How has COVID-19 Changed Industry ICT and Emerging Technology Investments in Europe?

Andrea Minonne, Gabriele Roberti, Radoslav Dragov, Stefano Perini, Vladimir Zivadinovic, Massimiliano Claps, Jan Alexa, Thomas Zink, Silvia Piai, Giulio Raffaele, Phevos Skalidis, Jean-François Segalotto, Lorenzo Veronesi

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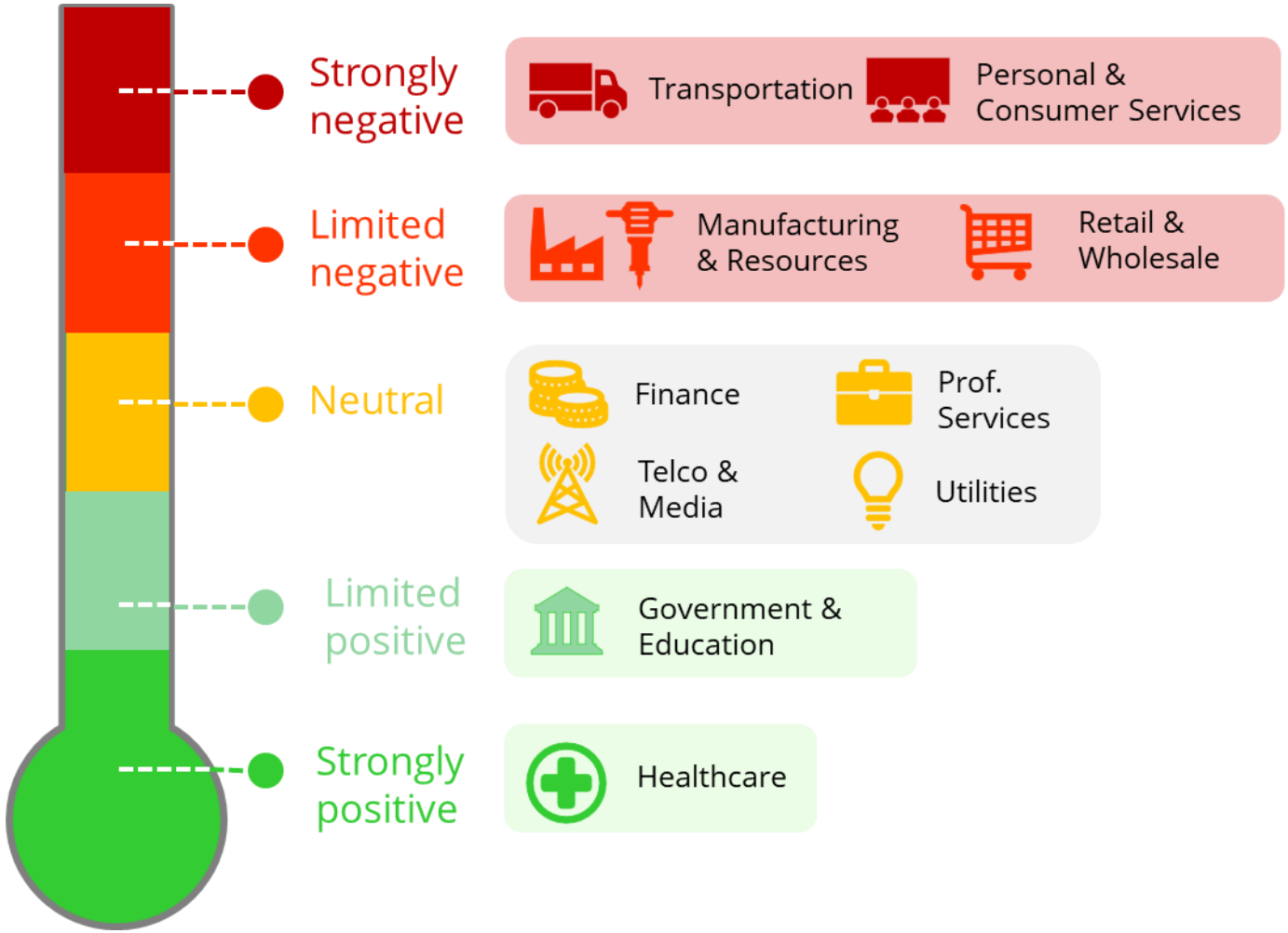
IDC ANALYZE THE FUTURE

The COVID-19 impact will be felt differently across industries, with transportation and leisure services being hit the most due to a decrease in tourism caused by lockdowns.



