2021 Predictions

RFG Perspective: The COVID-19 pandemic was a Black Swan event that turned 2020 from a positive year to one of great angst and its effects will continue through most of 2021. The global economic and geopolitical environments will be negative for most countries for at least the first half of the upcoming year that will make for uncertainty and more constrained IT budgets in 2021. Furthermore, the disintermediation and structural impacts of the digitalization of corporate business models will add additional distress and uncertainty, as companies and individuals strive to determine how to survive and prosper in the New Normal environment. To address these challenges, business and IT executives must re-examine their business models, culture, people, processes and supply chains – and all of the impacts caused by external pressures.

Externally, IT executives will have to work with non-IT teams to improve and restructure processes to address the business requirements underlying work-from-home (WFH) requirements for collaborative, interactive, personalized, and predictive real-time information. These WFH changes will leverage AI, analytics, IoT, mass personalization and mobility to connect remote employees throughout the organization, and with business partners, customers, and supply chains. Simultaneously, IT executives will have to address the data integrity and privacy and service level concerns that impact business outcomes, productivity, revenues and cybersecurity, with the goal of building more confidence in IT and the organization as a whole.

Internally, IT executives will need to increase their focus on analytics, automation, componentization, containerization, machine learning (ML), operations effectiveness, orchestration, privacy, and security. By focusing on these priorities, IT will be able to deliver more and better offerings faster – and at a lower cost – while protecting the organization from cybersecurity attacks and vulnerabilities.

Our 2020 predictions were good for the first two months of the year – and then the novel coronavirus (a.k.a. COVID-19) closed down the world. While vaccines are now in the process of being disbursed around the globe in a months-long effort to create a level of herd immunity, we remain a long way off before that occurs and governments cease the lockdown directives that are destroying their local and regional economies.

The good news is that businesses will be able to plan a bit better for 2021 than they could for the unexpected events of the second half of 2020. Nonetheless, a good amount of uncertainty remains.

The United States will experience a positive year overall, as long as the new Biden administration and the state and local governments do not keep constraints on various business sectors much beyond the first quarter of the year.

Outside of the U.S., the majority of countries will also see a level of positive growth once their governments ease lockdown restrictions that will allow businesses to go back to work. Further tensions and disruptions are expected at the usual hotspots, which, if they spill over, could have a substantial impact on commerce. Moreover, regulations such as the general data protection regulation (GDPR) and its equivalents in California, Canada, and other regions, and cybersecurity breaches, like the one affecting Solar Winds customers, are forcing businesses and governments to reconsider their business culture, their processes and their views on privacy and security. That is why executives must invest in transforming their business with a constant eye on cybersecurity – and drive

process improvements to remain competitive, help contain costs, enhance compliance, minimize risks, ensure privacy, and improve resource utilization.

Major Trends for 2021

Below are five areas that will be focal points in 2021:

Digital Transformation – The COVID-19 lockdowns forced organizations to accelerate their digital transformation projects from years to months. The meaning of "location" changed in 2020 and it has impacted where and how people work – and who they work with and how. Business units that were once concentrated on a campus are now spread out – sometimes over vast geographies – and interacting via a confusing myriad of social media and software tools. While most organizations made a shift to digital business to support the WFH environment and online commerce, many guardrails, especially in the areas of governance, privacy, and security, were lowered in order to meet the rapid timeline constraints. Thus, 2021 will be the year for eliminating the exposures, making structural changes, and getting new controls in place. Additionally, firms will be automating processes and operations and reevaluating supply chains. Once the basics have been addressed, companies will tackle the customer experience elements, as users prefer working with enterprises that simplify the process of doing business with them.

Cloud/Edge/IoT – First it was "cloud," then it moved to hybrid cloud, and then to multi-cloud. The year 2021 will see a major move to the Edge of the cloud – closer to consumers and customers – along with an acceleration of workloads moving to various cloud options. As always, the network/server/storage topography continues to evolve, with new products and solutions appearing daily. That will make it difficult for IT executives and architects to construct application and data architectures that can survive long-term without outages or failures. While new methods of abstraction, automation, orchestration, and portability emerge to address these growing issues, many companies still find themselves locked into legacy cloud solutions with "islands of data" that are out of control – and unconnected with other key systems. Having these data islands, or data silos, makes the productive use of business analytics more difficult. Cloud portability has become a challenge, which means that architects must determine the best target cloud/Edge solutions for each workload early in the design/development (DevOps) cycle. Thus, while there will be more workload migrations to clouds, Edge, and IoT, the business impacts and results will be mixed until these cross-organizational issues are addressed.

