates with one or more nearby sensors by sending and receiving information. The generated data is sent to a server that creates a relationship graph and monitors, in real time, the respect of safety distances between workers. When two sensors observe that the safety distance between two workers is disregarded within a specific time interval, it immediately warns them through vibration, LED or sound.

Smart Proximity: features and applications



Storage of critical proximity data



Reliability and availability of data on distributed architecture



Monitoring dashboard to identify critical behavior and report anomalies, in real time



Integration with external systems through standard communication protocols



Security, verification and validation of data collected



We are also implementing **Change Management programs**, which use some of the Microsoft Office365 tools, such as Teams and Sharepoint, to help organizations manage business moments where people can benefit from "reservations", "synchronization" and "scheduling" tasks, to ensure full compliance with social distancing rules; from managing the flow of people in common areas (meeting rooms, classrooms, refreshment areas, canteens, toilets) to organizing the cleaning teams in sync with those who must use the places that need to be sanitized or are sanitized.

To support the world of Retail in finding its New Normal we created **CHAT Boutique**: it is a web app that creates **a new shopping experience and that does not require presence in a store**. Through video chat a Shopper Assistant guides the customer in the vision, discovery and purchase of the products, allowing them to view them in detail and to pay directly online.

SMEs are among the most exposed players to market crises. In order to support them and especially in this emergency phase, our **Finance division** provides **CheckImpresa** platform. This solution represents an immediate, simple and intuitive support that allows companies to manage economic / financial resources and needs, enabling them to act promptly in complex situations. CheckImpresa also allows banks and credit intermediaries to gain an updated overview on the real economic / financial health of companies, fostering the possibility of directing more resources to SMEs and thus the overall growth of the areas where they operate.

“

When it comes to data, especially that relating to health, we must not forget all the issues relating to its confidentiality, and how it is collected and managed, as strictly regulated by the GDPR.

Safeguarding health and correctly managing related data does not need to be in conflict. On the contrary, it is possible to conceive models in which, if data can help save human lives, then we must be able to use it, responsibly and in full compliance with the law.

Massimo Canducci

Chief Innovation Officer, Engineering





**ENGINEERING
THE NEW NORMAL**

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**BUILDING
NEW NORMAL**

Building the New Normal.

In this crucial time in history, we are all being called to act. How we react and the decisions we make will most likely shape our careers and determine whether our organizations will achieve greatness in these troubled times.

The Challenge is not only to fix what was damaged and broken, but to reimagine the New Normal. You and all your peers are going through the same issues. Your clients and users are also going to be reshaping and reimagining their needs and values. How will this change your ecosystem? Could this be the time to revise and rethink certain partnerships? What lessons could be learned from other industries?

Time has come to re-map your needs and your whole ecosystem. This time 'round, technology and the promises it holds will reshape society.

The current crisis has also highlighted how we are a part of a global ecosystem, one we are inextricably linked to, affected by and one we also have the power to impact in a major way. It has shown that we are naturally dependent on the giant Social, Economic and Physical ecosystems in which we operate and live. Technology seems to be the only way to bridge these gaps and provide the support and answers we seek in a timely fashion.



Credits Nicola Lopomo-Instagram: @lopomonicola

ENGINEERING THE NEW NORMAL

Ecosystems are no longer there to be exploited as marketplaces but are part of our grand contingency plan. We believe that a lot of these ecosystems will be remapped in the coming months.

As we stated in the opening of this paper, the world has changed. So will organizations, processes and technologies. The crisis will accelerate many changes that were already happening and redirect other ones. It is time to understand where we are, to evolve into a new tomorrow.

Engineering has always had at its core the ability to look ahead over the frontiers of innovation.

We do this by investing in new technologies and research projects and activities that allow us to anticipate changes. We have long-standing experience in running co-design workshops to help organizations define their basic core values and principles and use them to guide their transformation, to generate new ideas, to run cross-industry brainstorming sessions, provide frontier technology updates from our researchers and insights from our innovation network.

