CIO BRIEF 2.0

Forging Partnerships in the Digital Age

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Introduction

CIO Brief 2.0 is an inter-organizational learning forum of CIOs from leading edge organizations that meet to exchange best practices concerning IT management strategy. The 2017 CIO Brief is exploring four dimensions of managing IT in a digital age. The first session discussed forging partnerships in a digital age and what makes them successful or unsuccessful. Future sessions will explore facilitating partnership work, revamping IT for digital leadership, and building and managing strategic ecosystems.

The Importance of Partnerships

Gordon Shields introduced this topic, noting that partnerships are essential in a digital age because they can speed up the pace of change. "The need for speed is especially real in the B2C market where what constitutes good customer service is evolving rapidly. It's a confusing world," he said. Companies need to partner with others offering complementary services, rather than competitors. "Today's world is very transparent and markets will evaluate who your partners are. Not only are your partnerships important but also the nature of your relationships," he added.

There are multiple types of partnerships. One is an alliance based on standards, which uses partners to expand into adjacent markets. Apple's partnership with Deloitte in its Enterprise Next initiative is an example. It seeks to extend Apple's strengths in the consumer market to business so that people can "work like they live". This partnership will marry Apple's customer understanding with Deloitte's knowledge of business. Another type of partnership is a joint venture for innovation. Deloitte is experimenting with crowdsourcing using multiple existing networks of experts to help it obtain very economical answers to questions. "This could also be a commercialization opportunity for the company in the future if we can use this knowledge, in combination with best practices, to help other companies. Banks are also seeking to develop consortiums of players to explore block chain technologies. "If successful, these innovation partnerships will create efficiencies throughout the system and build a market for everyone," he said.

Developing A Digital Partnership Vision at Humber River Hospital

Since 2010, Peter Bak has led the design and implementation of Humber River Hospital's digital vision. He has more than 25 years experience in Healthcare IT and has worked with Canada Health Infoway and government initiatives across Canada and around the world. He is one of a small few who have taken a hospital from digital conception to go-live completion.

Peter described how he is working with government, vendors, and various internal hospital groups to create a modern digital hospital serving 850,000 people in northwest Toronto with one of the busiest emergency departments in the country. "This is a brand-new 1.8 million square foot facility with over 80% private rooms," he said. "One of our challenges was how to staff it cost-effectively given the much larger area that nurses must cover on a typical day." The

answer has been to implement a range of technology to assist medical professionals of all types. Humber's digital transformation is based on four themes:

1. **Electronic information.** Here, the goal has been to make information readily available by many, simultaneously, in order to facilitate collaboration and knowledge sharing. This information must be *actionable* to support workflow automation and better decision-making. To accomplish this, all systems are IP-based. "Everything's tied to the network," Peter said, "even our elevators and doors."

2. **Mobile and connected.** "Healthcare is a mobile activity," he said. "We wanted to ensure that physical location would not constrain people's ability to access and create information, communicate and collaborate." At Humber hospital staff can now access relevant information anytime and anywhere. They can communicate and work with others instantly and systems are available to drive performance, quality, and safety. Mobile devices help nurses, code teams, lab technicians, and porters in their daily work and are important tools for them. They deliver lab results, support daily nursing activities, facilitate code calls, and monitor critical patient metrics. "Different types of mobility are important to different groups," he said. "For example, nurses want mobile workstations, whereas physicians want to be able to tap into a device when they enter a room. Mobile printing is also needed." In addition, Humber supports BYOD to enable personal smart phones and tablets to access medical records and other types of care delivery content.

   Connectivity has changed too. "Healthcare is inherently backward," said Peter. "We still have pagers and these are not going away, but we have switched to a unified communications infrastructure that is integrated with our systems so we can communicate by voice, text, and video." The hospital enables people to connect with people to send messages and request acknowledgement. These can be role-based (e.g., to the cardiologist on call) and include escalation logic if needed. Technology also tracks: patients to prevent wandering and infant abduction; staff; and assets to the nearest room anywhere in the building. It connects patients with people (such as when a nurse is needed) and systems with people (for building alarms or special purpose codes and alerts). It also provides visual monitors such as dashboards for rounds, tracking, and queuing of activities, as well as online room signs. These give people reminders and orchestrate workflow. "In the past, we've used sticky notes for many of these things," he said. "This technology has added huge value for us." Systems are also used to monitor every aspect of the building's operation, from elevators to chutes to plant services.