- **COVID-19 has affected every European company in different ways**, forcing many businesses to close and putting pressure on others. Many companies have redesigned their working culture, facilitating smart working to enable employees in **finance** or **professional services** to be "business as usual."
- **Transportation** is experiencing hard times, and IDC expects the industry will move its focus from IT-driven innovation to cost efficiency. Similarly, with restaurants and leisure centers being closed, **personal & consumer services** will focus on communication through low-cost digital channels, delaying IT projects around guest experience.
- **Healthcare** will spend $23 billion in ICT in 2020. Many investments will enable health providers to strengthen intensive care units' (ICUs') digital capabilities, reduce diagnosis time, automate testing, and conduct consultations with patients remotely.
- **Government** and **education** are using technology to manage the crisis, spread awareness around COVID-19, survey cities on lockdowns, and support elearning. Together, their ICT spend will get close to $93 billion in 2020.

Source: Worldwide ICT Spending Guide Industry and Company Size, April 2020V1

COVID-19 Impact: Industry Deep Dive

IDC ANALYZE THE FUTURE

Most financial companies will opt for smart working and require stronger collaborative and security apps. The swift move to contactless payments will trigger digitalization.

Finance *benefits from strong regulatory liquidity requirements for now. However, it is under pressure to provide funding to individuals and businesses, while traditional risk models fail to quantify risk adequately. Many companies are extending smart working policies, raising demand for hardware and cybersecurity tools. In the future, there might be a shift from cash- or touch-based payments to contactless transactions.*

Emerging Techs and Use Cases

- Social distancing is driving a stronger need for customer self-service, improved security, availability, and **mobile-first** solutions for financial institutions.
- **Artificial intelligence** (AI)-enabled **chatbots** will ensure prompt support to individual in self-isolation to counterbalance the reduced service levels from brick-and-mortar bank branches.
- **Big Data and analytics (BDA)** will be pivotal in increasing security of finance against fraud and theft and in enabling financial institutions to have a quicker assessment of risks. **Machine learning** will be essential to improve risk models to the new normal.
- COVID-19 will drive further adoption of **cloud and edge computing**, given the benefits of renting infrastructure over owning it, such as scalability. This goes hand-in-hand with investments in customer-facing tools and apps and back-office modernization.
- Due to market volatility caused by COVID-19, the need for transparency in global supply chains and severely disrupted global trade will drive adoption of **DLT-based** trade initiatives.

COVID-19 Impact on Finance

- The impact of COVID-19 on finance will be mild in the short term, but **looming defaults, a slowdown in bank lending, loan repayment breaks, and fee waivers** will hit their bottom lines in the longer term.
- COVID-19 will drive the proliferation of **digital services,** as branch networks remain underutilized. This will spur investments in digital self-service tools, open banking applications, and value-added services (e.g., advisory, facilitation, aggregation). This digital surge will likely trigger further **branch closures** as customers become more familiar with the benefits of digital banking and new digital propositions make branches increasingly redundant.
- Overall, the current situation will force financial institutions to invest more in their **IT infrastructure** and prioritize the cloud migration of critical workloads and modernize existing apps. Regulators will likely ease cloud limitations in response to the changed operating environment.
- Social distancing is leading many businesses, even SMBs, to migrate from cash to **cashless payments**.
- Banks are improving their **smart working** policies and opening new channels for collaboration.

Increased demand for connectivity will push telcos to provide higher bandwidth. Media revenues from digital ads will decrease but will be offset from streaming demand.

*The **telecom** sector will take a smaller hit from the COVID-19 outbreak due to counterbalancing factors that negate the natural downturn. Mobile and fixed broadband traffic will increase revenues for telco companies as smart working accelerates. **Media** revenues from digital advertising of leisure and transport companies to promote their services on TV will decrease.*

Emerging Techs and Use Cases

- Telecom providers play a critical role in supporting business activities and **work-from-home** life during the COVID-19 outbreak. **Edge computing** helps in transforming telecom networks, avoiding congestion at network core, and ensuring lower latency. This is a critical factor both for the business use case, especially **Internet-of-Things (IoT)** ones, and customer experience in creating content, a relevant KPI for the media industry.
- Moreover, European telcos are increasingly supporting governments and healthcare organizations in monitoring infections through **screening application platforms** and **telemedicine solutions**.
- **5G**, which natively supports edge computing, is important in providing higher bandwidth and lower latency as well as ensuring security standards on data transmission.
- Telecom providers will leverage **BDA** and **AI**, using their extensive databases to provide insights to public bodies on people movement over geographical areas and help governments assess the outcome of their social distancing measures.

