

Knowledge@Wharton – Wipro
CIO Series

Next-generation IT: How to Get the Most Out of It



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Cloud platforms, data analytics and mobility allow today's chief information officers (CIOs) to share business intelligence organization-wide that empowers managers while lowering costs. [Lynn Wu](#), Wharton professor of operations and information management, and Andy Nallappan, CIO of Avago Technologies, a maker of semiconductor devices, discuss how technology can help reach those gains in this white paper produced by Knowledge@Wharton and sponsored by Wipro Technologies.

Businesses that intelligently use “next-generation IT” tools could outpace rivals, according to [Lynn Wu](#), Wharton professor of operations and information management. “The amount of data you can collect through smartphones, tablets and social media is tremendous. It is important for firms to tease the right signals out of this data.” Meanwhile, Andy Nallappan, the CIO of Avago Technologies, sees the next generation of IT as “more nimble, flexible, mobility-based and consumer-oriented.” He draws his operating principles from Avago's business model, which he says is to “never lose focus on gross margin and operating profit.”

The semiconductor devices produced by Avago, based in San Jose, Calif., are found in mobile phones, consumer appliances, data networking and telecommunications, and a range of industrial markets.

The company began in the early 1960s as a Hewlett-Packard division and was a part of Agilent Technologies, which HP spun off in 1999. Two private equity firms later bought Avago and spun it off again in 2005. It then went public in 2009. Annual revenues are currently trending at \$6 billion, up from \$4.3 billion in its latest fiscal year ending November 2, 2014, a 70% jump from \$2.5 billion in 2013.

Agenda for Transformation

Nallappan incorporated those business model principles into what he calls a “transformation process” he launched six years ago to empower Avago's business units with new-age technology tools. One was in 2008, when it launched a Google app with increased email storage capacity. Back then, it was the first \$1 billion company to be entirely on Google's cloud-based email

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— Lynn Wu

service. Another was to sign on with cloud storage firm Box.com in 2012 to allow Avago employees to sync their devices to company documents, along with unlimited storage.

“Bringing the IT infrastructure to functions like marketing or finance is not the hardest part,” says Wu, adding that the challenge is to glean the right business intelligence on products, users and markets. “That needs to feed directly into product design, manufacturing, finance and human resources.”

Wu also believes that with cheaper technology, businesses have big opportunities to gain increased efficiencies by moving IT infrastructure to the cloud. The extent to which businesses are now using cloud technology is just “the tip of the iceberg.” Over time, she expects increasingly bigger chunks of IT infrastructure to reside on the cloud, creating manifold opportunities in collecting and analyzing data. “How you build capabilities and capacities on the cloud will determine who the winner is.”

In design, development and manufacturing, Nallappan’s prime areas of focus are the markets for wireless devices and smartphones. Technology disruptions are so frequent in those segments that “if you miss a beat, you will be dead,” says Nallappan. “We have to make sure R&D can scale up and we have an effective supply chain when we have short visibility on demand.”

M&A Integration

Nallappan says Avago’s IT processes have also helped it manage M&As “in-house and without external help” from consulting firms. Avago in the past year bought a

Pennsylvania-based optical communications components company Cyoptics Inc., Austin, Tex.-based wireless communications component maker Javelin Semiconductor Inc., semiconductor company LSI Corp. and data storage and networking company PLX Technology, both in California, and sold two LSI business units — to Intel and Seagate Technologies.

To help with a smooth integration of the acquired companies’ employees, Avago used two so-called “playbooks” in its human resources systems and the collaborative tools that are on the cloud. One enabled new employees to hit the ground running with various teams and applications on the very first day of combined company operations. The other took them through higher-end business processes for procurement, supply chains and the like on the second day. With the four acquisitions during the last 18 months, those playbooks helped integrate about, 6,700 new employees across 30 locations worldwide. Avago now has nearly 9,000 employees.

In managing the diverse technology platforms Avago inherits through its M&A deals, it has a policy of “adopt and go,” says Nallappan. Legacy platforms that cannot be migrated easily to Avago’s processes and platforms are discarded. “M&As give you an opportunity to upgrade your technology,” says Wu. “Sometimes there are a lot of stakeholders who do not want to junk the old. Many IT departments are scared of losing their power.”

Thus, some technology integrations after M&As require delicate handling. Nallappan points out the challenges faced when Avago bought CyOptics. The firm “had age-old IT solutions.” His task was to expeditiously

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build reliability and scalability in IT processes that did not cause interruptions because “business was booming.” He replaced its existing shop floor management applications with an Oracle tool and created “temporary band-aid solutions” for other problems. “We did it all in five months, without impacting the business and the revenue numbers.”

Data Visibility

As part of his transformation process, Nallappan also created “dashboards” to provide the top team ready access to company reports and intelligence. The data includes “high visibility on billings, bookings, backlog, etc.,” and they enable “quick and right decisions,” he says. “The dashboards are designed to give answers instead of saying, ‘We’ll get back to you tomorrow.’ We enable the three Rs — the right information to the right people at the right time.”

Lowering costs is among the chief demands Nallappan faces. “The CFO and CEO want me to deliver faster, cheaper and better.” Avago is ahead of others in its industry in controlling IT costs, he says. The average IT spend in the high tech electronic

components industry is 2.5% to 3.5% of revenues, but Avago has kept those costs close to 1%. Nallappan’s target: 0.85% in two years.

Strategic Role

Nallappan says he gets to play a strategic business role at Avago beyond his immediate IT responsibilities. Among other things, his team is involved in product design and in addressing supply chain planning and manufacturing processes. He makes time for those strategic functions because he has outsourced — or put on the cloud — standard processes such as in managing email, documents storage and various applications. “It has liberated me and my team to focus on the core of Avago, to not to be consumed with all these mundane day-to-day operations.”

In the future, the CIO’s role will further expand along with the range of digital technologies becoming available, says Wu. “They can have much more impact on the firm than just doing IT infrastructure. Whoever seizes these opportunities will be winners and those that do not will be phased out.”

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— Andy Nallappan

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