3. **Patient empowerment.** "Most hospitals are not set up with a patient orientation," said Peter. "We have tried to focus on this much more in our transformation." There are several dimensions to this new approach. First, patients can check in for appointments or pre-register in advance – much like pre-check-in with the airlines.

"This not only offloads work to the patients, but most prefer it," he said. Second, Humber has created a patient portal where patients can see their medical records. "This is still an emerging function," he said. "We need to support what's in the record with knowledge, such as what results mean. Doctors are worried that these records will be misunderstood." Third, patients each have an integrated bedside terminal that enables them to control their environment, such as light, blinds, and temperature.

4. **System automation**. Wherever possible, people have been replaced with robotics that are all integrated into the network. Automated-guided vehicles deliver supplies where they're needed; a pneumatic waste disposal system whisks waste and soiled linen to linen and waste/recycling collectors; labs are automated and process specimens all without human involvement; and robot pharmacists package pills and mix drugs.

"We started down this path in 2010 with a vision," Peter stated. "In 2012, we started development and by 2015 we went live." Overall, technology investment to date has been about 5% of construction costs, while he estimates the current operational savings with this method to be about 20%. "We've achieved significant efficiencies in supply delivery with 74% automation and replacement of 25 staff through attrition. We did not retire or eliminate people. Rather, because we expanded, we would have had to hire new people so using robotics, we avoided extra hiring and reduced our operating cost (compared to using people), " he said. "Our smart building technologies have already saved us $2.8 million or 60% of the energy costs of a comparable building." The hospital operates with the same nurse-patient ratio even though it has twice the space. Most importantly, patient satisfaction has risen dramatically. "Our patients like our new building and perceive they receive better care," he said. "Determining actual effectiveness with real patient outcomes is harder to measure however. We know our quality of care is good but this is difficult to objectively measure the contribution made by the technology. We do know that safety has improved with medication automation and that turn-around times for lab work are about 2-3 times faster than in the past."

Humber plans to continue its automation efforts to transform patient care in the future. "We now have actionable data that when combined with analytics will lead to better medical care," he said. Humber is now creating a command center of decision-makers from the various parts of the hospital and equipping them with real-time information and the ability to take action to improve performance. Modeled after the NASA command center, it will develop cross-functional staff and identify such potential problems as delays in patient care, patient flow, and clinical operations, and monitor for clinical deterioration, population health, patient scheduling, and staff scheduling. The first step in this change has already been taken. It monitors patient flow and patient logistics, including bed allocation, room cleaning, critical care capacity management, discharge planning, and surgical scheduling. "We are the second hospital in North America to accomplish this," Peter said. "Now that we have seen what being digital can do, we've identified two further steps we can take."

The first step is to eliminate "never events", i.e., things that should never happen. This starts with clinical pathways in treatment and monitors any deviation from these pathways by individual patients, such as abnormal lab results, or increasing temperature. Such events enable specialists to intervene quickly to get a patient back on the normal path to recovery. The second step will be to link the control center beyond the walls of the hospital and into the community and the home. "We know that with effective monitoring we can discharge patients sooner," he said, "but we need a service that will do this with us. This step is really going to drive efficient and quality care. By 2020 we hope to have achieved a 40% improvement in quality, safety, and length of stay." Peter concluded his presentation by noting that what has been accomplished could be achieved by any hospital. "We're just a community hospital and we had a tight budget. If we can do this, anyone can."