The time has come to envision our New Normal by embracing the continuous waves of innovation technology will bring, by incorporating new core values linked to sustainability and preserving humanity.

The time has come to take our place in history, reshape this world and deliver a new tomorrow, our New Normal.





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Some of the photographs used in this White Paper were made by Nicola Lopomo, Project Manager for Engineering



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**ENGINEERING
THE NEW NORMAL**

OUR POST-COVID VIEW ON SMART TRANSPORTATION

An Appendix to *Engineering The New Normal*.

WHAT ARE WE DISCUSSING?

I	What happened	44
II	Our vision of the market	46
III	Our Positioning and Solutions	48
IV	Building the New Normal	60

ENGINEERING
THE NEW NORMAL

WHAT HAPPENED

The Covid-19 emergency represents a stress test for the transportation industry and for its operators: public and private companies, airports and railway infrastructures managing authorities, etc. Even more delicate is the situation for local public transport, which has to ensure access to cities for people and goods without any service interruption. New security measures, characterized by social distancing, have questioned the rules and practices of passenger transport. **How to react to the current liquidity crisis resulting from the collapse of demand?** It is essential to manage today's challenges to guarantee the existing demand for a "safe" mobility and, at the same time, to look towards the future, investing without hesitation. The latter will be vital for those who want to be ready and competitive during the phases of recovery: indeed, this is the time to carry out interventions that in normal conditions would have brought disruptions and limitations to transportation services.

The urgency is now to **employ innovative technologies** to support rational travel planning, in order to ensure a balance between the different modes and spaces available, and the best possible speed, ensuring adequate frequency of public transport.

We must invest to **streamline travel**, ensuring maximum safety for people (social distancing on docks, airport gates, etc.) as well as public transport's frequency. This involves synchronizing communication (to operators and users) and rebuilding trust with passengers (e.g. ensuring enough space within all means of transportation, sanitation, etc).

Almost all companies operating in the transport sector are therefore called to make a real leap forward to innovate and improve the service in its complexity, combining efficiency and passenger security.



