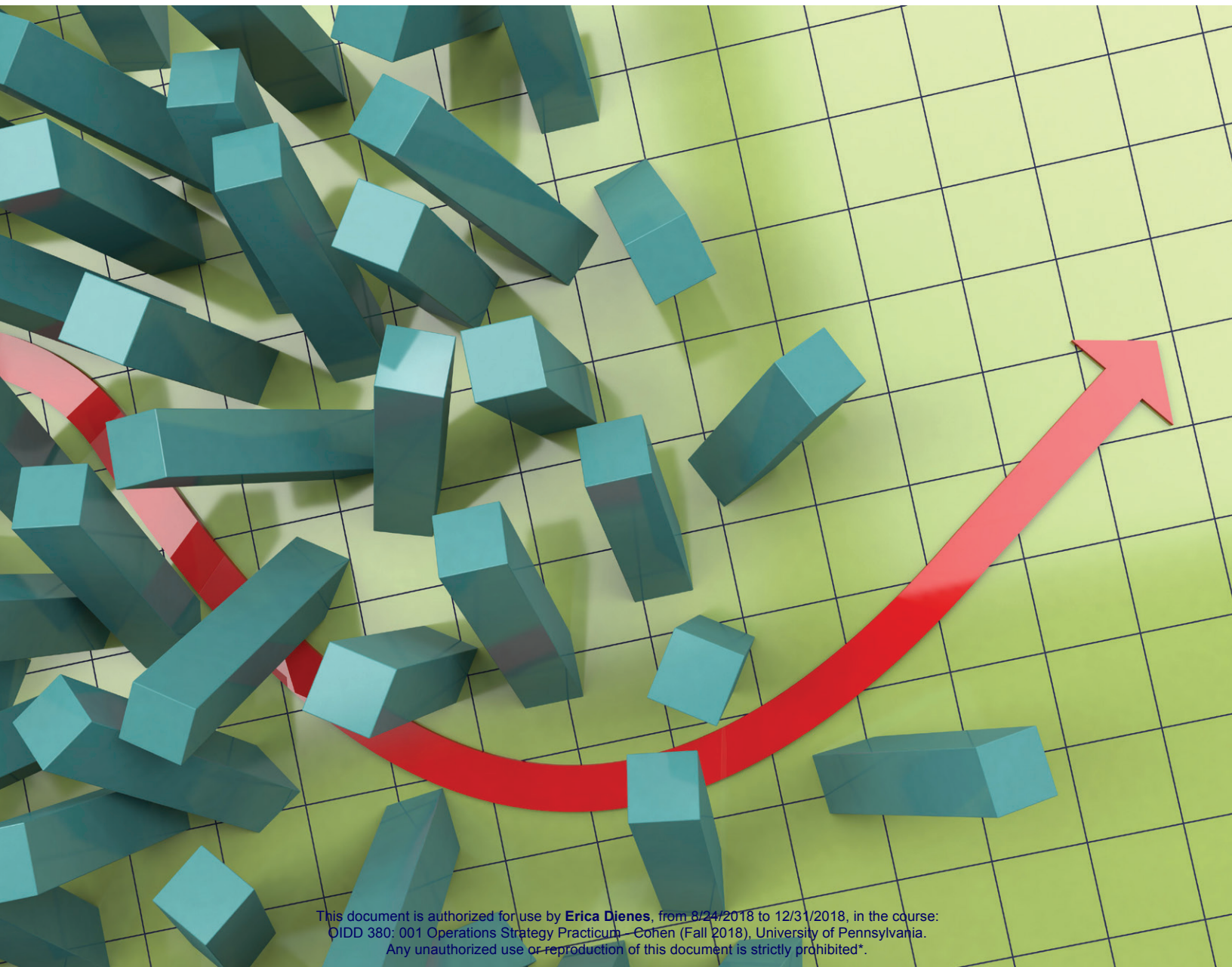April 2014

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Knowledge@Wharton – Wipro
Future of Industry: Business Resilience

Process Resilience Is Becoming a Business Imperative

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Process Resilience Is Becoming a Business Imperative

In an increasingly networked world, organizations need to move beyond the kind of corporate disaster-recovery efforts that followed the earthquake, tsunami and nuclear incidents in Japan in 2011. To be in the top-performing tier, organizations need to become resilient to internal as well as external disruptions. Process resilience, in particular, is very important for industries which are either highly regulated, Internet facing, or serve end-user customers. Below, Morris Cohen and Praveen Pathak, professors of operations and information management at Wharton and the University of Florida, respectively, and Alexis Samuel, chief risk officer and head of business process transformation at Wipro, look at why process resilience is becoming a business imperative. This white paper was produced by Knowledge@Wharton and sponsored by Wipro Technologies.

