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WOODLAND SUPPLY INFORMATION SYSTEMS PROJECT SELECTION

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All figures in Canadian dollars unless otherwise noted.

It was early morning November 2, 2020, and Kelly Green, information technology manager, Woodland Supply Inc., was preparing for the important 2021 annual budget meeting with the leadership team in just over two weeks, when he would present his recommendations for information system projects to be approved. It had been a busy year for the information technology (IT) department at Woodland, as many systems and innovations were implemented to allow Woodland Supply to continue operations during the pandemic and to support remote work arrangements for many employees. Green received accolades from the leadership team as the IT department met the heavy demands of COVID-19 by playing a major role in allowing Woodland Supply to operate, innovate, and excel during the pandemic. Information systems (IS) had a direct impact on Woodland's ability to remain successful, restructure, and ultimately thrive during the pandemic. These IS included e-commerce, business intelligence (BI), cybersecurity, a new call centre, online training platforms, Salesforce marketing automation, sales automation, and strategic Endpoint Central control software deployment. Now, Green had to choose which IS projects to recommend for implementation in 2021 to meet strategic objectives, achieve the most impact, and meet budget constraints. This was a problem for Green, as there were a number of IT projects under consideration that could have a positive impact on the firm's operations. Green had to decide how to best evaluate the potential IS projects to discern which ones to recommend, and he had to act quickly, as his presentation at the annual budget meeting was fast approaching.

Woodland Supply

Woodland Supply Inc. (Woodland) was a privately held wholesale distribution company founded in 1962 and operated in the heating, ventilation, and air conditioning (HVAC) and plumbing industry, which was a $35.16 billion industry in 2019 in Canada, with a growth rate of 9% in 2019.[1]

The growth in this industry represented an opportunity for Woodland to leverage its extensive industry knowledge capital and experience to expand and meet growing demands. Woodland had 250 non-unionized employees located in nine wholesale branches, three luxury showrooms, and two distribution centres in Southwestern Ontario.

The leadership team's major strategy for 2021 was collaborative customer service. This strategy was an organization-wide effort inspired by the impact of the pandemic to provide the proper service levels to identified segments of customers to maximize the profitability and long-term health of the company.

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1. Simionato, 2022.

Jones, Woodland's president, approached the pandemic as an opportunity to closely scrutinize business operations and look for ways to improve. the leadership team and all managers were given the mandate to determine ways to "do more with less" and to become more agile to accommodate the constant unknowns that the pandemic presented. Jones' direction was to leverage technology wherever possible to accomplish this mandate.

Woodland was classified as an essential service and was allowed to operate throughout the pandemic. However, the restrictions on the operations due to social distancing and contract tracing required several modifications to business processes. During the initial stages in March 2020, staff were laid off, sales reps could not visit customers, and barriers were installed in all customer product pickup counters. Showroom visits were by appointment only. Office layouts were redesigned to keep employees at requisite distance.

> **"IT solutions are in demand and deemed by leadership to be a key component to the company's future success." — Kelly Green**

Kelly Green, IT Manager

Green joined Woodland Supply in 2011 as the IT manager. At that time, Woodland had 140 employees and an IT staff of two. By 2020, the company had grown to 250 employees, still supported by the IT staff of two, with major growth in IS infrastructure within the firm. (See **Exhibit 1 – Information Systems at Woodland**.) The pressure of keeping the IS infrastructure operational while introducing new technologies was becoming increasingly challenging. Demands upon IT were compounded by the president's mandate to leverage technology to increase the company's agility and profitability. Green was excited for these opportunities to manage new IS project implementations that were aligned with Woodland's strategy focused on analyzing existing business processes, optimizing these processes, and improving efficiencies of the firm. He prepared several presentations for the leadership team regarding his vision for the role of the IT department to best serve the firm in meeting these objectives. Green commented,

> It is an exciting time for IT at Woodland Supply. IT solutions are in demand and deemed by leadership to be a key component to the company's future success. It gives us the chance to utilize new current technologies such as cloud, artificial intelligence, BI, and unified communications. IT at Woodland is so much more than just maintaining networks and supporting end users. We are making a difference! So many opportunities, so little time, as our president often says.

Evaluating New IS Projects for 2021

In preparation for the upcoming annual budget meeting, Green considered a number of factors to analyze the potential IT projects for implementation in 2021.

- alignment with corporate strategic direction by leveraging IS to optimize operations and growth
- projects that are entirely IS-based, not requiring any other business unit to complete
- projects sponsored by another business unit and requiring IS support to complete
- scope of impact to the company in terms of the number of employees benefitted
- maintenance projects that must be completed due to IS lifecycle
- projects that build on existing technology investments
- project's expected return on investment (ROI)

Green considered the following projects and major initiatives for recommendation in his presentation to the leadership team at the 2021 annual budget meeting.

Potential Projects and Major Initiatives

Additional Internal Resource

Woodland had grown from 160 to 250+ employees with the same two IT staff for support. Was it time to invest in a third IT resource to allow the existing staff to work on more project-based, higher-level planning and proactive activities to help the company move forward? Would a third IT resource to serve the company's day-to-day support tasks be a good ongoing investment? This was an IT-sponsored initiative. Budget: $45,000 starting salary.

Marketing Automation

This project was originally intended solely for e-commerce. Subsequently, the scope was strategically expanded to include all sales — brick & mortar, as well as e-commerce — to receive additional corporate budget support. Woodland used Mailchimp for email marketing, though Green realized increased sales could have been generated by using a more sophisticated artificial intelligence–based solution. Salesforce was the vendor of choice for this project, given its breadth of product offering, its recent ownership of Tableau, and its widespread integration possibilities. The business sponsor for this project would be an external consultant working for the sales growth department. Budget: $40,000 initial integration costs, $58,000 (US) annually.