COVID-19 Impact on Telcos & Media

- The negative impact on telcos/media will be more subdued as there will be a few positive opportunities. Current restrictions on travel has forced businesses to work remotely and use telco services to accelerate **remote collaboration**. This will put great strain on the network but can spur innovation to meet increasing **connectivity and bandwidth** demand.
- Revenues from telcos will be increased and many businesses will see the viability and benefits of a more decentralized way of work. Businesses will make further investments in expanding their telecommunications capabilities to accommodate a more remote style of work.
- With people advised to stay home, **media consumption** has substantially gone up, though budgets for digital advertising will go down. The closure of cinemas and cancellation of live events will lead some media companies to invest more in **on-demand streaming**.

Manufacturing IT budgets are facing challenges as many factories shut down. Automated supply chain and pharma discovery will lower disruption and speed up drug research.

__Manufacturing__ is experiencing disruptions due to difficulties in gathering components from COVID-19-hit countries. Automation of processes through emerging tech will be key to minimize disruptions and replace employees when their presence is not possible. __Construction and resource__ will not experience major impacts as projects continue or will be pushed back toward the end of 2020.

Emerging Techs and Use Cases

- **Process automation** and **autonomous operations** are the keywords for manufacturing. Emerging tech such as **AI, IoT, blockchain, robotics, and edge** will be critical to support these use cases and enable **zero-touch production (ZTP)**.
- Transformational projects with emerging technologies could be delayed, and companies with DX already in place will gain a competitive advantage over those that will have to start from scratch.
- The disruption of the supply chain is another focal point for the industry. In this ecosystem, **AI** plays a key role within extended **supply chain management**, **inventory intelligence,** and **supplier network management** use cases.
- From an R&D standpoint, the race for COVID-19 drugs will spur IT investments from pharmaceutical companies, which will look at **AI** to speed up **drug discovery and research**.
- **3D printing** will be critical to provide aftermarket parts in manufacturing healthcare equipment and modifying products (e.g., in Italy, snorkeling masks were refashioned into ventilators).

COVID-19 Impact on Manufacturing & Resources

- COVID-19 will have a negative impact especially in countries suffering the most from lockdowns and consequent stops on production (Italy, Spain, and France). There will be decreased **IT spending in business and IT services**.
- The rapid response of manufacturing to the COVID-19 crisis is enabling companies to test **new ways of working**, implement **change**, establish **new relationships** on their value chains, and experiment **new ways of collaboration** within their ecosystems very rapidly. This will make many manufacturers **more agile** in implementing new strategies in the future.
- The fall in discrete manufacturing production will impact process manufacturing, providing raw materials, with the abovementioned countries suffering the most.
- After an initial setback, resources and construction industries' IT spending will suffer less, with the former focusing especially on **CRM** and the latter on **ERM** applications to face the transformed landscape.

Healthcare will step up its IT efforts around intelligent COVID-19 sense-predict-and-respond systems, establishing the basis for better managing new outbreaks as well as ongoing population health needs.

Healthcare *investments will focus on solutions to help enable a sense-predict-respond ecosystem that will support short- and long-term market needs. Initial investments focus on enhancing patient and health staff security through connected care technologies, intelligent patient assistants, and collaboration tools. Hospitals will enhance their ICU capabilities and clinical decision support systems. Long-term investments will focus on empowering public health surveillance systems and care delivery integration.*

Emerging Techs and Use Cases

- Healthcare providers will constantly monitor COVID-19 patterns and transmission, especially with the risk of a second wave looming. Data acquisition from the field using **IoT medical devices** of first responders and healthcare facilities coupled with **BDA/AI** deployed in the **cloud** can help **flag future outbreaks** and optimize healthcare force response.
- **Medical devices** can provide **remote health monitoring** for large numbers of patients. Off-the-shelf **augmented humanity** and **wearables** such as **health tracking devices** and **smartwatches** can assist in monitoring suspected cases in which people self-isolate in their own homes.
- **AI** will help doctors **automate diagnosis of COVID-19** from CT scans, easing the burden on stretched resources and reallocating time to critical patients.
- National health providers are deploying AI-enabled **chatbots** to provide advice for potential COVID-19 cases.