Disaster recovery is typically reactive. If something goes down, can it be recovered? But organizations need to be proactive about potential disasters, especially when it comes to the resilience of their business processes, says Alexis Samuel, chief risk officer and head of business process transformation at Wipro Technologies. It is an emerging concept, but Samuel expects process resilience to become a "business imperative" in the coming years.

It is about "the resilience of processes and the underlying IT systems, people practices and technologies that together make an enterprise function consistently," according to Samuel, who is also global managing partner for Wipro Consulting Services. It is also "the ability of an organization to maintain the continuity of its business and meet obligations."

Taking a broader perspective, Morris Cohen, a Wharton professor of operations and information management, notes, "If you respond quickly to any disruption in an efficient manner, one would say you are resilient." But remaining resilient is more difficult now because of increasing globalization, interconnectivity and "the way in which we manage supply chains and economies today." He cites the March 2011 earthquake, tsunami and nuclear incidents at the Fukushima reactors in Japan. Following this triple disaster, the auto industry across the world was disrupted for many weeks. Part of the reason was that certain Tier 3 or Tier 4 suppliers based in the worst-affected Tohoku region had to shut down, and it had a ripple effect. "Companies like Nissan and Toyota didn't even know about the existence of these suppliers. One

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of the lessons learned was that companies need to go all the way down and figure out all the connections in the network, because it can breakdown somewhere and bring the whole system down."

While every industry is susceptible to risks, the consequences of disruptions vary, Cohen points out. Most vulnerable are defense, banking, financial services and insurance (BFSI) and health care. Samuel, looking at the issue from another angle, suggests that process resilience is most relevant for industries which are either highly regulated, Internet-based, or are end-user service providers, like BFSI and retail.

Both Cohen and Samuel note that process resilience is more relevant for larger players because they are more complex and also part of a larger ecosystem and therefore can be a source of ripple effect. "There are more interconnected parts in large companies, and it is harder to respond fast and effectively if you are big and complicated," Cohen says. "Therefore, robust processes, whether related to supply chain, IT or anything else, are very important." Large organizations are also likely to be under greater scrutiny from regulators because of their public impact.

Regulators and Social Media

Regulatory pressure following service disruptions has been a key driver pushing process resilience forward in the BFSI sector. In 2012, for example, the Royal Bank of Scotland (RBS) had a major service disruption in the U.K. because of a software glitch. Customers were unable to withdraw cash from ATMs or see their bank account details, and certain other transactions were also disrupted. It took RBS a few days to restore normal functioning.

Disruptions in banking services could potentially extend far beyond immediate customers, Samuel notes. The U.K.'s Lloyds Bank, for example, handles 40% of inter-bank transactions in the U.K. If this application were to go down or get throttled, 40% of banking transactions in the U.K. would get impacted. Notes Cohen: "When these institutions fail, they can bring down major parts of the global economy. That is why there are more regulatory controls in banking and trading…." Samuel sees a "big shift" by regulators. For instance, they are "now holding the boards of banks in the U.K. accountable for resilience failures, pushing them to take a lead in implementing process resilience programs."

The growing influence of social media is also encouraging more process resilience. A couple of tweets from an unhappy customer can spread to millions of customers within seconds. And with no one to judge officially whether the complaint is valid, the risk of damage to reputation is high. "The net effect is that process resilience is moving from a discretionary, good-to-have expenditure to a must-do, non-discretionary investment to address the risk posture," says Samuel. "While business leaders and risk officers agree there is still the challenge of putting a number on return on capital employed (ROCE) for such investments, it needs to be addressed innovatively."

Yet, as Cohen points out, resilience has always been an important asset in successful organizations. Companies that respond quickly and cost effectively -- "strategically or operationally to random stimuli or shocks" -- perform better and have always been rewarded ultimately in the marketplace. "The difference now is that resilience is being recognized as an important business imperative."