Sales Automation

This project focused on taking electronic sales requests via email and automatically entering them into the enterprise resource planning (ERP) software. This would eliminate the obstacle of some customers having to enter in orders into their internal systems and into Woodland Supply's e-commerce site. Therefore, similar to the e-commerce implementation, there would be a reduced cost to service customers overall with no change in customer-facing business processes. Conexiom was the vendor for this project. There would be no business sponsor for this project. Budget: $12,000 annually. Projected sales converted to this automation: $4 million+.

Cloud Call Centre

The company's biggest strategic initiative was collaborative customer care, which centres around providing better service to customers more efficiently. This project involved many business process changes within Woodland. The principal technology proposed was a cloud-based call centre. This would allow customers to be serviced by staff at any location in the company. As such, there was a potential to match more profitable customers with more knowledgeable customer service representatives (CSR). It would also be possible to service all the customer base with fewer CSRs. The vendor of choice was Mitel, who was able to provide a hybrid solution integrating both the existing VoIP on-premise infrastructure with cloud-based customer service agents. The HVAC sales growth manager would be the business sponsor of this project. Budget: $30,000, with $35,000 annual costs.

Central Desktop Management

This project focused on effectively supporting end users by tracking desktop and laptop hardware, and the associated software, using an advanced tool to automate this work. These IT components required more tracking, given the new remote operational business model. The tracking tool Endpoint Central from Manage Engine would be used solely by IT staff to upgrade and patch computers on an ongoing basis from wherever they were. This would be an IT-sponsored project. Budget: $6,000 annually.

Rukkus Wireless Access Point Replacements

The central distribution centres utilized radio frequency scanning units from Rukkus Networks to conduct their work — picking and put away activities, principally. The existing access points would be at end-of-life in the summer of 2021 and needed to be replaced. This was an opportunity to deploy cloud-based serviceable access points. This would be an IT-sponsored project. Budget: $12,000 installation costs, $5,000 annually.

ERP Client Upgrade

The current ERP, Epicor Eclipse, was implemented at Woodland in 1994 with a character-based client called E-Term. A new GUI client named Solar had been released for the Epicor Eclipse ERP software. Woodland paid $120,000 annual maintenance on the ERP application and much of the new, improved functionality was only available in the new Solar GUI client. Woodland had developed a wealth of knowledge in the use of the old character client, and many employees were reluctant to replace it for fear of lost productivity. However, Green was convinced that the new ERP GUI client, Solar, would bring many new opportunities for productivity improvement and functionality to Woodland, if he could convince them to embrace it. There would be no business sponsor for this project. Budget: $83,000 (US) for licenses, and $25,000 for implementation.

Going Forward

Green had to decide which of the IS projects under consideration would best align with Woodland's strategic objectives to optimize the firm's business processes and position it for growth. This was a major problem for Green, as the president wanted to leverage IT to achieve key strategic initiatives and there were several projects Green believed would be a good fit to provide a positive impact on the firm's operations. He wondered which projects would be the most suitable investments for IT's annual budget constraint of $1.1 million, which included annual IT operation costs such as internet, phone, and software licence fees, as per **Exhibit 2 – Annual IT Operating Costs**. Green had to determine how to best evaluate the potential IT projects he was considering to maximize the impact of IT in 2021, and he had to act fast, as his presentation at the annual budget meeting to recommend IT's plan was less than two weeks away.

Exhibits

Exhibit 1 – Information Systems Infrastructure at Woodland Supply Inc.

Woodland locations communicated centrally with a data centre service. Each location was equipped with redundant fibre internet connections. The enterprise resource planning (ERP) server was co-located in this data centre, along with a database server from which business intelligence (BI) technology powered much of the company's analytics. All the other servers were virtual. Cloud technology had become increasingly utilized, with applications in payroll, human resources, fleet management, e-commerce, and office productivity (Microsoft 365), all of which were run in the cloud, hosted by trusted vendors. When the pandemic hit the world in 2020, some employees were laid off and many others were asked to work

remotely from home. These remote users utilized company-provided equipment and accessed the company network via a secure VPN. IT was charged with being able to provide corporate resources quickly to any employee who was required to work remotely.

The ERP software was Epicor Eclipse, an older application that was not very extendable, requiring several bolt-ons and customized integration to make it work with external software within Woodland and provide functionality the core ERP was missing. Woodland was Canada's first user of this American software package and had used it since 1994.

Woodland's e-commerce platform was brought online in 2015. Unilog's CIMM2 platform was chosen due to its integration with Eclipse and the fact that one of Unilog's founding employees was one of the original designers of the Eclipse ERP that Woodland was operating on. Sales from e-commerce contributed 10% of the Woodland company sales but were three times more profitable, due largely to the decrease in cost to serve online customers.

Woodland utilized the Tableau software as its primary BI tool. A BI infrastructure was formed by replicating Eclipse data into a Microsoft SQL database in real-time to enable ease of analysis.

VoIP telephony was used across the company utilizing SIP trunks for inexpensive, flexible voice communications. The company had recently completed a VoIP telephony system that utilized SIP trunks to service all its branches. This project started many years ago with the provisioning of fibre internet access at each branch, which was required later as infrastructure to support IP-based voice traffic over the network. This was a fundamental strategy deployed over many years.

Arctic Wolf software was implemented to administer cybersecurity measures to monitor the 1.5 million data points per month. This solution was outsourced due to the ongoing monitoring requirements and low Woodland IT resources available.