COVID-19 Impact on Healthcare

- The healthcare sector is at the forefront in the battle against COVID-19, and IT investments will feel a strong impact. A new wave of **digital transformation** will try and bridge the gaps of current healthcare providers, as COVID-19 exposed many shortcomings in current systems. The healthcare sector is expected to receive additional emergency funding to cope with high numbers of hospitalizations. Some of that funding will find its way into **ICT technologies** in the short/mid-term.
- Overwhelmed hospitals will invest more in **digital infrastructure** to support ICUs and workforce collaboration tools.
- **Self-diagnosis online sources** and **telehealth platforms** are used to safely handle patients that don't necessarily need hospitalization.
- In the long term, healthcare systems will build the case for investing in **public health surveillance systems** enabled by interoperable data platforms and AI.

Governments will use ICT to trace contacts with individuals at risk of infection and alert them. Schools and universities are increasing investments in collaborative tools and end-user devices.

Governments *have stepped up investments in technologies to enforce the phase 1 of the COVID-19 lockdowns and control the opening ups in phase 2.* ***Education*** *is "going digital," strengthening its IT infrastructure to enable eLearning. Teachers and students have been equipped with necessary hardware. Teachers have been upskilled to use tech and deliver distance learning.*

Emerging Techs and Use Cases

- Governments are deploying **contact tracing apps** and other tools to tackle the emergency, looking to **fast-track innovation**.
- Governments use **mobile apps**, **drones,** and **video surveillance** — combined with **BDA/AI** solutions — to monitor enforcement of the lockdown. AI is used to identify, track, and forecast outbreaks.
- Governments use AI to **detect fake news** by applying machine learning techniques and mining social media information.
- The need to track cases and ubiquitous surveillance is forcing governments to experiment with new, **decentralized data management** approaches, as citizens demand transparency and the ability to control their own data.
- **Smart city** technologies are becoming increasingly important in this scenario, for data-driven situational awareness and emergency response.

COVID-19 Impact on Gov't & Education

- Governments are taking strong financial measures to mitigate the effects of COVID-19. A common point across Europe is the use of **digital campaigns** and **social media** to communicate measures to prevent the spread of coronavirus and spread awareness among citizens.
- Keeping citizens updated is critical, and many governments are investing in **interactive COVID-19 tracking dashboards** and **egovernment** initiatives around **data openness** and **accessibility** to provide up-to-date and reliable information.
- Governments ramp up **digital services** to enable citizens to apply for welfare benefits and small businesses to submit grant requests. Courts are using collaborative tools to ensure continuity of service.
- Schools and universities have "gone online," using **digital platforms** such as **Skype, Zoom, Hangouts Meet, and Google Classroom**. Equipping teachers and students with the necessary hardware, such as **laptops and tablets**, is increasing demand for devices from various sources such as sell through and sell out.

Utilities will be under pressure to guarantee energy supply and will look at IT to mitigate the chances of failure through remote asset maintenance, as employee shortage looms.

Utilities *will be under strong pressure to continue providing water and energy services to societies with a strong contingency plan in response to shortage of workers. More investments in remote asset management and predictive maintenance will take place as the industry braces for staff in self-isolation who potentially cannot fulfil essential activities.*

Emerging Techs and Use Cases

- With the need to reduce human contact, utility companies can be expected to move toward the implementation of **smart metering**, leveraging **IoT** and **5G**. This also has the benefit of enabling **intelligent grid management,** which in turn provides higher reliability of supply as well as driving efficiency.
- Oil & gas extraction and production facilities commonly have air-gapped networks, and benefits to operational efficiency will require **local computing resources**, and **edge computing** is likely to make great inroads. **BDA** and **IoT sensors** can provide real-time awareness of asset conditions and asset uptime while lowering capital spending.

COVID-19 Impact on Utilities

- Utilities/oil & gas will likely be one of the less impacted industries by the COVID-19 outbreak. However, this is because of the combined effect of an increased private demand and decreased industrial demand, especially in the short term. After an initial downfall, IT investments will hence return to their original trends, considering the need of on-field operators to be assisted in their daily activities.
- On the other hand, white collars forced to **smart working** will lead to demand for **devices** and **collaborating applications** slightly increasing, as well as the related needs for empowered **security software and services**.
- From a geographical standpoint, the trend will be similar across Europe, with a strong negative exception represented by Russia due to the economic consequences of the reduced energy supply demand from around Europe.