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OUR VISION OF THE MARKET



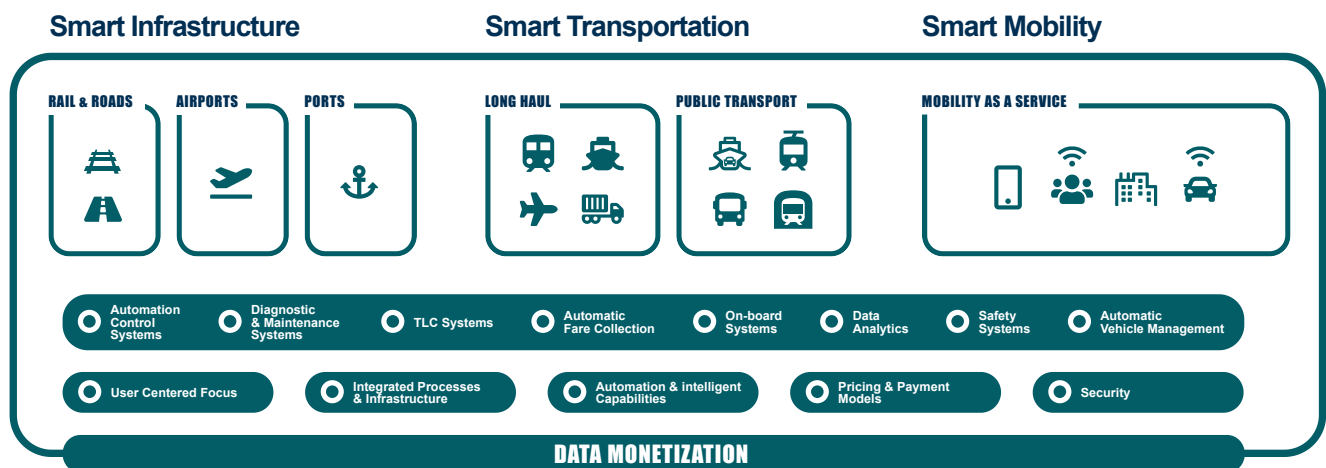
ENGINEERING THE NEW NORMAL

In Engineering we support the evolution of the market with a particular focus on the safety of people and infrastructures. Taking advantage of these competences, even in the post-Covid period, **our offering portfolio represents an innovation program** that can create value for all players in the sector: a portfolio of services, products and solutions, ranging from automation and control systems, to systems for monitoring, diagnostics and maintenance of infrastructures, from physical security systems for operators and users to network security, with an offer increasingly aimed at a new kind of mobility.

We adopt **Digital Twin** technology to perform simulations to understand and predict real-time behavior of infrastructures, acquiring data from IoT sensors. We provide **Virtual Collaboration** solutions for the remotization of field activities with **AR/MR/VR** and support **construction sites management** according to all Covid-19 safety protocols. We offer solutions to manage **controlled access to common areas**, **Video Analysis systems**, simulation tools to manage flows and analytics tools to manage open areas (terminals, parking lots) and users.

PORTFOLIO MAP

Smart Transportation



ENABLING SERVICES

Technology & Cloud Services

Business & User Services

IT Consulting

Mobile Applications

UX & Service Design

Digital Communication & Strategy

ENABLING TECHNOLOGIES

AI & Advanced Analytics

Cloud

Cybersecurity

IOT

Robotic Process Automation

AR / VR / MR

Blockchain

Digital Twin

ENGINEERING
THE NEW NORMAL



OUR POSITIONING AND SOLUTIONS



Engineering works on a global level with the main players of the Transport and Infrastructure market to ensure the **reliability and safety of data-based mobility services** dedicated to people, goods and infrastructures.

In detail:

- **we provide solutions** for the transport and for infrastructures that enable the movement of people and goods
- **we support** organizations that manage railway and metropolitan transport networks in providing services and solutions and in ensuring the safety of infrastructures and passengers
- **we collaborate** with Central and Local Public Administration providing solutions for the management of local and regional public transport and integrated sustainable mobility projects.

In order to guide market players in the creation of their **New Normal**, we have identified the lines of action that these can follow and our solutions in the short and medium / long term.

Digital Transformation represents an important challenge and opportunity for transportation infrastructures and mobility. This market is evolving facing innovative challenges to be able to:

- Guarantee **adequate transport capacity** to minimize impact of restrictions
- Comply promptly with quickly **evolving health** and safety **procedures**
- Minimize **impact** on company **profitability**
- Communicate and assure **confidence to passengers** and employees

First Steps in a Post Covid World



Digital Transformation is playing a crucial role in this scenario and must be further leveraged. Within a mass transport context, the main measure adopted by most governments is social distancing. Technology can help assuring and monitoring a safe and viable transport service.

The lines of action represented in the previous table are described in more detail below, specifying the challenge to be met and our solutions and skills that can support it.



Protect Productivity

Ensure business continuity and staff health with a new organization of the workplace and the adoption of Smart Working

The challenge

As long as we will live with the virus and comply with social distancing rules, all players in the sector will have to ensure the safety of travelers and workers of the sector.

Our offer

In Engineering we have created solutions that allow to manage and monitor social distancing of operators, combining a deep knowledge of the processes with the various rules imposed by the bodies in charge of emergency management.

- **Smart Proximity:** our integrated platform that monitors and foresees risky behavior of personnel in the workplace, intervening in real time if safety distances are violated, in any environment, indoor and outdoor.