In 2017, Woodland standardized its office productivity suite with Microsoft 365 for all devices. This replaced the use of six different office productivity platforms and the inherent incompatibilities. The move to the cloud for this functionality allowed a higher degree of collaboration and access to information both within the network and remotely. The end nodes on the network were all Windows 10 PCs or laptops. [Back]

Exhibit 2 – Annual IT Operation Costs at Woodland Supply Inc.

Item	Estimated annual costs
Data centre	$30,000
Unilog e-commerce	$110,000
ERP Epicor maintenance (EDI, annual license, and support)	$220,000
Communications (phones, infrastructure, Rogers, Telus, Bell, Thinktel)	$330,000
Descartes fleet management software annual maintenance	$90,000
Peripherals maintenance (scanners)	$35,000
Business intelligence	$5,000
Internet	$100,000
Document management software	$8,000
Mailchimp software	$5,000
Woodland annual IT operating costs	**$933,000**

[Back]

References

Simionato, C. (2020, June 8). Sales of electrical, plumbing, heating and air-conditioning equipment and supplies merchant wholesalers in Canada from 2012 to 2021 [Graph]. Statista. https://www.statista.com/statistics/431630/sales-of-electrical-plumbing-heating-and-ac-wholesalers-in-canada/

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MOTHER MYRICK'S CONFECTIONERY

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All figures are in U.S. dollars unless otherwise noted.

Mother Myrick's Confectionery, located in Manchester, Vermont, had been continuously operated by Ron "the fudge man" Mancini and his wife Jacki for 35 years.[1,2] The couple opened the fudge shop and bakery in the centre of town in May of 1977, added an ice cream parlour in June of 1978, and began their mail-order business in November of 1978.[3] Revenues for retail and mail order grew to more than $1 million in 2004, but the company was not profitable. Ron and Jacki considered liquidating the business, but chose instead to close their downtown shop, shed the ice cream operation, and relocate the retail store to the edge of town. In the process, the company took on $205,000 in notes payable. In 2012, company revenues topped $800K (see **Exhibit 1 – Income Statement** and **Exhibit 2 – Balance Sheet: Assets and Liabilities**). The business provided a salary of about $60,000 for Jacki and positive income in each of the last four years. Ron stopped taking a salary in 2007 when he began collecting his Social Security benefit. A balloon payment[4] on a Berkshire Bank note was due in a couple of weeks, and the couple had to decide whether to pay it off, refinance it, or consolidate it into a larger loan and use the proceeds to improve operations.

Ron and Jacki wanted to retire and needed a plan for the transition. They had no children together, and Ron's children from his previous marriage were not interested in the business. The couple thought of passing the business to their employees but were unsure if any of them were ready to take the lead or if they had access to that kind of capital. Selling the business outright was an option, but taking on new debt now would make the company less attractive. They could also close the shop and sell off the assets. In Ron's mind, the best scenario was to bring on new partners and teach them the business, possibly a younger couple who was tired of the city life and wanted something different. He imagined people like he and Jacki when they started the business. The new owners could carefully nurture the business and bring it to the next phase. The company had sufficient cash to pay the loan, but that could leave them short in the fall when they were busy making product for the holiday season. Interest rates were still low, and Ron thought they could borrow the money needed to pay off their existing debts and get additional capital. They could use the capital to consolidate debt, expand, or improve operations. Ron developed a one-page business plan in January 2013 (see **Exhibit 3 – One-Page Business Plan**) and provided it to several area banks.

> Selling the business outright was an option, but taking on new debt now would make the company less attractive.

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1. Mother Myrick's Confectionery, n.d.

2. Manchester is primarily a tourist community, offering visitors something for all four seasons including fall foliage, skiing, fishing, a host of summer activities, and outlet shopping year-round. Manchester is the home of the Charles F. Orvis Company, maker of quality fishing gear and outdoor apparel since 1856 and of the Equinox Hotel, founded by Charles' brother, Franklin,in 1853 (Equinox, n.d.; Orvis, 2023; Town of Manchester, n.d.).

3. Mother Myrick's Confectionery, 2023.

4. A balloon payment is a larger-than-usual one-time payment at the end of the loan term (Consumer Financial Protection Bureau, 2020).

Company Growth, Retraction, and Relocation

Ron learned his craft from a Massachusetts candy maker in the early 1970s. He continued his confectionery education with an apprenticeship at Boehm's Candies in Issaquah, Washington, and a series of professional courses offered through Retail Confectioners International and the Barry Callebaut Institute.[5][6][7] The company started with a line of assorted caramels, and a chocolate and nut–covered toffee named "Buttercrunch," which turned out to be the company's bestselling product. Jacki brought her expertise in food and customer service to the fledgling business. Mother Myrick's grew with the popularity of the company's fudge, Buttercrunch, and caramels. When Ron and Jacki started the company, the bank kept them afloat on a series of 90-day notes. They purchased the raw ingredients, made a batch of fudge, loaded it in the van, and hit the road. After selling all the fudge, they would come back, pay off the loan and repeat the process. In the early days they would do 50 to 60 food shows each year. The road trips gradually decreased as the business grew. They opened the fudge shop and bakery in the centre of Manchester in May of 1977, added an ice cream parlour in June of 1978, and began their mail-order business in November of 1978.[8]

The ice cream parlour featured an old-fashioned marble-topped soda fountain, umbrella shaded tables, and the smiling faces of Burr and Burton Academy students working behind the counter.[9] Off to the left, patrons would find Manchester's bearded fudge man, cooking his concoctions in a big copper kettle, and offering fresh samples of fudge from the paddle (see **Exhibit 4 – Jacki and Ron Mancini Early Years** for photos). In 1983, they created a separate place for the chocolate shop, where display cases highlighted the changing seasons with chocolate treats; and a café/bakery featuring European tortes, pastries, cookies, pies, and Mother Myrick's bakery specialty, the Lemon Lulu cake (see **Exhibit 5 – Mother Myrick's Candies, Chocolates, and Fudge** and **Exhibit 6 – Mother Myrick's Bakery Favourites** for a sampling of their products). Throughout the expansion, Ron and Jacki stayed true to their goals of producing high–quality products, delighting their customers, and promoting the growth and wellbeing of their employees and the Manchester community.

