

Knowledge@Wharton – Wipro
Future of Industry: Digital Assurance

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As digital technologies envelop all spheres of business operations, the need for assurance of near-flawless performance in user experience and security has taken center stage. The practice of digital assurance aims to meet that demand, and has elevated the testing function to being a critical piece in the design and development process for digital services. Wipro's head of testing services, Kumudha Sridharan, and Wharton professor Shawndra Hill discuss the latest challenges in this Future of Industry series white paper, produced by Knowledge@Wharton and sponsored by Wipro Technologies.

On October 6, 2014, technology badly let down Bangalore-based Flipkart, India's largest e-commerce retailer and Amazon's biggest rival in the country. Flipkart's expectations for its big sale event that day came crashing down when its website couldn't handle the unprecedented volume of customers looking for deep discounts. Also, its promotional pricing programs went haywire, leading to massive order cancellations, angry suppliers and of course, upset customers. Flipkart apologized, and promised to make its systems fail safe.

In the U.S., data security has been the victim of technology imperfections. Retail chain Home Depot in September said that a breach into its in-store payments system may have compromised up to 60 million credit cards; making it the worst such case so far (no debit cards were affected). It eclipses a similar breach at the Target retail chain, which has so far affected 40 million credit cards.

Even the U.S. government healthcare website, which was built on a whopping budget of \$500 million, faced technical glitches, during its launch in October 2013. Most of the people were unable to sign up and enroll to the website to purchase health insurance for themselves and their families.

These are a few instances of the technology snafus that highlight the growing impact of digital assurance, a function that basically tries to ensure that technology works as it is supposed to. The practice has outgrown its earlier testing role to become a front-end function influencing product design and development now that digital technology has reached every aspect of business.

Digital assurance services focus on the interplay of devices and apps on the web or mobile platforms. Ideally it provides superior navigability and content on those channels, and ensures a seamless customer engagement before, during and

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after a purchase, and across multiple touch points that could start with an online visit and end at a physical store. Through that process, digital assurance is designed to provide a smooth and relevant experience while protecting their financial and other data from hackers, according to Kumudha Sridharan, vice president and global head of testing services at Wipro Technologies.

Shawndra Hill, Wharton professor of operations and information management, says retailers' online crashes under volume loads or security breaches underline digital assurance's increasingly critical role. "More and more software is coming online and people are sometimes using the software in ways that they weren't intended. The risks are greater as numerous mobile and web apps are written by freelance developers who lack the foresight — or the budget resources — to test and control how their creations are used."

Thus, digital commerce with smooth user experiences is a high priority for many businesses, along with data security. Digital assurance will become more and more important for businesses because "fundamentally, companies want to ensure that their end-customer experience is good and that their digital channels enable them to achieve a higher reach," says Sridharan.

She offers the example of a large North American retail chain that effectively used digital assurance. The retailer wanted to increase the number of prospective customers browsing its offerings on web and mobile channels who ended up making purchases. It hired a digital assurance provider to develop new apps and improve the user experience on mobile, tablet and online channels. That helped the retailer

increase the so-called "conversions" of prospective customers to actual purchasers from 8% to 11%, she says.

Sridharan cites the experience of online shopping network Shopzilla as another example of how digital assurance can enhance the customer experience. When Shopzilla invested in improving the performance of its website and related applications, it gained a five-second speed increase (from seven seconds to two seconds) as its pages loaded. That increased page views by 25% and revenues by 7%-12%, while costs were slashed by 50% and performance improved overall.

Digital assurance services to improve user experience also brought gains to some firms polled in a recent survey by research firm Econsultancy and digital technology services provider RedEye, both of London. And the gains are not always strictly IT related. Veeam Software, a Swiss IT services firm, found that changing a single word can bring seemingly magical results. It replaced the words "Request a quote" on its website's sales inquiry form to "Request pricing" and found the click-through rate soared 161%, according to the survey report.

Companies that do not invest in digital assurance do so at their peril, says Sridharan. For example, retailers must test their systems for potential crashes ahead of festive seasons such as Black Friday (the Friday following Thanksgiving Day) when sales volumes soar, Sridharan added. "If they crash, the retailers could lose heavily."

Sridharan pointed also to Amazon, which found that even a one-second slowdown in webpage load time could cost it \$1.6 billion in lost annual sales, according to a report in *Fast Company* magazine.

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Investments in digital assurance could also pay back through reduced risk premiums on insurance coverage against business disruptions caused by technology glitches.

Digital Assurance for New Age Digital Marketing

Digital marketing is another area which has undergone a massive change towards end-to-end assurance. The marketing effort has moved beyond simply placing ads or campaigns on various digital channels to recasting the digital production ecosystem, which executes campaigns across geographies more cost effectively.

Now many multinational companies are implementing “digital decoupling,” using one advertising agency to create their core brand message, which is then customized to suit different markets or business units. Sridharan says this approach ensures higher brand consistency and lower costs as creative work is separated from cheaper, repetitive and non-creative work.

One example of this approach is Nokia. In 2008, the company was looking reduce global digital production costs (60% of Nokia’s total digital budget) while improving consistency in marketing campaigns. While Nokia had one central creative AOR (agency on record) responsible for creating its global brand message, it also had sixty-four local agencies implementing that message, each operating in significantly different ways. As a result, the global message was often changed or lost in its local implementation.

Nokia consolidated its local digital production to a single organization, providing more global control. It also

consolidated global digital production to five time-zone hubs, each serving five to 15 local markets, and all operating on a single platform. The result: Nokia cut production costs to their target — 20% of the digital marketing budget. In addition, the new model dramatically corrected inconsistency issues and improved campaign performance across all markets. Nokia benefitted from faster campaign time to market as well as real-time visibility of local market activities.

Digital assurance no longer works best as an in-house service at companies, and they typically outsource it to third party providers. Using multiple products and software in an ever-changing mix of permutations and combinations brings complexity that extends beyond the testing of any one supplier, says Hill. She also notes that there have been several startups popping up recently to create test software for the user experience, such as one working on mobile apps to track user’s pain points.

Unlike in the past, companies today want to build agile, fully automated systems where these kinds of more thorough testing are part of the initial blueprint, says Sridharan. Consequently, companies can no longer afford to be reactive. They have to do what is called “progressive, in-sprint automation.”

Digital assurance is still “an evolving space, and no perfect formula has arisen” as yet for how to go about it, says Sridharan. End-consumers drive much of the changes in digital technology, making it dynamic and therefore difficult for companies to keep pace.

The field faces several hurdles. First, even as devices or apps are tested for

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performance under various conditions, there is no guarantee that all possible scenarios will get covered. Second, when companies source apps from different vendors, they might fall short in their ability to maintain or enhance them.

Hill notes that digital assurance cannot work in a silo and must have a collaborative setting – and a keen eye on human error. “Digital assurance is also about educating companies and consumers on how they can keep their data secure.” She points to human intervention as a risk factor for digital assurance, such as in breaches caused by weak passwords or by disgruntled employees. That last aspect highlights the role for human resources, she adds. “If your

database administrator is somebody whom you haven’t fully vetted, there could be leaks of sensitive data.”

Businesses are willing to make the necessary investments in digital assurance, but the challenge is in meeting their expectations of performance guarantees, says Sridharan. “It’s an iterative journey, towards meeting consumer expectations especially when so much in the digital world is user driven and dynamic.” But she adds that despite the challenges, digital assurance can go a long way towards helping organizations reach the goal of providing a fully integrated and seamless customer experience.

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