To redesign the work organization and enable Smart Working activities, we have developed cloud platforms that support the digitalization of work and the **Digital Workplace** through collaboration tools that guarantee secure sharing of information, allowing companies to operate in different locations, at global level:

- **Digital Workplace and remote collaboration tools**, both from the market (**Microsoft Office 365**) and developed by us with open source and secure technology, to enable innovative and effective ways of working, thanks to worker-oriented technologies and organizational models. In particular, the **LiveBox suite** manages secure collaboration and information sharing, and enables workflows to automate business processes. In addition, the GO module is a product designed for organizations that, by employing staff abroad, have to fulfill the obligations deriving from Legislative Decree 81/08, supporting their resources while traveling and introducing advanced monitoring and analysis tools.
- **Change Management programs** to support the **New Normal** through strategies and tools useful to organize, incentivize and supervise the efficiency and productivity of the employee, and to ensure that he has the right training and assistance.



Increase Resource
Availability

Increasing the efficiency of operating processes of companies by freeing up their resources towards activities with greater added value

The challenge

Employing Robotic Process Automation (RPA) processes to provide the right value to human time through:

- **reduction of downtime** in a process through automated asynchronized tasks
- **reduction of staff training times** through automated support in carrying out an activity
- **reduction of audits and compliance checks** thanks to the continuous monitoring of a robot
- **aggregation of information** from heterogeneous data sources.

Our offer

- We use **RPA and Advanced Process Automation** solutions to free economic, physical and human resources from work activities that require more basic skills, allowing companies and organizations to redirect them towards activities with greater added value. In this way we enhance the human dimension of work, improving end user satisfaction and optimizing the organization's performance.
- We provide Consulting, Implementation Services, Managed Services, Software Packages or Cloud-based service platforms.





Manage Complexity

Understand and predict real-time transportation and critical infrastructure systems, manage user flows and common areas (terminals, parkings, etc.)

The challenge

It is necessary to exploit the full potential of **Artificial Intelligence** and the **Internet of Things**, which with its intelligent sensors has led to the increasingly widespread adoption of management and decision strategies based on the Digital Twin: the sensors collect information on the current state of the infrastructure and the mathematical model anticipates the analysis of abnormal behavior or that, more generally, deviates from the expected behavior, hence supporting the decision-making process.

Our offer

- From the **Design** (or planning) and **Build** (or construction) phase of the infrastructures to continuous monitoring in the **Operation and Maintenance** phases, and thanks to our skills and knowledge of the Digital Twin, we support decision-making processes from the infrastructure design phase to monitoring during operation, integrating IoT and AI & Advanced Analytics technologies.
- **e-SCM**: our system that allows you to manage the construction site, during the construction phase, from an administrative and regulatory point of view (including the authorizations needed to operate) and to monitor workers, assets used, status of activities and human resource allocations. The system also allows the management of PPE, regulations, training and health surveillance.
- a new **Business Intelligence Platform** for transport service managers that allows to perform demand analysis and proactive service planning, in order to quickly understand the changes in the service and monitor interventions:
 - Analysis of the new demand based on actual crowding volumes of areas (stations, stops, terminals, vehicles)
 - Monitoring of sanitizations and evaluation of costs
 - Relationship between the gradual recovering of movements and any rise in infection (second wave)
 - Forecast analysis of the possible demand based on the measured crowding
 - Analysis of lost sales in the lock-down time and re-projection of results on the second-third quarter
 - Analysis of the status of personnel and resources (employment, availability, etc.)

The platform also acquires data from heterogeneous data sources that may already be available (e.g. proximity sensors, booking systems, ticketing, access control, video surveillance, company management, Open Data) and allows you to evolve towards predictive logics, also through integration of AI modules.

- innovative solutions **to support Operational Centers** for:
 - Rapid identification of critical areas and situations through video analysis displaying graphical and intuitive heat maps linked to with a high flow of users
 - Carrying out remote commands on the infrastructures (gates, turnstiles, etc.) for the proactive management of the flows of travelers in areas with high turnout (Crowd Management)
 - Timely communication to field staff to solve critical situations
- innovative solutions **to optimize crowd management** through the use of Digital Twin & AI. These simulate the flows of passengers arriving and departing in a railway and airport terminal with the dual objective of anticipating the emergence of possible critical events, understanding how to deal with such problems, validating ex ante the impact on the routes for travelers inside the terminals or the modification of the existing conditions. With a hybrid approach between modeling and simulation we are able to carry out:
 - **Graphic modeling of passengers** on the layout of the terminal, based on the arrivals and departures of the carriers, also taking into account the points of interest (commercial premises, waiting areas, ticket offices, display boards, etc.)
 - **Graphic modeling of the entrance** and exit doors (to and from the protected area). The authorized operator can act on the gates and turnstiles (e.g. opening / closing / change of direction) as an operating lever to manage unexpected and unwanted situations.