In 2005, Ron and Jacki bid farewell to their downtown location and ice cream parlour and moved their retail operations to the southwestern part of Manchester Center. They also moved the baking kitchen so that it would be co-located with the offsite production and shipping centre, in an industrial park located about a mile (1.6 km) outside of town. The company had been leasing 4000 square feet in a single building for candy production, packaging, and shipping since 2001. The move allowed Ron and Jacki to concentrate on the growing demands of the mail–order and retail sales of its chocolates and cakes and reduce their operating costs. According to Ron, the decrease in operating costs with the closure of the downtown shop was greater than their loss in revenues.

> By 2004, we were paying over $50,000 each year for the downtown location. We were operating the ice cream parlour and retail store out of the first floor of the downtown store and baking on the second floor. We paid another $25,000 for additional space in the industrial park where we did the candy production, packaging, and shipping. We were losing money at this point and the owner of the downtown location wanted to raise the rent. We were also terribly inefficient. We baked Lemon Lulus on the second floor, walked them down the stairs – six to a sheet pan – put them in the car, drove to the industrial park location, and then got them ready to pack and ship. We did that three or four time each day. We negotiated a

5. Boehm's Candies, n.d.

6. Retail Confectioners International is a trade association that has served the chocolate and confectionery industry since 1917 (Retail Confectioners International, n.d.).

7. Barry Callebaut offers cocoa and confectionery products and customized services to the food manufacturing industry (Barry Callebaut, 2023).

8. Mother Myrick's Confectionery, 2023.

9. Burr and Burton Academy is an independent, coeducational New England secondary school situated at the foot of Mt. Equinox Mountain and overlooking picturesque Manchester Village (Burr & Burton Academy, n.d.).

six-month checkout. We shut the ice cream parlour down on New Year's Eve 2004 and shut down the rest of the operation on Easter. We opened in the new retail space on Memorial Day weekend in 2005.

The new retail space was located on 4367 Main Street (see **Exhibit 7 – Mother Myrick's Proprietors Jacki and Ron Mancini with Pies at the Retail Location**). The building contained 1,000 square feet (93 m^2) of retail area at the front of the building and 500 square feet (46.5 m^2) of office and store space in the back. Rent for the retail store was $1,650 each month. The company signed a five-year lease with a five-year renewal option. The new location would not provide the walk-up traffic they had been accustomed to, but had ample parking for retail sales and came at a fraction of the cost. Ron believed moving to the new retail was the best decision in a situation where no alternative were optimal. He explained:

> We opened the doors of the new retail space and you know what the people said? "We want Buttercrunch. We want Lemon Lulus. We want Birthday cakes." There was plenty of parking and easy access. It doesn't mean it wouldn't be nice to be in town. But the problem back in '05 was that we couldn't find a space that was small enough. We didn't need a 3,000 square foot store. Ideally, a 1,500 square foot space would work, but nobody would give us that. That was a critical point. Jacki and I looked at each other and said, "why don't we just let the bank take it?" In the end, we chose to stay in the business because we realized that we were important. Too many people would lose too much and would be out of work. We also wondered who would hire us. We needed to be in control. We got a bank loan for $175,000 and borrowed $30,000 from a couple of friends. The loans from our friends appear on our financial statements and we pay interest of 6%.

Baking and candy making were located in separate parts of the production, packaging, and shipping facility at the industrial park. Approximately 700 square feet (65 m^2) was dedicated to baking and 1600 square feet (149 m^2) had dual use for candy making and packaging/shipping. About 100 square feet (9.3 m^2) was set aside as shared office space. Rent for the production facility in the industrial park was $1,445 per month in 2012. Everything they had was standard for the industry. The equipment and facilities were sufficient to meet the current demands as long as they employed flexible scheduling to extend the production day (see **Exhibit 8 – Candy Kitchen and Shipping Area** for photos of the production space).

The Confectionary Industry

The 2008 recession affected the United States confectionery industry for about a year. Tonnage of sales decreased from 2008 to 2009 and retailers increased prices to maintain profits. Confectioneries turned out to be an affordable alternative that people used to treat themselves, and others. Sales reached $32 billion in 2012 with a projected compound annual growth rate (CAGR) of 3% through 2017.[10] The confectionery industry consisted of more than 1600 companies employing 50,000 workers. Most companies were small, with 80% having fewer than 20 employees.[11] Increased prices drove sales growth for chocolate rather than increased product volume. According to Mintel market research:

> The chocolate confectionery industry has maintained slow growth over the past five years as the economy tries to recover from recession. This growth was driven in large part by continued demand for affordable indulgence; an increased interest in high-quality artisanal foods, including chocolate; and price increases due to rising ingredient costs.[12]

The chocolate industry raised prices and decreased portion size to offset higher costs of cocoa, sugar, and other ingredients. The product mix within the sector also changed with specialty, gourmet, and artisanal chocolates growing

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10. Companies and Markets, 2013.

11. Companies and Markets, 2013.

12. Mintel, 2013.

at rates that were close to 10%. The World Cocoa Federation's *Economic Profile of the U.S. Chocolate Industry*reported that 400 companies manufactured more than 90% of the chocolate in the U.S.[13]Larger companies derived profits from economies of scale in the supply chain and manufacturing processes, while smaller companies tried to differentiate themselves through specialty products and services.[14] Expected growth for seasonal and boxed chocolates was 13% each year through 2015. Halloween was the most important holiday for the mass-produced varieties, while Christmas, Easter, and Valentine's Day were most important for specialty and gourmet chocolates.