Many brick-and-mortar retailers are paying the price for shop closures. Deep changes in customer behavior require retailers to accelerate investments in digital platforms.

*Shop closures will have an impact on planned IT investments in **retail**. Customer experience will remain central but will be refocused. On the flip side, segments such as food and grocery retail are experiencing a surge in demand for specific products and for ecommerce services, which will focus on buy-online-pick-up-in-store (BOPIS) and mobile interfaces.*

Emerging Techs and Use Cases

- **Supply chain optimization** is a relevant use case for many retailers. However, the unprecedented events impacting the retail market worldwide will affect many organizations' investments in **intelligent supply chain forecasting & planning** systems. Leveraging **AI and advanced analytics** remains foundational to improve product availability (i.e., inventory visibility).
- The disruption in **supply chains** has highlighted the need for more **transparency** and **traceability**. This can lead to greater **IT integration** between different stakeholders along the supply chain through Innovation Accelerators, such as **blockchain**.
- Online retailers will see a considerable increase of the consumer demand. AI-enabled technologies such as **chatbots** and **vocal assistants** are key enablers for improving customer engagement.
- In the long term, the distribution sector could see an acceleration in the implementation of **robotics**, **computer vision**, combined with **edge-optimized infrastructure**, and **IoT** to enhance the traditional in-store purchasing experience with automated and cashierless checkout systems that reduce human contact, and optimize store fulfilment operations and streamline warehouses and distribution centers.

COVID-19 Impact on Retail Industry

- Globally, the impact of the COVID-19 outbreak will lead retailers to **reduce up to 50% of their growth estimates** compared with pre-COVID-19 forecasts.
- Consumer behavior, value chain schemes, and operative models have suddenly deeply changed. Retailers are now facing the urgent need to innovate their approach to people, processes, and technology according to new **commerce everywhere business models**.
- Overall, there will be an acceleration of investments in **retail commerce platform** capabilities, with increased focus on **BOPIS** and **mobile interfaces**. **Customer experience** will be central, but with focus on simplification of customer-facing processes. Furthermore, there will be a surge of investments in the implementation of proprietary **marketplaces** and integration to third-party marketplaces.
- The worst impact will be on retailers that rely predominantly on the sale of non-essential consumer products in physical stores.
- **Food and grocery** retailers will be positively impacted. However, they will need to **accelerate digital transformation investments**. These retailers are prioritizing **automation** and **contactless payments** to both reduce human contact and contain the spread of the disease in their shops during transactions.
- **Fashion and apparel** retailers will accelerate investments in **augmented reality** capabilities, to be integrated to ecommerce capabilities.

Professional services will continue their activities through smart working, which will support investments in devices, video linking, cloud, and content sharing.

*Most of **professional services** employees will carry their work remotely, which will boost investments in mobile devices (laptops, smartphones, tablets), collaborating apps, and cloud-based infrastructure to share content. Tech providers in this industry will also be on high pressure to provide strong digital platforms and will be required to enhance their existing cloud solutions.*

Emerging Techs and Use Cases

- Professional services companies could see increased attention and shift to **AI-infused applications** and solutions helping them **automate processes** and enable work activities outside the usual epicenters such as office spaces and meeting rooms, combined with a strong **built-in next-gen security** approach.
- Solutions such as **digital assistant for enterprise knowledge workers**, **automated human resources (HR)**, and **sales process applications** could help companies support the new way of working, especially as hiring demand is surging in some sectors.
- **Intelligent process automation** solutions are important to gain efficiency and have better operational performances, like for **automated project management**, **intelligent scheduling,** and supporting **supply and logistics** scenarios.
- **IT automation** becomes critical when technicians and service professionals are unable to travel to clients. **AI and edge computing** with remote control and management capabilities can certainly help. **AR/VR** technologies could play a role as well, enabling and enhancing remote training and support, and increasingly being used for engaging content production support.