Guarantee IT security and data protection, safeguarding the systems supporting infrastructure and the safety of travelers

The challenge

All players in the sector must guarantee industrial security (OT - Operational Technology), which has become an increasingly central issue in light of the growing pervasiveness of digital innovation in critical infrastructure management.

The growing diffusion of IoT presumes the interconnection of systems and devices and the integration of sensors and devices in the network, which generate and exchange huge amounts of data in real time. This creates an expansion of the attack surface where it is easier to receive cyber threats.

Our offer

Thanks to our knowledge in Cybersecurity and the solutions of Cybertech, a Group company specialized in IT security, we are able to offer solutions and skills on:

- **segmentation of the network**, which is divided into non-communicating parts or separated by security checks in order to limit a possible problem in a single segment, preventing the spread of the threat
- **solutions for access control to information systems and privilege management**, which regulate authorizations on individual components of a system in order to prevent access by unauthorized and potentially compromised devices or users
- **network monitoring and log analysis**, useful both for detecting intrusions and as a support for investigative and analysis activities
- **specialist vulnerability assessment** and penetration testing activities
- **organizational models** more generally known as Cybersecurity Governance.



We also provide our SOC (Security Operation Center), which allows you to

- **manage the safety** alarms received by the Safety Monitoring
- **analyze the causes** of intrusions in IT systems
- **obtain useful information** to determine the nature and impact of the cyber attack
- **guarantee the control**, monitoring and 24/7 identification of security events.

Thanks to our skills and solutions, we can identify, prioritize, analyze, classify and subsequently notify the functions in charge of any potential or actual cybersecurity threats and incidents detected; we can therefore limit and contain IT threats, allowing the customer to quickly restore the normal operation of services and systems.



Grow Business

Innovation of public transport services and monitoring of environmental parameters to guarantee sustainable mobility

The challenge

Innovate transportation services with enabling technologies to optimize the management of social distancing rules and vehicle traffic and optimize travel operations avoiding critical issues and accidents.

Our offer

- Solutions for the **management of operations**, for security systems with advanced video analysis, for baggage and cargo management, for infrastructure monitoring and maintenance
- Measurement system for crowds on public transport and in stations and public areas (stops, stations, docks, depots, etc.) through the acquisition and analysis of data from heterogeneous sources such as:
 - Beacon
 - Images and video streams
 - Access control systems

our platform detects the presence of individuals and measures crowding with respect to the set parameters.