Competitors positioned themselves at various points in the market to satisfy these customer needs. Large, heavily branded products manufactured by Hershey's, M&M Mars, and Nestle dominated the lower end of this market with a retail price of about $5 per pound (454 g). In the middle range were premium chocolates including Ghirardelli, Godiva, and Lindt, retailing at approximately $15 per pound. At the high end of the price range were the local boutique competitors, like Mother Myrick's, which produced specialty confectioneries retailing at $30 per pound and up. Boutique competitors competed with the larger companies' products sold in local establishments and with each other when co-located in communities. There were no local boutique competitors in the Manchester, Vermont, area. However, Mother Myrick's was now competing with boutiques due to the increased use of the internet.

Chocolates and other confectioneries were readily available in most retail outlets, including convenience stores, groceries, supermarkets, and department stores. The same was becoming true for the premium brands. Boutique manufacturers typically sold their product in their own retail outlets. Boutique operations also made their products available through mail-order catalogues and through the internet. Catalogue and internet sales were especially important to the boutique manufacturers because they reduced dependence on the health of the local economy.

Employees and Organizational Responsibilities

Jacki and Ron employed 10 staff year-round and as many as 16 employees during peak operations in November and December. Jacki ran the retail side of the business and had two regular employees in the retail store. Ron managed the mail-order division, as well as the production activities. The company tracked revenues and costs for retail and mail order separately (see **Exhibit 1 – Income Statement**).

The key employees in the production facility included Ben, Hans, and Emily in the bakery; Debby and Kristin for candy production and packaging; Sarah for order control; and Kathy and Silesia for mail order and bookkeeping. Ben performed all of the scheduling for the bakery and Debby performed that function for the candy kitchen. Debby also had the responsibility for packaging and shipping. Hans and Emily worked with Ben in the bakery and could help Debby in the candy kitchen when needed. Kristin was Debby's year-round assistant. Debby could have four additional staff for packaging and shipping during the busiest times in late November and December. Sarah, the controller for the company, came in during the evenings and staged all of the orders. She would come into the shop for two hours every night, seven days a week, during the peak shipping season. Sarah checked every order against the original to make sure there were no errors in the packing slip. Kathy started out seasonally in 2002, and just came in for the mail-order season during November and December. She began working year-round in 2007. Ron described Kathy as critical for the back end of the operations:

> Kathy does all of our bookkeeping. She is the key person for our customers who order over the phone. They love her and all want to talk to her before they will talk to me. Everything that goes through Debby goes to either Kathy or me, and most of the time it's Kathy. We have a delicious schedule worked out between the two of us. She doesn't want to work full-time,

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13. World Cocoa Foundation, 2011.

14. Franchise Help, 2013.

preferring to be in her garden in the summer, and that happens to be our slowest time of the year. She likes to work a couple of days each week in the summer. As the mail orders begin to pick up in the fall, she'll go to three and then four days a week. For December through the early part of January, she works five days each week and then gradually tapers off as she catches up with all of the paperwork in the early spring.

Silesia assisted Kathy and worked as needed on a per diem basis. She entered all of Jacki's retail sales records into an Excel spreadsheet by date and processed all of the bakery mail orders. She also entered contact information for all the people Ron and Jacki met at promotional events. Ron stated:

> We collect contact information from the people we meet at shows when they register for our one-pound Buttercrunch giveaway. Silesia codes all of this information in the database with the date of the sale or the event. This way we can do our direct marketing campaigns to specific audiences and measure the effectiveness. For our largest samples, we can measure conversion rates for the number of contacts that turn into customers.

Ron provided opportunities for his employees to cross train in different functions until they found the job for which they were very well suited. For example, Ron described Emily's changing roles with the organization.

> Emily began working part-time with Debby on the candy side of the business in 2010, first on the Buttercrunch line and then with packaging and shipping until 2012. In 2012, we had a need in the baking side of the house and Emily gladly moved over. She has a passion for cake decorating and would eventually like to own her own bakeshop. She has been doing amazing work.

Ben provided another example of how employees could find their niche. Ben started with the organization in 2001 and worked his way up to head of the bakery department with total responsibility for scheduling and ordering. According to Ron:

> Ben happens to be our least skilled baker, but organizationally he's brilliant. You can't put a pastry bag in his hand, but he can make 300 Lemon Lulus in a day without breaking a sweat. He does all of the straight-up baking and then Emily and Hans do the finish work. All three of them can do the entire line, except Ben can't do any finish work. No piping, no spatula. He has big thumbs, but he's amazing with numbers.

Ron explained that the current situation was unusual. There had been only three master bakers in the 30-year history of the bakeshop. In each case, one person served as master baker, pastry chef, and head of the baking production. They were responsible for product development, scheduling, procurement, baking, and finish work. After their last master baker left in 2011, Ron decided to divide the responsibilities among the members of the baking team.

> We gave Ben responsibility for scheduling and procurement, which has been a good growth area for him because, even though he had the skills, he never had the chance to apply them. Ben knows what our seasonal requirements are through Jacki, and through our inventory management system, which tracks sales. His first year in the job, he thought he could keep it all in his head. That worked well until things got busy his first November and December. We let him go until it looked like he was close to a nervous breakdown, and then we threw him a life preserver. I pulled him out of the kitchen and the two of us scoped out how we thought it should be. We took a big piece of parchment paper and drew boxes for calendar days and he listed off all the key tasks. For example, morning baking happens every day. Sometimes it's for an hour and other times it will be two to three hours. It's going to be heavier on Friday and Saturday than it will be on Tuesday or Wednesday. He would then indicate times for packaging and shipping and identify when he needed his staff.

