WHITE PAPER

Building Business Resilience in the New Normal

Intelligent Urban Exchange (IUX) for Workplace Resilience Guides Business Recovery and Continuity Amid COVID-19

Abstract

Almost overnight, COVID-19 has rendered existing business continuity solutions ineffective.

To become more resilient to COVID-19 and other unforeseen disruption, enterprises should embrace a holistic definition of enterprise risk that spans workplace safety, regulatory and government compliance, business operations, supply chain, inventory, finance and even aspects of the customer experience.

With so much granular and diverse data to make sense of in real-time, business leaders need to apply the power of artificial intelligence to a broad spectrum of enterprise, machine and open data to assess risks and operate businesses effectively – building a resilient enterprise across workforce, operations, suppliers, raw material, logistics and field services.

Link for more information:
IUX for Workplace Resilience

Enterprises must consider a risk-based approach to business resilience that incorporates a granular understanding of individual employees, departments, workplaces, and suppliers. They must harness the power of open data, AI, and machine learning to support adaptive risk mitigation models that roll up through enterprise operations.

Background

COVID-19 has thrown every industry and around the globe into unchartered territory. From banks and retailers to manufacturers and institutions, its devastating effects have forced enterprises to recalibrate business operations, keep workers home and event reinvent business models.

As countries around the world slowly improve their ability to contain the outbreak and brace for a possible second wave, enterprises of every type are anxious to return to the office. Yet to take that step they must protect their most important assets, employees and customers, at offices, stores, branches, campuses, and other brick-and-mortar locations.

Compounding these challenges, the far-reaching effects of the pandemic have introduced fundamentally new elements of risk to their business operations. Not only is the virus a danger to public health, its effects have extended the parameters of enterprise risk to include regulatory and safety compliance, as well as core elements of business operations.

This diverse combination of risks, like the symptoms of the virus itself, is a potentially lethal concoction which has left enterprises scrambling for an antidote.

In just a few months COVID-19 has completely redefined enterprise risk making traditional business continuity and recovery solutions incapable of tackling a long list of persistent and multifaceted challenges. In the past enterprises relied on business continuity and recovery offerings as a kind of insurance policy to keep their businesses operating in times of disaster. These solutions were designed with specific events in mind: from natural calamities such as floods, hurricanes, or tornadoes, to man-made catastrophes such as accidents, cyberattacks or terrorism. Yet as devastating as these events can be, history has shown their effects are often isolated to specific geographic locations and most run a logical course over a predictable period of time.

The COVID-19 pandemic, however, has broken the mold. Unlike previous disasters it is proving to be a persistent global catastrophe that existing business continuity solutions are incapable of handling. To understand why consider the detailed challenges of reopening a business amid COVID-19.

To start, reopening businesses must follow strict mandates that go beyond personal protection equipment and social distancing. To ensure people are not infected, and do not become so, organizations must monitor infection risk at physical locations and be able to take immediate action if a worker or customer at their site is suspected of being infected. If someone is exposed, they must be able to implement contact tracing to limit spread of the disease. They must also monitor employee and customer sentiment and conduct risk profiling to gauge the impact of the pandemic on income, employee wellbeing as well as their supply chains.

For brick and mortar businesses, such an obstacle could not come at a worse time.

The unprecedented mix of new challenges and the diverse data associated with them – from customer, employee, and operational information to the Internet of Things – would easily overwhelm any business. The enormous amount of data and need to make sense of it all in real time, would also hamper their ability to understand the big picture, assess risk, and manage compliance. The result would be a lack of situational awareness that affects decision-making.

For brick-and-mortar businesses, such an obstacle could not come at a worse time. Anything that negatively affects the brand experience would be happening just as customers are set to reengage with their business after having fled to on-line alternatives during quarantine.

As workplaces reopen the safety and comfort level of employees, customers and visitors suddenly becomes paramount to the customer experience. Never have businesses faced such diverse obstacles to delivering on their brand promise. For business leaders who take a commanding view of data, it is a critical moment for real-time decision-making because they understand the survival of their enterprise is at stake.

Business Relaunch and the Key Challenges

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The COVID-19 crisis and the ensuing societal and business disruptions have significantly impacted the normal flow of commerce affecting all segments of almost all business across industries from the corner store to global supply chains. In addition to numerous new pandemic-driven government mandates, protocols and regulations, the unprecedented, unpredictable nature of the pandemic is causing uncertainty in boardrooms around the world about how best to proceed in a constantly evolving environment. In addition existing business continuity protocols were designed around departments or organization as a whole not at the granular level of individual employees, customers, vendors, and suppliers. Such elements would include employee safety, optimal staff planning, risk mitigated operations resilience and regulatory compliance needs pertaining to every individual.