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— Morris Cohen

New Models

Another major shift connected to process resilience is the software development lifecycle, including testing of applications. In the past it was viewed as adequate to test any new application internally. But in many industries today the environment is highly networked. Banking applications, for example, are closely linked to telecom service providers or to credit card providers like Amex. So it is important for applications and the underlying infrastructure, people, technology and processes, to be designed to accommodate all players -- internally and externally -- during the testing phase.

For fully effective resilience in the system, "testing of any application or process is being brought way up in the design and development lifecycle," notes Samuel. "Near real-time replication of the test environment may also become a norm in the near future."

The availability and recovery time of third-party hardware also needs to be evaluated in striving for resiliency. While service contracts have been a mainstay, today organizations are increasingly demanding that partners show they can meet the contractual obligations. "This whole focus on resilience is forcing people to think of it on an end-to-end basis with the ends expanding continuously," says Samuel. "The resilience theme is also expanding to cover cyber security."

Cohen points to another new aspect of managing resilience -- performance-based contracts. Such contracts rest on "actual performance and not on the promise of performance." Thus, "you don't need to verify if your partners and suppliers can meet their obligations. You pay them only

if they do so. This puts a lot of pressure on them." Expect this trend to "expand further."

So how does an organization implement a robust process resilience program? To begin with, and using a bank as an example, it must catalogue all business processes -- like account opening, credit card transactions, online or mobile banking and so on, notes Samuel. It then needs to identify the critical processes for each, and then define the risk appetite -- or the acceptable threshold -- if the process fails.

In banking, the risk appetite is not just a financial measure – there are other key metrics, says Samuel. "For instance, a bank could decide that in a particular process, say for credit card transactions, instead of handling 100 transactions per second, it can go down to 70, but not below that. Or, in Internet banking, it can take a maximum of one hour of downtime a year."

Once the risk appetite has been established, the underlying infrastructure must be measured. The IT systems, people, and technology that support the processes and their effectiveness, must be assessed in a systematic manner using predesigned templates to ensure consistency.

This throws up the gaps between current performance and the risk appetite, which then need to be addressed with relevant solutions, Samuel adds. An assessment typically takes around six to nine months while the execution is usually over a three-year period.

Optimizing Investments

According to Praveen Pathak, a professor of information systems and operations management at the University of Florida,

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any process can be categorized based on the extent of expertise required. While processes such as bio-informatics, equity research, risk modeling in insurance and technical analysis for mergers and acquisition require a high degree of expertise, those such as call center-based telemarketing and tele-collections require less.

For high-expertise processes, resilience requires two important attributes – flexibility and adaptive learning, says Pathak. Process flexibility, in turn, requires "loose and variable monitoring of process-output quality metrics (like error rates, productivity, responsiveness) and interactive managerial guidance."

Pathak suggests that by "not monitoring the process along all output quality metrics, and allowing the expert knowledge workers to choose which ones to optimize and when," flexibility gets built into the process. "My research study of over 150 business processes from Fortune 500 companies shows that process flexibility is positively associated with process resilience – it lowers the error rate and process failure significantly." An increase in process flexibility of about 10 percentage points tends to lower the process failure rate by 11% to 17%.

For non-expert processes, however, Pathak notes that resilience is compromised if there is too much flexibility. Adds Samuel: "Establishing and maintaining the right level of design authority is another important issue to be considered."

According to Samuel, a process resilience remediation program for a large and old BFSI enterprise could be anywhere from US$300 million to US$600 million over three years. The cost versus benefit has to be assessed while deciding on the risk appetite. Once the risk appetite is frozen, the company needs to do whatever it takes to meet it. However, the best way to optimize the investments is by identifying and prioritizing the critical processes correctly, and also analyzing the interdependencies of various tasks. Samuel adds that banking professionals feel that "processes that touch fraud, money laundering and regulatory reporting also need to be brought under the ambit of resilience programs."

Being resilient "depends on making the right decisions, the right investments and managing the investments before any disruption occurs," Cohen explains. "Sometimes these decisions can be pretty complicated and you many need sophisticated methodologies to make the right decisions. Outside experts can help in optimizing investments in any kind of risk mitigating initiatives. Risk management as a whole, however, also requires a strong internal team." Adds Samuel: "It is not a one-time exercise, but something that needs to be constantly updated."

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— **Praveen Pathak**

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