Hans and Emily were in charge of the creative side of the bakery operations including product development. Hans began working part-time for Mother Myrick's in 2005. He was a Swiss national, trained as a pastry chef when he was in high school, who then worked for the Marriott-Hilton chains opening up hotels and restaurants for 30 years. Ron explained that everyone was clear on their duties and were willing to help in areas outside their areas of expertise.

My staff is great. They love to work, and they take responsibility for the product. When we make the Buttercrunch, everyone steps into the process. Emily, Ben, and Hans from the bakery join Debby and Kristin. They manage other duties around the Buttercrunch production. The staff has discretion. I don't micromanage Ben's or Debby's labour or production schedules, but I do stay aware and informed. I'll make suggestions where I think it's needed. I'll also weigh in on out of the box decisions where they feel uncomfortable making a decision.

Seasonal Production

Ron tried to make maximum use of their production space. They accomplished this by focusing production on specific products during certain times of the year. Demands on the candy kitchen dropped during the summer, even though Manchester was a tourism town. The company didn't ship a lot of chocolate in the summer because of its heat sensitivity. Christmas was by far their biggest season with 65% of the candy sales. Easter was next, with Valentine's Day a distant third. Bakery operations were more even throughout the year because of daily demand of everyday items and cakes for special occasions. Because of this, they dedicated summertime to Buttercrunch production. Ron explained:

> We use this time to get ahead on Buttercrunch, which we ship toward the end of the year. Demand for Buttercrunch is highest during November and December, and we could never keep up. The product has an incredibly generous shelf life frozen – more than a year. We start around mid-May and will produce Buttercrunch until mid-August. We package about 60% of it into the gift boxes right away. We palletize the product and ship it to our freezer storage facility in New York State. In November, we start calling the pallets back to fill the orders. We keep the remaining Buttercrunch here loose, in 30 to 40-pound cases in our 10–by 20–foot [18.5 m^2] walk-in freezer located outside near the loading dock. The space is totally inadequate for our needs. We end up storing some of the product on our loading dock for a few weeks in late November and December. It's certainly cold enough outside.

Debby did all of the scheduling for the Buttercrunch production. Ron was part of the Buttercrunch cooking team. Ben and Hans helped with cooking and chocolate dipping as Debby needed them; otherwise, they worked the bakeshop. By the middle of August, they were finished with Buttercrunch production and began working on more time sensitive products like truffles, caramels, and brittles. According to Ron:

> We produce those products through November. If we have done it right, we stop candy production just before Thanksgiving and convert the candy kitchen into a staging area for packaging. We use every flat surface, the counters, tabletops, and even the water-jacketed table. At that point in time, we shift our production emphasis to baked goods for mail order and the retail store. For the retail store, it's our decorated cakes for formal events like birthdays and anniversaries and our Lemon Lulu cakes. The Lemon Lulu is our big deal bakery item for mail order, as well as our bestselling item in the retail store.

The bakery went into aggressive baking mode after Thanksgiving. The reasoning behind the delayed start was primarily due to storage space. A case of Buttercrunch with a retail price of $185 took up less space than that required for a single small Lemon Lulu, which sold for under $30. Storage did not degrade either line of products. A Lemon Lulu stayed fresh for eight to ten days on the counter, and for six months frozen. Ron explained that they were able to extend daily bakery operations by staggering the arrival and departure times of employees.

> During those two months, going to staggered shifts extends the oven time for two to three hours each day. We can do this and avoid a second shift. I think working people in the middle of the night is personally degrading and demoralizing. It's better to have people arriving at 6:00, 9:00 and 11:00 in the morning. This allows us to get a twelve-hour run out of the ovens rather than six or seven hours.

The company also dealt with limitations of the physical space by making dual use for the candy kitchen as an area for extensive pack and ship operations. Ron described his rationale:

> You can't build a church for Easter Sunday. On that one day, you'll have people standing in the hallway, but every other weekend there's plenty of room. We do the same thing here. That's why the candy production stops so that we can meet the demands for packaging. What would we do with another 5,000 square feet for 11 months out of the year?

In December, they brought computers and telephones out of storage and set up extra stations for handling phone and internet sales. Debby's workstation for candy scheduling became Silesia's workstation for data entry and phone sales. Their focus was almost entirely on order processing and fulfillment. Ron explained:

> We worry about paying bills during this busy time. We are so busy with mail order that three months of sales receipts just pile up. The only bookkeeping that Kathy does in November and December is putting bills in, giving me a cash-in current report, writing checks, and getting them mailed. On January 1, Kathy has the daunting task of putting three months of sales into the database. Some of these are complicated. We take orders, but credit cards aren't charged until the orders are shipped. Kathy has to match up the order, which can be advanced dated, to credit card payments, which can't be advanced dated. In 2013, I kept Silesia on for the month of January to help Kathy. It might take a couple months for her to catch up.

Order Processing, Direct Marketing, and Information Management

Mother Myrick's recorded orders in M.O.M., the multichannel order manager inventory management system.[15] They entered contact information, including the name, company name (when applicable), address, phone number, and email for both the "bill to" and "ship to" customers. They assigned each customer a number that facilitated tracking and direct marketing; and listed all items in the entire catalogue with quantity, price, and total. They also used M.O.M. to record gift message, requested arrival, assigned shipping date, shipping method, optional discounts, subtotals for merchandise and shipping, order total, payment method, date entered, and entry person for each order. Sometimes they processed orders right away. Other times they delayed processing so that the product arrived in the future. According to Ron:

> M.O.M. is critical to keep us on track. We can retain orders for six weeks or more. We might get an order at the end of October for a December delivery. Sarah comes in the evening, looks at the order form, looks at the packing slip, and makes sure everything matches. We keep the paper copy of the order form and file them by the date the order was placed. At the end of the year, we put all of the order forms into a storage box. Three or four years later, we send them to the shredder.