Understanding this unique and exhaustive set of requirements, TCS Digital Software and Solutions developed an employee- and customer-centric progressive, risk aware, operationally resilient business continuity solution that can relaunch the business of any enterprise and help them in prolonged operations during the COVID-19 pandemic.

The key takeaway for all enterprises is the necessity to plan for business resilience across employees, partners, supplies and operations, including dimensions such as:

- Employee Safety
- Regulatory Compliance
- Operations Resilience
- Workplace Ecosystems
- Customer Engagement

TCS Digital Software and Solutions - Stepping up to the Challenge

As COVID-19 has demonstrated, siloed business departments within enterprises have one thing in common: the need for human capital for business continuity. TCS understands the importance of overcoming the limitations created by business silos and overcoming their pain points to make a workplace more resilient.

Early in the pandemic TCS solution architects spotted interesting parallels between businesses being affected by the pandemic and smart cities which is an area of deep TCS domain expertise. As with smart cities they realized the need for enterprises to capture data from a myriad of different sensors and other devices connected to the Internet, such as data about employee movements, that would be needed to maintain social distancing. They also applied their knowledge of enterprise risk since office locations needed to continuously understand how the pandemic would affect business activity over time – including customer service – and its impact on revenue and profitability.

After studying the use cases associated with a business reopening work locations amid COVID-19 TCS realized it could leverage its experience delivering crisis-resilient smart city and enterprise solutions in situations where multiple siloed departments (e.g. health, security, transportation, water, energy, etc.) and normally unassociated teams are managed effectively by a command center model. This led to the development of *IUX for Workplace Resilience*, an artificial intelligence-powered, command center analytics platform with specific use cases for workplace safety, regulatory compliance, and operational effectiveness. *IUX for Workplace Resilience* leverages a businesses' existing infrastructure as well as internal and external data and intelligently applies analytics to deliver insights in real-time across the enterprise for effective business continuity in a pandemic.

Key to operating a resilient workplace is specific information which equips leadership to knowledgeably determine which personnel can safely to come into the office, and which for health and safety reasons should temporarily work remotely. For example, employee risk profiles based on micro and macro parameters such as locality, individual metrics, regulatory requirements, and movement within the premises over designated periods can be created. Using this information I*UX for Workplace Resilience's* prescriptive analytics can establish 7, 14- and 21- day risk scenarios based on individual employee movements within the workplace during those time-frames. This, in turn, informs appropriate staffing, project planning, and building, floor and zone level flow planning as well as risk mitigation. Additionally, sensor technology enables continuous, real-time protection of employees from the time they enter the workplace throughout the workday allowing them to avoid congregating and maintain social distancing.

Such prescriptive and real-time analytical data helps firms forecast the potential of healthy employees becoming high risk.

Such prescriptive and real-time analytical data helps firms forecast the potential of healthy employees becoming high risk. Armed with this information organizations can proactively plan critical staff needs and optimize the use of available resources. If by chance an employee does record a high temperature or is otherwise identified as likely being infected, *IUX for Workplace Resilience* helps mitigate the risk of further spreading through rapid contact tracing and immediate isolation.

Analytics are Critical to Modern Business Continuity

Most large enterprises provide multiple products and services through various lines of business (LoBs) that are part of the organization as a whole. Typically, each LoB carries its own P&L objectives and operates relatively independently according to specific business requirements. Major disruptions such as COVID-19 impact LoBs differently depending on characteristic business processes and practices. This of course creates challenges for each which then gets magnified when they roll-up to the organization level that is already facing a whole different set of enterprise-scale difficulties.

The current pandemic has abruptly brought companies and organizations face-to-face with these challenges. As they work to address the obstacles presented by COVID-19 disruptions they are finding more than ever that access to data – lots of it from as many sources as possible – is key to successfully adapting to and navigating through the crisis.

COVID-19 is forcing leaders to make sense of a torrent of multiple disparate sources of data all at once . . .

Data are the raw ingredients that make up insights, yet COVID-19 is forcing leaders to make sense of a torrent of multiple disparate sources of data all at once – from different systems, transactions and departments to the location of supplies and places they are needed most. Not only is their ability to make sense of this real-time information and take remediation measures severely compromised, but their existing business processes also are not designed to handle it.

The ability to harness open data that is available in the public domain and social networks has become critical. Enterprises need deeper integration with the extended ecosystems for a comprehensive response. Rich insights can be derived to reveal how a location/geography is changing its risk pattern due to infections and other geo-political factors, and how consumer behavior is shifting and will influence demand and supply.