Cybersecurity and Compliance – The use of analytics, and machine learning will help improve real-time analysis. But because guardrails were loosened and state (and professional) actors were more active in 2020, cybersecurity breaches will still be a major challenge that IT executives must address in 2021. The Solar Winds breaches discovered in 2H20 continue to demonstrate that many companies and governments using cybersecurity software still have significant holes in their cybersecurity structures. Moreover, the increase in successful ransomware attacks have emboldened even more attacks. The year 2021 will produce more of the same, with the average financial impact

poised to increase next year, as business levels build during the recovery. On top of that, most users remain oblivious to the impacts caused by poor email practices, use of insecure mobile apps, and insecure IoT devices. It is evident from examining recent security breaches that some organizations have less of a technology problem than people and process failures (including the application of configurations, encryption, patches, and quality code). Companies need to re-imagine their security practices from all angles in order to clean up their recent and longer-term technical debt. Furthermore, the lack of cloud service provider (CSP) transparency remains an issue and an exposure in 2021, especially since the exact causes of some CSP outages are not publicly reported – and some security providers imply that some (if not most) breaches may have been caused by customers' failures. On the compliance front, RFG expects other countries (and U.S. states) will continue to pass their own privacy acts, creating a patchwork of requirements across geographies that firms will struggle to adhere to. Thus, in 2021, IT executives will be hard-pressed to keep up with compliance requirements globally while improving users' support for compliance. IT executives will need to work with auditors and regulators to develop better proactive processes that reduce the cost of compliance and risk exposure.

Data and Analytics – Data and data usage will be the key to business success as economies recover globally during 2021. The shift to cloud and Edge, and the associated architectural decisions behind the moves, focused on workloads – and not the data. This is once again aggravating customers' data integrity challenges, while increasing their exposure to data loss. Organizations will need to place more emphasis on data management if this issue is to be properly addressed in 2021. RFG expects a data-centric approach will occur naturally in some companies, but mostly be driven by failures that force change in other organizations. Artificial Intelligence (AI) is a required component to almost all new solutions requiring some form of analytics. There are a few areas where AI options are already visible – robotic process automation (RPA), virtual agents, machine learning, deep learning, and reinforcement inference learning. The shift to digital transformation has already instituted some RPA implementations. RFG firmly believes that 2021 will see significantly more of these creative RPA and no-code/low-code implementations to business problems. AI/ML will prove to be valuable components of most of the new development, IT operations, and OT (business Operations Technology) production tools that are needed in the post-Covid New Normal environment.

DevSecOps / DataOps – The trend toward DevOps and DevSecOps – now joined by DataOps for more effective data analytics – will gain momentum in 2021 but progress will remain slow, with most companies a long way from adopting these methodologies as development standards. The challenge is not the technology – new and enhanced CI/CD and other automation/orchestration tools appear almost daily. Another new approach is the no-code/low-code development paradigm that is still immature but gaining some attraction. Some government institutions have successfully utilized it to get a few of their COVID-19 applications available rapidly. Rather, the challenge will be the process of overcoming the deep-seated organizational resistance to change, as well as the acceptance of new, and expanded, roles and responsibilities for developers. The incorporation of

security into DevOps (to DevSecOps) – so that security does not become a bottleneck – has not been easy. Enterprises struggle to find the right set of tools for new application code scans and tests, and regression testing that is easy to use without impacting the process flow. Furthermore, success has been limited by not having the right metrics in place and by having uneven results when monitoring progress throughout the year. Until this situation is corrected, progress from applying DevSecOps will be limited. On the other hand, DataOps is a newer methodology that is a needed counterpart to DevSecOps, although it has yet to gain widespread adoption. DataOps gives IT organizations a process to eliminate or minimize the islands of data in the enterprise data center – and in the clouds – that were created over time in previous development efforts. (See the RFG document—*DataOps: Companion to DevSecOps for Reimagining Applications*, June, 2020). It is problematic to have new DevSecOps applications available for production within a few weeks or months when some of the supporting data for those applications cannot be extracted, transformed and loaded in less than six months. For this reason, RFG believes that interest in DataOps will grow in 2021, leading to a year of piloting, proofs-of-concepts, and early trials for DataOps in many large enterprises.

Summary

The paradigm shift to a Digital Economy is still a work-in-progress – especially so, in the wake of the COVID-19 pandemic and the economic dislocations that followed. It is important to recognize that moving to this goal is not primarily a technology issue; rather, it is a business model transformation issue, and it must be recognized as such.

Business executives cannot leave the key decisions guiding their company's digital transformation solely to IT executives or business/technology consultants. As leaders, senior executives need to determine what businesses they wish to be in, what structural changes are needed, and create the strategies that lead to selecting how processes and applications are designed and implemented across their organization. Although planning and implementing a Digital Transformation initiative is a multi-year initiative with a lot of moving parts, many components must be delivered in 2021 if companies expect to remain competitive in the business environment that emerges during the post-COVID-19 economic recovery.

RFG POV: The year 2021 will certainly be another challenging year for business and IT executives. IT organizations need to work harder to integrate their goals with those of the business – and to work collaboratively to enhance operations (whether onsite, in the cloud, or at the Edge) and innovate new, simpler approaches for doing business. Additionally, IT executives will need to invest in AI/ML software, cybersecurity, DevSecOps, DataOps, and other process improvements to help contain costs, enhance compliance, increase flexibility and responsiveness, minimize risks, and improve resource utilization. Business and IT executives must collaborate throughout the year, so that IT budgets, plans and strategies will dovetail with the primary goals of their organization – in business and in government – and ensure that they remain tightly integrated with the goals of their business throughout the year.

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Additional relevant research is available at www.rfgonline.com. Interested readers should contact RFG Client Services to arrange further discussion or interview with Mr. Cal Braunstein.

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