The system also provided a field to record comments that helped the organization provide tailored service to each of their customers. Ron explained that Kathy was much better at recording useful comments.

> Kathy writes comments on everything. I'm not that disciplined, but I appreciate it when I need it. Here's an example that's Kathy's doing: "birthday is December 2, 1930, name is Shelomith but wants to be called Lilly, husband passed in 2011." Everything in the system is searchable. Lily's been ordering from us since 2001. I can look up all of the people that she has sent our products to and what she sent them.

Ron also managed his customer list with information from M.O.M. He could run a list of buyers and the number of years they purchased product. Ron found that 50% of first-year buyers return the next year and 75% of second year buyers

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15. Freestyle Solutions, n.d.

return for a third year. Retention rate for customers who have purchased orders four years in a row was greater than 90%. Ron explained how he used this information.

> I can go in and look at my 2009 buyers who didn't reorder. I can look at how many orders they produced and what was the gross revenue for them. Some buyers placed 14 orders in their lifetime with us and stopped. Others placed one order and stopped. I can't do much about that one, but what happened to the person who placed orders for 14 years? Kathy and I were both surprised this year [2013] when a customer who had been in our system since 2000 ordered for the first time. They gave us their name and address in our store to get on our mailing list.

Although Ron and Kathy had the ability to focus on a particular customer, they did not normally use that information for direct marketing. According to Ron:

> We seldom segment our email list. Everybody gets it whether they like it or not. We subcontract the email function. They can tell me the numbers for people that opt out and addresses that are no longer valid. The system no longer sends messages to people after the address is rejected five times.

Beyond email, the company sent catalogues and post cards to people on their mailing list, and would participate in shows where they collected names through their Buttercrunch giveaway. They coded all of this information in M.O.M. This allowed them to track the relative success of their marketing efforts. The company had been increasing advertising expenditures the last four years: $16,000 in 2009, $22,000 in 2010, $26,000 in 2011 and $32,000 in 2012. Ron was interested in investigating the effects of different marketing efforts and planned to experiment with different techniques on random segments of the customer base in the coming year.

Ron could also pull sales information by period to show the company's activity and could manage inventory from the time they put it into the system. He preferred analyzing the data using a spreadsheet, rather than rely on the reports generated from M.O.M.

> I don't find the spreadsheets generated by M.O.M. helpful. I can dump the data into Excel and figure how many pieces we have to make. We break the pieces into weight and break the weight into the batch size. We then know how much we have to make, and we just go make it. We base how much to make each year based on history. We sold 100 boxes of these last year, so let's produce 110 this year; or last year we produced 110 and only sold 90. So, let's just do 95. My Excel knowledge is not sophisticated enough to produce graphs of products made and sold over a period of years.

Shipping

The cost of shipping in a safe and effective manner was a major concern Mother Myrick's, as it is for the entire specialty food industry. There were a couple of reasons for this. The first was the price of the product compared to the price of shipping. According to Ron:

> People don't mind paying $10 shipping for a $500 cashmere sweater. It's different when it costs $10 to ship a $30 cake. There is a limit to how much we can pass on to our customer.

The second reason was the time it took for shipping compared to the cost of shipping. At one time Mother Myrick's used United Parcel Service (UPS) exclusively for all of their shipping needs. They now used the United States Postal Service (USPS) for about 80% of their business. Ron explained:

> I can ship a Lemon Lulu to the west coast via UPS ground for about $11. For an extra $1 I can get it there with the Post Office priority mail in two days. We charge a flat fee of $10 to ground ship a Lemon Lulu. We'll lose a little shipping to California and gain a little when shipping in New England. It all averages out and avoids presenting a complicated shipping

schedule to the consumer. In 2011, we began comparing the outcomes for shipping with the Post Office compared to UPS, and we found that the Post Office was as good, if not better.

The company invested in shipping software that allowed the operator to determine which company to use and then print the appropriate label. The software also allowed the operator to input a universal shipping code and get a recommendation on the most cost-effective method for shipping (e.g., UPS or USPS). The shipper could then choose the best mode of transportation and print the appropriate label. Ron explained why they had not fully implemented this feature:

> We don't have the shipping infrastructure to use this feature. On any given day, we might have 500 packages that we need to pick, pack, and have ready to ship for the carrier to pick up at 3:00. There's just not time to sort the packages by carrier.

The organization also invested in custom packaging for their Lemon Lulu cakes. They packaged the cakes into corrugated cardboard shipping cases right after baking, and then stored them in the freezer. To ship, they pulled the cake in its box out of the freezer, inserted the packing information, placed a shipping label on it, scanned it, and put it out to the loading dock.

Retail Operations

The retail store was open seven days a week – Monday through Friday from 10:00 a.m. to 5:30 p.m., Saturday from 9:00 a.m. to 6:00 p.m. and Sunday from 10:00 a.m. to 5:30 p.m. The store operated every day of the year, except Thanksgiving, Christmas, Easter, and a few days at the end of April to conduct spring-cleaning and inventory. Their company's fiscal year ended on April 30.