A Digital Partnership Experiment at Reliance Home Comfort

Reliance is a Heating, Ventilation, and Air Conditioning (HVAC) business whose goal is to become the destination of choice by delivering exceptional experiences for customers seeking comfort in their homes and workplaces. It serves Ontario and Western Canada with 550 technicians and installers, 300 licensed contractors, and 135 residential sales people and aims to provide "service when you want it". Reliance has a strong history of growth and loyal customers, who would recommend reliance to their friends and family. Celso Mello is its CIO and has been at Reliance since 2008

As of 2015, "Our industry still ran on paper," he said. "Because of this, there's lots of potential for IT to add value." Increasingly, more and more people are shopping online and over 68% of Canadians now have smartphones. "Mobile is no longer an option but a necessity as a channel to engage customers," he said. "We therefore wanted to find a partner who could help us develop this channel." HomeHelp[1] is an app that was developed in the U.S. to help professional service providers market themselves and assist customers in finding qualified and available service providers. It provides an end-to-end service, including marketing, engagement, scheduling, payment, and rating of both service provider and customer. "This app replaces antiquated paper processes and also takes care of marketing and back office functions," Celso said. "When they first approached us, they had been in business for two years and had a solid record of service provision in areas that were relevant to Reliance. When they asked us to be their partner in Canada therefore, we felt there was a good value proposition for both companies and our customers".

Customers would have an Uber-like experience where they could easily book, schedule and pay a service provider. Reliance would have lower operational cost (since the app was self-service), could reach a new customer demographic, and offer competitive differentiation. HomeHelp would get a large anchor tenant for its expansion into Canada. It appeared to be a "win-win-win" for everyone involved. Reliance and HomeHelp therefore entered into a partnership agreement that would market HomeHelp to customers via Reliance's website and call centre. Reliance in

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[1] Not its real name.

turn would be granted exclusivity for HomeHelp's HVAC category in Canada. HomeHelp agreed to recruit other service providers in Reliance's market within three years, which they believed would drive customers to Reliance.

"We had a customer conversion strategy for both our existing and new customers," Celso explained. New customers would be reached via Reliance's home page and be offered a link to the app. Search engine management ensured the link would come out high on any search. Existing customers would be offered a chance to download the app and receive a discount. HomeHelp's customer conversion strategy focused on getting service providers to sign on with the app. "We estimated that if 2% of their customers booked with Reliance, this would eventually result in another 12,000 service calls for us," he said.

To test this model and related assumptions, the partners launched a pilot in a small Reliance market, Calgary. It was implemented with a limited investment, manual processes, and no other service providers for a month. This showed that 11% of website visitors downloaded the app and of these, 36% used it to book service calls. This resulted in two new service contracts (or 10% of those who booked with the app). "We all agreed this was a pretty successful pilot," he said. Based on these numbers, but using more conservative figures, we estimated full implementation of the app would result in thousands of additional service calls and consequently, increased revenue.

A more comprehensive pilot, including service professionals and links into Reliance's systems, was launched in early 2016 in London, Ontario, one of Reliance's biggest markets. Unfortunately, this was not a success. There were very few downloads. Customers calling the call centre did not express much interest when informed about the app. The London pilot was therefore deemed a failure. The partnership was dissolved and each company continued to operate independently.

Celso then outlined some of the potential lessons he has learned from this partnership. "There were issues with both the design and the execution of this pilot," he said. On the design side, the partners disagreed about who owned the customer. Additionally, erroneous assumptions were made about mobile usage patterns in small Canadian towns versus larger U.S. cities. "It is also possible that the industry is not yet ready for digital business and that our conclusions, based on Calgary, were wrong." Finally, it could be possible that Reliance's high market share in London prevented adoption. From an execution point of view, the fact that the pilot was launched in February could have affected uptake, as could London's unique demographics. "It is possible too that we didn't invest enough in marketing and that HomeHelp didn't onboard enough service providers to create an attractive marketplace for customers." Finally, "we may not have given this pilot enough time to mature. Our business model is working well and we may not have given the pilot enough management attention." He then invited members to suggest other reasons why this pilot could have failed.

Discussion

Members discussed both presentations with enthusiasm.

- **Humber River Hospital**

How difficult was it to get your senior management team to invest in digital transformation? "It's important to get them to think differently about the potential of technology," Peter said. "It's not just computers and phones anymore." He identified the turning point in their thinking came about 15 years ago when studies showed that 150,000 people die unnecessarily because of drug interactions. "In Canada, our focus is on quality and safety as well as on operations and efficiencies so these were our key drivers." Unfortunately, the hospital has already outgrown its growth predictions and is now bursting at the seams. "We therefore need to drive more efficiencies to create greater capacity. We believe the solution is to build better links with GPs and the community to achieve more throughput. This is going to require developing partnerships because we don't have control over these resources."