This is where analytics can provide game-changing help. Data analytics turns data into insights which support informed decision-making processes critical for successful operations during and after major disruptions. *IUX for Workplace Resilience* uses data from employees, enterprise systems, IoT devices and external sources to run powerful, deep analysis that enable organizations to create risk profiles, manage remote working and commuting strategies, develop workplace distancing protocols, identify hot spots, manage PPE measures, track active cases, perform contact tracing (in minutes instead of days), simplify regulatory report and achieve stabilized operations and supplies.

Data analysis at such scale requires a central command center that can analyze all data across the organization.

Data analysis at such scale requires a central command center that can analyze all data across the organization from various lines of business to surface real-time insights and recommendations to manage and optimize workplace resilience and operational safety. Although many enterprises have a Business Continuity forum with senior leaders from various teams and departments, they are not able to respond effectively due to an inability to access and make sense of the critical data from disparate data sources including those mentioned above.

Thus, a common shared platform that can leverage existing technology investments as well as internal and external data to apply analytics and deliver insights in real time across the enterprise operations is an imperative to managing enterprise-wide disruptions.

IUX Platform – the Foundation for Workplace Resilience

IUX for Workplace Resilience includes the IUX platform and pre-built use cases spanning Workforce Protection, Regulatory Compliance, and Operational Resilience. The major departments of an enterprise collectively benefit from cross-functional data insights for better decision making.

This underlying analytics platform is pre-tuned for enterprise data sources relevant to business recovery and resilience use cases and drives the key functions of *IUX for Workplace Resilience* (Figure 1). Big Data Management capabilities gathers disparate data sources and processes them while adhering to data privacy concerns. The IUX platform uses machine learning and deep learning technologies to drive valuable insights in real time to guide interdepartmental stakeholder decisions. The insights can easily be delivered, via rest-APIs, to a business's existing front line business systems.

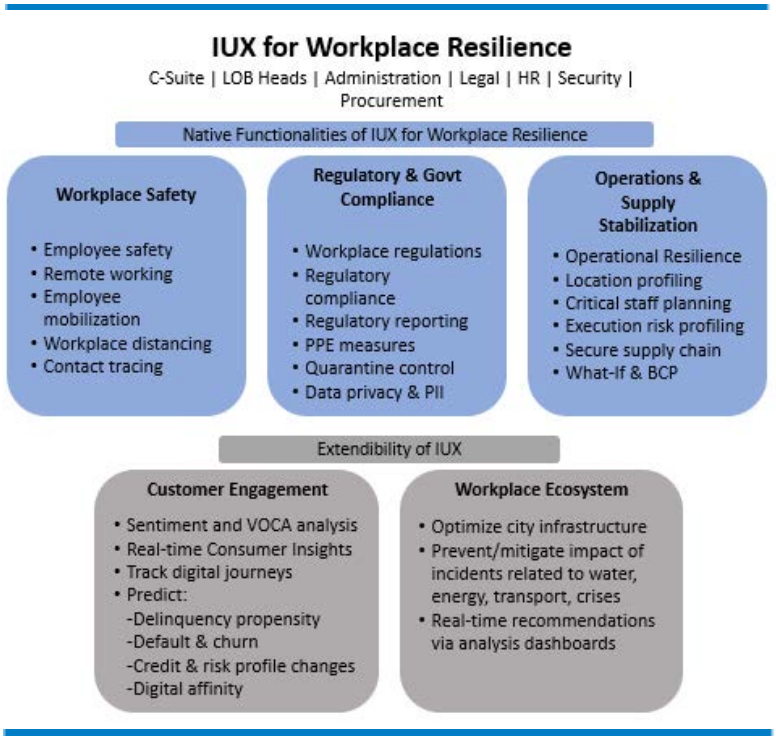

Figure 1- Key Functions of IUX for Workplace Resilience

The robust dash-boarding enables visualization of the insights and helps team leaders navigate a given situation with optimal responses (e.g. returning to offices, human traffic flow, contact tracing, alerts, managing impacted areas, predicting risk with what-if analysis, mitigation tactics, and understanding financial implications of changes customer interaction, etc.). It can facilitate better decisions on risk management and resilient actions for business continuity. It can also monitor the execution and success of the implemented actions.

Workplace Safety

Though the primary objective is business continuity, all the strategies and planning must incorporate human safety as an imperative – covering employees, vendors, customers, and partners. Employees must have a safe way to get to work and a safe environment while they are working, including customer sites and interaction points. Following the regulatory framework recommended or required by a federal/state administration and health organization is very important. This needs to be supported by tracking compliance through analysis of company data, IoT, employee devices, public data, etc., while adhering to data privacy requirements.

Enterprises can trace contacts using proximity data from employees' mobile devices, badge scanners, etc., and identify at-risk individuals.