COVID-19 Impact on Prof. Services

- The extreme flexibility of professional services to adopt and enhance **smart working policies** is enabling companies to keep their workloads relatively stable, with exceptions represented by firms serving mainly the manufacturing, transportation, and consumer services industries. Therefore, investments trends in **collaboration-oriented applications** such as **conferencing** and **content sharing** will be constant or will even slightly increase, as well as the demand for **security software**.
- On the other hand, the increased companies' demand for **PCs** and **tablets** might face extremely variable availability across countries due to aggressive industrial lockdowns and delivery issues due to component shortages and delays.
- All the above-mentioned trends will be even more amplified as the company size decreases due to the initial digital maturity of the professional firms affected.

The leisure industry will postpone their IT projects around guest experience and will focus more on digital marketing to maintain online communication with customers.

*With a reduction in tourism and lockdowns in place, **personal & consumer services** are taking a big hit on revenues, which will have a negative impact on their planned customer-experience-related IT projects. Efforts around personalization will be postponed, while the focus will shift on costs and customer engagement through digital channels.*

Emerging Techs and Use Cases

- The negative impact of COVID-19 on tourism and citizen mobility are causing cancellations. This will impact negatively on innovation IT projects, especially from hotel chains and leisure centers, which were due to focus on **personalization** to boost **guest experience**.
- Nevertheless, some emerging technologies could help maintain **customer engagement** during the lockdown and leverage that in the following phase to gain a better traction in the market.
- **BDA/AI** are the foundation for use cases driving a better understanding of **customer preferences**, as **360-degree customer management**, **behavior analysis**, **advertising** and **marketing platform**, and for those use cases leveraged to manage efficiently **back-end operations** such as **omni-channel commerce platforms**, **agile pricing systems,** and **inventory orchestration and management**.

COVID-19 Impact on Personal & Consumer Services

- Lockdowns are posing severe threats to the survival of many small consumer businesses such as hotels, restaurants, bookstores, and sports activities and are dampening their IT-driven innovation investments.
- Many companies are likely to use this downtime to maintain their digital marketing (especially merchandising) and to increase their social media activities.
- Personal & consumer services organizations will try to cut as much as possible in the **short-term back-office**, **SCM,** and **data management software**, as well as any **business and IT consulting** activity.
- Consumer businesses are also targeting investments to be ready to handle their relationships with customers, looking at strengthening **online booking systems** to and **self-service payment systems**. From a geographical perspective, there will be few exceptions to those trends, with countries economically weaker even before the outbreak as the most affected.

IT investments in transportation will decrease as companies will focus less on innovation and experience and more on cost-efficiency strategies to survive.

Transportation *is the most impacted industry as travel bans, worldwide lockdowns, visa restrictions, and staff isolation are strongly impacting on revenues and leading many airlines on the verge of collapse. IT efforts will focus only on automation for cost-containment purposes. Airlines will use automation to decrease human capital cost for specific tasks.*

Emerging Techs and Use Cases

- **AI and robotics** will be a necessary component to reduce costs related to **customer service agents**, **automated check-ins,** and **baggage handling** by increasing the level of **automation** throughout the airline companies. This, in addition with **adaptive workforce planning,** is likely to provide the bulk of the cost-containment measures.
- With drastically reduced traffic, **routing and mode optimization** is becoming more important for cost-efficient operations of companies transporting both cargo and passenger.
- In the longer term, losses due to decrease in volume can be partially compensated by implementation of innovative use cases such as **Iot lineage, automated enabled call offs to SLA, contract with real-time access to product's history,** and securing reliable, authorized suppliers with deployment of **blockchain** and **IoT**.

COVID-19 Impact on Transportation

- Transport will be the most impacted industry, with serious consequences in terms of both revenues and cash flow available.
- In the short term, extreme cost-containment measures will lead to a significant **decrease of investments across all the technologies and services**, especially of **mobile phones**, **physical and virtual computing software**, **back-office and SCM applications**, and **business services**.
- After the emergency, transport companies will try to **automate** even more routine operations such as check-in and customer service to improve efficiency and face previous downsizing. A pivotal role will hence be played here by **BDA and mobile applications** that will be empowered to support the transition.
- Transport companies will be seriously hit across all countries, but the most negatively impacted will be Italy, Spain, and the U.K. due to the travel restrictions adopted following the emergency.

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For more information, get in touch with:

Andrea Minonne
Senior Research Analyst

Customer Insights and Analysis
E-mail: aminonne@idc.com

Gabriele Roberti
Research Manager

Customer Insights and Analysis
E-mail: groberti@idc.com

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