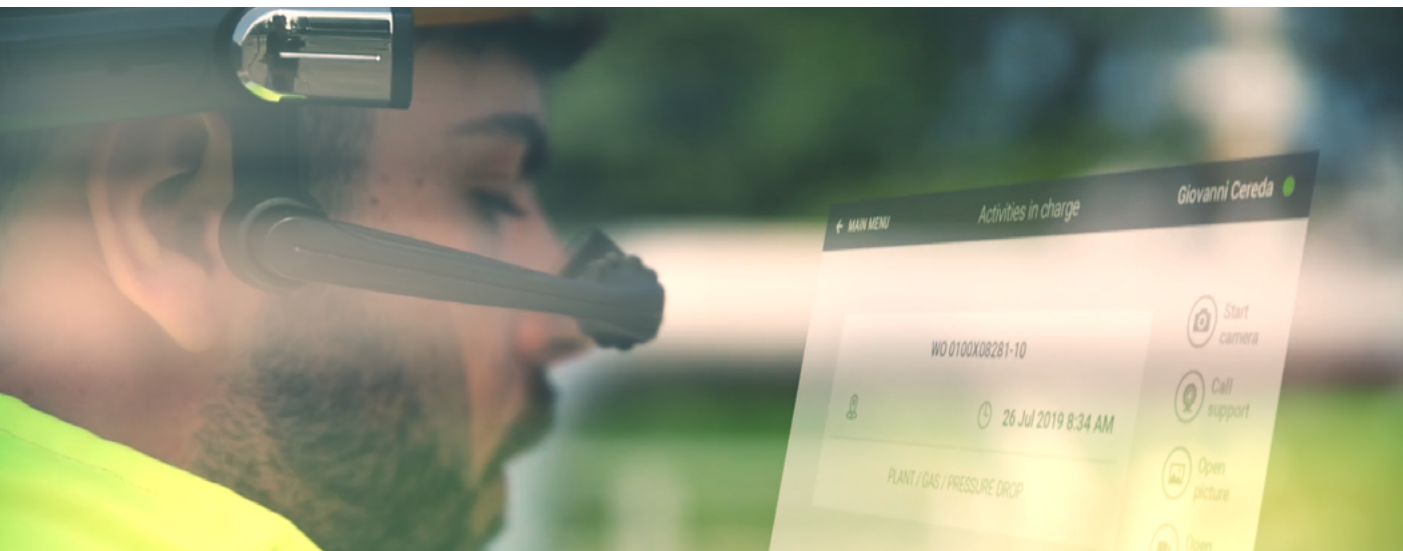
It can operate by acquiring information from any systems already available:

- via APP that acquire the beacons positioned in the points of interest (vehicles, stops, etc.)
- through the acquisition of data from any attendance detection system
- by means of video analysis of images and / or video streams acquired from video surveillance systems already available or newly installed. In particular:
 - Video Analytics systems constantly check whether passengers wear protective masks
 - Thermal scanners identify individuals with body temperature beyond the allowed limits
 - If placeholders are defined, it is detected whether the passengers are in allowed locations
 - Using existing cameras we implement algorithms for counting passengers

To improve the travel experience, reduce waiting times in shared areas thus ensuring the safety of travelers are provided through specific APPs capable of integrating travel time forecasting including queues in waiting areas, gates, check-ins, security checks, etc.

At the same time, an automatic system for seat reservation on line buses has been implemented to plan the trip, indicating the desired ascent and descent stops. The platform verifies, on the basis of the reservations already acquired, the availability of places on the requested route and manages the acceptance of the request.





Support with Virtual Collaboration remote field activities and site management according to Covid-19 safety protocols

The challenge

In order to guarantee maintenance and Technical Inspection activities in this historical moment, it is increasingly necessary to adopt processes and tools to carry out even complex activities remotely.

In addition to safeguarding the safety of operators, our solutions bring significant reduction in costs allowing to arrange activities differently from the past. Technologies also enable Virtual Collaboration features that allow you to document the activities carried out to capitalize on all the experiences in the field. This new way of carrying out the activities allows you to better manage the experience of qualified personnel who can become the technological focal point of operators in the field with less technological experience.

Our offer

- SPACE1, by OverIT, an Engineering Group company, based on AR / MR / VR technologies, for the management of work progress remotely and for testing materials
- Geocal, by OverIT, to improve the activities on the field controls through drones and other automation toolse



Diversify and evolve mobility with a new approach to services and environmental impact

The challenge

Everyone is wondering about the present and future of the transport of goods and people, where to direct investments and which direction to take also by calling into question our lifestyles and behaviors. It is not easy to change the rules of the game without capitalizing quickly and bravely using technological developments.

Our offer

Only by changing the current paradigm of public transport can companies continue to guarantee a vital service for the community, managing this historical moment as a point of discontinuity. Systems that guarantee **flexible transport** and **social distancing** are associated with Smart payment and support solution for MaaS services.

MaaS (Mobility as a Service) is a business model for the provision of services with the personalized use of a bundle of public and private transport: trains, buses, taxis, cars, bike sharing and more. Consequently, information to the public can make the flow of users more efficient towards transport services and increase integration between multiple means.