The Workplace Safety features can help manage the workforce and work locations under these stressed times and help manage impacted work sites. It can profile the employees based on various individual attributes with respect to their location and the containment zones. This allows identifying potentially high-risk employees that should be considered for work-from-home status. It allows enterprises to monitor site level infection risk (in the case of COVID-19 for example) and take immediate action in case of high temperature or other complications. Using image, video, on-line device check ins, and badge swipes, with path tracing analytics, businesses can optimize workplace occupancy and identify alternate movement flows to limit associates' exposure and avoid congregation. In case of contamination enterprises can trace contacts using proximity data from employees' mobile devices, badge scanners, etc., and identify at-risk individuals.

Regulatory & Government Compliance

To ensure business continuity during crises it is important to align operations with the latest regulations imposed by public authorities, as well as comply with generally accepted best practices and other business requirements. *IUX for Workplace Resilience* helps ensure regulatory measures are followed making it easier to comply with regulations and record / report to local authorities. The COVID-19 crisis highlights the importance of

regulations to contain spreading of the virus. Yet while these measures can save lives, they can also put strain on businesses.

IUX for Workplace Resilience monitors behavior to ensure ongoing compliance with workplace safety practices such as helping avoid unsafe group congregations, maintaining social distancing and thermal scanning. It helps track personal protective equipment (PPE) guideline adherence for in-office and field assignments. It can simulate risk mitigated deployment planning based on the current lock-down relaxation regulations such as what types of transportation are allowed, how many can travel through public transport and from which areas/route.

Operations and Supply Stabilization

To attain business continuity, businesses must ensure safe operation of industrial plant, administrative offices and sites where operations take place. I*UX for Workplace Resilience* lets enterprises profile contact-infection risk by location-based scanning and travel tracking. In case of infection it can conduct contact tracing history analysis. To stay in business organizations must deliver goods and services to customers, and in the case of a pandemic business need to strive for as little physical contact as possible.

IUX for Workplace Resilience helps with all the above outcomes thanks to its built-in models and modeling capabilities. It lets businesses have visibility of their supply chain and determine the implications of change. Users can profile suppliers for key products to assess risk and optimize procurement. With real-time tracking capabilities businesses can optimize routes and field service. By analyzing changes in demand patterns, the solution can provide actionable insights to improve warehouse space and optimize inventory.

Extendibility of IUX for Workplace Resilience

In time of crisis businesses must reinforce their commitments to customers. They must engage with them to understand their ever-changing needs and provide a superior customer experience. Some businesses and campuses may also experience disruption such as water, power and transport. TCS' proven customer analytics software (TCS Customer Intelligence & Insights) and IUX smart city solutions extend the functionality of *IUX for Workplace Resilience*. These solutions come with plug and play capability and can easily integrate to provide a more holistic approach to a crisis.

1. **Workplace Ecosystem Management**
   Disruptions caused by crises ripple beyond physical workplaces often affecting entire complexes, campuses and even cities. The nature of the crisis can affect the availability of resources like water, electricity, and transport, thus making it imperative to have a system in place that can connect all the data and interactions between these sub-systems and deliver preventative actions and impact mitigation tactics.
   IUX for Workplace Resilience can support and integrate additional use cases from other IUX modules (Water, Energy, Transportation) that discover and monitor incidents and generate real-time actionable insights to help enterprises proactively mitigate cascading events and avoid further harm. These increase workplace and public safety while helping to avoid costs from damage and downtime. These offerings can extend the scope and value of *IUX for Workplace Resilience* to help reduce carbon footprints and drive sustainability and continuity.

2. **Customer Engagement**
   Business resilience also includes rebuilding demand and meeting new customer expectations. Leveraging a common analytics foundation, TCS Customer Intelligence & Insights (CI&I) software incorporates data across all digital and physical interactions to help enterprises understand and adapt to recent changes to customer sentiments, behaviors, and goals. CI&I can empower enterprises with real-time insights and recommendations for next-best actions to provide superior customer journeys. And it can help businesses understand changing customer credit & risk profiles or predict when they are likely to default on a payment. CI&I supports what-if simulations and scenario planning with extensive dashboards and reports – thus enabling them to seize growth opportunities and build resilience - even in a crisis environment.

Putting it all together

Enterprises, municipalities, and other organizations are quickly learning how vulnerabilities in safety, compliance, operations, customer interactions, and finances can disrupt the chain of business continuity during crises, whether it is a pandemic, natural disaster, or a political or social upheaval. The COVID-19 pandemic has stimulated the development of new solutions that leverage the IoT and other data sources to understand, predict,

and recommend actions that are helping organizations to recover more quickly and build more resilient businesses that are ready for the future. *IUX for Workplace Resilience* utilizes the rich knowledge acquired over decades by TCS by working on various smart city initiatives and partnering with enterprises across multiple industry sectors.

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