How did the staff feel about these changes? Every staff member wants patients to come first, he said, but they also recognize that funding cannot always increase with demand. "We can't keep throwing people at this problem," he said. "Our teams respected that we couldn't double our staff so they played ball. We also ensure that everything we deliver adds value to them."

What is the business case for automation and rationalization? "We created a business case for each area affected," he said. "For example, we wanted our pharmacists not to have to push pills but to act as consultants. Automation therefore didn't reduce the number of pharmacists but it put them on the floors to help manage medications more effectively."

Was there resistance to these changes? This varied by group. The most resistance came from doctors who were uncertain about the proposed changes. However, as soon as the transformation started, momentum began to build and resistance declined.

What was the process of innovation? There was no formal process involved since hospitals are not very good at changing. "They tend to be reactive and not plan ahead," he said. Therefore, he developed much of the original vision himself. As the project progressed and the four themes were developed, the team grew and the CEO threw his support behind developing digital processes.

What are you doing about secondary uses of data? "Our digital transformation is based on evidence-based medicine. We want to learn from others who are doing clinical informatics," said Peter. As well, the hospital works with individual practitioners to identify inappropriate work and better understand what the data are saying. "There are huge savings to be gained from better understanding the data," he said. He is not worried especially about privacy and security implications. "Most of our data is out of context until it is on our premises," he said. "And we have very tight security." He believes that effective security and privacy is a balancing act that must be continually adjusted. "We already have strong information-sharing agreements," he said. "There will be breaches so we are always concerned, just not worried."

How did you introduce business logic into your workflows? It is important to have conversations with those using the workflows and demonstrate that the system can be trusted. "We have committees that review and test these workflows and also our robotics," he said. "With logic about when a problem should be escalated, committees of doctors and nurses determine what to do based on best practice. They're therefore not inventing these rules."

- **Reliance Home Comfort.** Members felt that demographics may have played a role in the London pilot's failure. "Maybe people just weren't comfortable with online transactions," said one. Others felt that a more comprehensive stakeholder analysis or focus groups could shed light on what happened. Some felt that the fact that Reliance already had a large market share in London contributed to the lower uptake of the app. "If they didn't have any issues with the service you already provide, there would likely be a much lower uptake," one member suggested. Existing customers had few incentives to switch. Members noted that much of the business case was not based on up-selling existing customers but on getting new customers. This may have skewed the assumptions.

In addition, they felt that Reliance really didn't give the market for HomeHelp enough time to build up. Having only two data points did not demonstrate a strong trend one way or the other. "Additional data points are needed to really learn what works," said a member. They also suggested that Reliance didn't experience a pressing need to change since it was doing well and therefore, management didn't put its best efforts into making the app succeed. There could also be a conflict between the two companies' value propositions. Reliance sells peace of mind with service contracts that ensure priority service when needed. HomeHelp offers reliable and available service providers without a contract. Members also noted that larger companies are often reluctant to cannibalize their existing business by offering a digital option. "The app didn't offer much value for existing customers," one said.

Timing could also be a problem since, by late winter, most customers would already have serviced their heating systems. Overall, they felt that the pilot wasn't long enough to really demonstrate the app's effectiveness. They felt

that the low risks and investment involved made it easy to walk away from the pilot but that the concept still "has legs".

Gordon concluded this session by noting the importance of really understanding your customers and their demographics. It is also important to use data to learn. "It's more work but much more effective," he said. "Companies should ensure that they understand what data their partners will bring to the table."

Concept

CIO Brief 2.0 is an group of CIOs from leading edge organizations who meet to exchange best practices concerning IT management strategy. The CIO Brief 2.0 is organized by James McKeen and Heather Smith of the Stephen J.R. Smith School of Business at Queen's University, in partnership with Deloitte Canada. See www.ciobrief.ca.

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