In the use of private vehicles, our sharing solutions will facilitate non-polluting transport. In fact, interest in **measuring and controlling environmental parameters** impacted by traffic is increasing and real-time traffic measurement is needed for dynamic and adaptive management of vehicle flows, so as to allow access to communication routes with environmental sustainability criteria.



ENGINEERING
THE NEW NORMAL

IV

BUILDING THE NEW NORMAL



There's no doubt the world has changed. New values, new rhythms, new models. Everyone is wondering how to rebuild and what direction to take. It is a time when the answer has to be found by asking the right questions. Questioning the status quo. The rules of the game have changed and perhaps the game itself will change. How to combine the definition of core values to generate ideas, how to learn from other markets, or how to capitalise quickly on technological developments.

New Normal will speed up the use of data to create value: these recent months have shown the power of data transversality and how, around them, we can create quickly services and virtuous ecosystems.

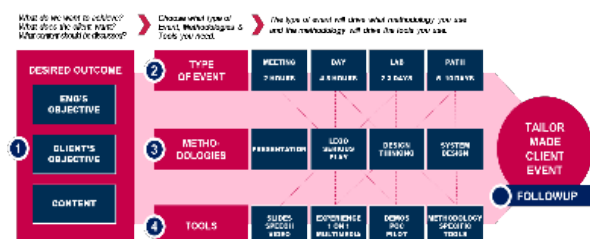
The walls between one vertical and the other will increasingly be mental barriers, we must then give life to new partnerships, designing and creating digital ecosystems based on technologies transversal and enabled by vertical services. These are the most important challenges to face. And we at Engineering have the strategic vision and operational capacity to accompany our customers in this challenging journey. Every day, we experiment and measure the potential for change of the new enabling technologies coming out on the innovation scene. But we also know how to do this gradually and strategically, in order **to ensure the harmonious and sustainable evolution** of the complex system of skills, processes, infrastructures and services of the organisational context in which we operate.

It is with this strategic ecosystem-based approach that today, we can partner with our stakeholders to build a New Normal that follows the paradigms of Digital Transformation: a path that starts with the restoration of specific business values and continues up to the recognition and involvement of the various networks of relationships and transactions that define the internal organisational system and that relate to it externally. Directly (customers, suppliers, partners, etc.) and indirectly (physical, social, economic, environmental, technological, cultural/educational system, etc.).

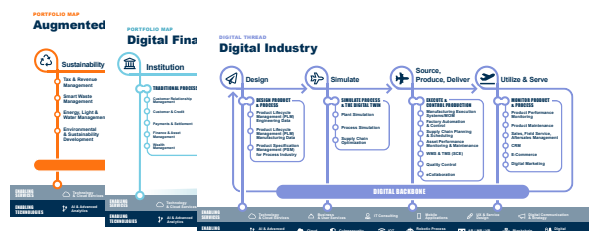
An intervention – the one we have adopted – that invests in innovation and not in technology: because first and foremost it focusses on the ability of the organisational body to react to the crisis, to face and resolve all the pre-existing rigidities on the supply and demand side, to then proceed to build, based on unexpressed potential and on the new value proposition, its very own specific and solid construction of the new New Normal business model.



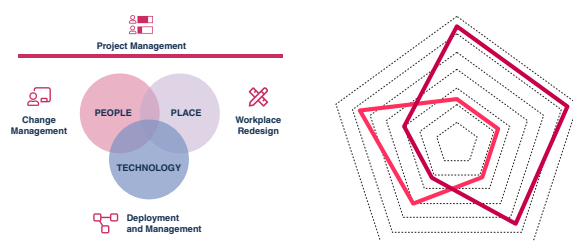
CO-DESIGN FRAMEWORK



MULTI INDUSTRY EXPERIENCE



CHANGE MANAGEMENT & MATURITY ASSESSMENT



ECOSYSTEM VIEW



Our toolbox consists of:

- **A Co-design Framework**, for the generation of ideas focussed on the innovation and transformation of the business model and for the joint design of prototypes of "ecosystem"-based solutions and platforms;
- **Change Management and Maturity Assessment processes**, to assess the strengths and areas for improvement of the organisational system and its positioning with respect to the business context in which it operates;
- **A Multi-Industrial Experience**, for sharing the experience, skills, processes and solutions that our Group has matured in the specific business chains and which become transversal when they intersect and can enhance or condition the customer's new innovation model;
- **An Ecosystem View**, designed to offer integrated and coherent services models that enable "user-centred" views (e.g. Digital Citizenship, Mobility).

There is no perfect solution for overcoming this crisis and building the so-called New Normal. But there is that sought-after ability to imagine, to create and to develop the open "peer production" solution based on a collaborative, synergistic and iterative approach: always able to give the best answers to the new innovation questions.

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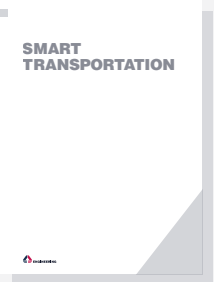
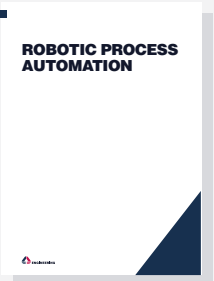
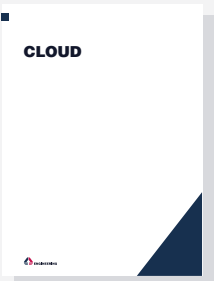
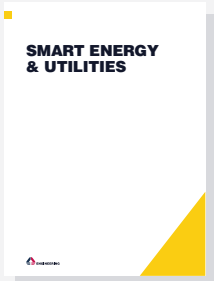
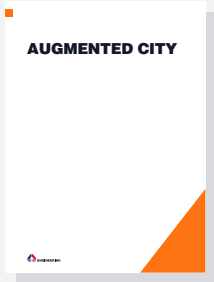
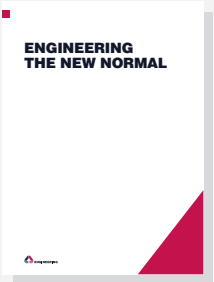
ENGINEERING

Engineering is one of the main players in the field of Digital Transformation of public and private companies and organizations, offering an innovative offer targeted at the main market segments. Together with its subsidiaries, the Engineering Group is committed to pushing the envelope as regards the application of emerging technologies. It also works in the area of system implementation and integration and on redefining processes in order to promote innovation for the benefit of businesses and Public Administrations.

With around 12,000 professionals in 65 locations spread across Italy, Belgium, Germany, Norway, Republic of Serbia, Spain, Sweden, Switzerland, Argentina, Brazil and the USA, Engineering manages projects in over 20 countries, supporting customers in the business areas where digitalization is having the biggest impact. Its products and services cover all strategic sectors, including Digital Finance, Smart Government & E-Health, Augmented Cities, Digital Industry, Smart Energy & Utilities, Digital Media & Communication. The group aims to help change the way in which the world lives and works, by combining technological infrastructures organized in a single hybrid multicloud, the capability to interpret new business models and specialist competences in all next-generation technologies: AI & Advanced Analytics, Cybersecurity, RPA, Digital Twin, IoT, Blockchain. With significant investments in R&D, Engineering plays a leading role in research, by coordinating national and international projects thanks to its team of 450 researchers and data scientists and a network of academic partners and universities throughout Europe. One of the group's key strategic assets is its carefully considered staff training policy. Engineering, since 1999, has had its own dedicated multidisciplinary training academy, the "Enrico Della Valle" School of IT & Management. With 300 certified trainers and hundreds of courses, the School has delivered more than 19,000 days of technical, methodological and process training during the last year.

www.eng.it/en

Our point
of view on



Coming Soon

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THE NEW NORMAL**



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