The storefront featured custom-made display cases from the original downtown location. Buttercrunch took centre stage, surrounded by assorted caramels, truffles, brittles, and fudge. Every item in the display cases was produced in the company's bakery or candy kitchen. Some items along the walls, like chocolate in foil, jellybeans, and hard candies, were purchased through a supplier in bulk and then packaged on–site. Jacki received their own products from the candy kitchen in prepackaged configurations sold through the mail-order catalogue, as well as in bulk. Jacki described the process:

> They send over much of the candy product in bulk. We package the chocolates for seasonal promotions and use standard and small specialty boxes. We also try for unique presentation. We have some little presentation boxes in two heights. One has four trays and the other has two. It is a nice alternative to the traditional heart box.[16]

They also displayed baked Lemon Lulus, coffee cakes, tarts, pies, and cookies in the custom-made cases. An item that was featured in the retail store, but not available through mail order or on the internet, were the Lemon Lu-Lettes, a miniature version of their bestselling bakery item. Jacki explained the history behind this lemon cake.

> The recipe belonged to Ron's Aunt Lulu. It's a pound cake that's lemony, not too sweet, and covered with a fresh lemon glaze. Lulu came to visit from Old Lyme, Connecticut, and brought her own birthday cake. At the time, we were baking cookies and things at home, but hadn't yet opened the bakeshop. We followed her recipe and brought the finished product into the store. Customers loved them. That was over 30 years ago. Today they are our most popular bakery item. We started making the Lu-Lettes at a customer's request. She had been buying the large Lulus for a fundraiser dinner, serving everyone a slice. At some point, there were just too many people, and she asked if we could make them in an individual size. We

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did the research, tested several pans, and ended up with the Lu-Lette. The day after the fundraising event, we had people coming in and asking, "Where are those little Lulu cakes?" We've been selling them in the store ever since. It's fun!

Jacki sold fresh and frozen pies out of the retail store that she baked in an oven in the back. The product mix changed to coincide with holidays and seasons, as did the store decorations. Jacki described their current emphasis for Valentine's Day.

> Right now, we are featuring heart cakes produced by our bakery. Hans and Emily are the creative force behind the designs. We are packaging our Lu-Lettes with little chocolate hearts to make them a Valentine's gift. We normally sell the little cakes in six-packs or larger quantities. We always have Lemon Lulu and coffee cakes, cookies, and brownies on hand in the store.

Giving Back to the Community

Ron and Jacki considered themselves active members of the community and did their part to support the town and its events. Mother Myrick's began its annual Easter Egg Decorating Contest in 1981. Entire families participated in hopes of winning "Annabelle," a 30-inch (76 cm) tall chocolate bunny. In 1989, Jacki started a summer reading program for children. The program rewarded children with special treats and hidden treasures from the bakery for reading and making projects. In 1991, to help key charitable causes such as Mothers Against Drunk Drivers (MADD) and The Susan G. Komen Foundation, Jacki began a Decorate a Cake for Mom event for Mother's Day.

> All proceeds go to charity. The kids have a ball and Mom gets a personally decorated cake. We'll have the entire store filled with children from four to eight years old. They each get a vanilla cake with butter cream frosting and all the supplies to decorate it.

Mother Myrick's also supported the local community through their participation in the Taste of Vermont event and by being a part of Vermont Public Radio Listener's Picnic. The company was a long-term underwriter for WAMC Public Radio, a family of radio stations serving southern Vermont, western Massachusetts, and the northeastern part of New York.

Thoughts About Continued Growth and Succession Planning

Jacki and Ron had not discussed succession with the staff but acknowledged that there may be some level of concern. Ron jokingly quoted Kathy, while in her presence:

> Kathy says to me, "Ron, you are the only one who takes care of payroll. What happens if you and Jacki take a vacation in Vietnam and drown in Halong Bay? What are we going to do? How are we going to ensure that we continue operations and get paid?"

Kathy laughingly denied the quote, stating that Ron was definitely paraphrasing. She did seem to agree with the sentiment, which nudged Ron to reply:

> We just haven't had the inertia to make that happen. Kathy goads me a little bit. It's not because Kathy wants control or that I don't want to give up control. There are some things that I really like to do, and there are other things that I feel are proprietary in nature. Even relative to our staff, where we have a good and open relationship. That said, at some point things won't be able to continue the way they have in the past. We have a good thing going and no one wants to see it end.

Ron thought they had four basic options. They could have sold the business outright, brought in a partner, facilitated an employee takeover, or liquidated the assets. Liquidation was his least favourite of the options. Beyond the physical assets,

the company's name, mailing list, products, and recipes would have some value. He found employee takeover intriguing, but they currently did not have any mechanism in place that would create the capital necessary to guarantee an employee buyout. The employees would have to pool their own money. Ron was not sure that any of them had it. His favourite scenario was finding a couple in their mid-30s who were interested in the business. The situation was reminiscent of their situation 35 years ago. He thought they could work with the new partners and train them on the intricacies of the business, while retaining the culture of the organization and protecting the employees' future. Ron expanded on this thought:

> They would have to put some skin in the game, maybe $100,000. The money would go into the business rather than our pockets. We could use the money to make some necessary improvement to operations, improve efficiencies, and do some concerted marketing. The idea would be to grow the business far enough, to raise sufficient funds in the future to buy us out.

Ron was also considering the possibilities for expansion on their own. He thought this would be viable if Jacki and he continued to stay active in the business for another 5-10 years. That prospect did not seem unreasonable. They were both in good health and Ron's parents lived actively, well into their 90s. Ron described a recent conversation he had with Kathy.

> I was talking to Kathy about our loan and that fact that the balloon payment was due soon. I was thinking about our options. The current loan is at a variable rate, and I would like a fixed interest rate on the next loan. We could get a loan to pay off our existing debt and then get some additional capital. Possible growth avenues included improving the pack and ship infrastructure and upgrading some equipment. I created a one-page business statement, gave it to the bank, and asked them to give me a quote for rolling over the current balance, consolidating two other loans, and adding $90,000 for improvements. Ultimately, as the people responsible for repaying the loan, we need to decide whether, at our ages, we want to take on that added liability. If we were interested in getting out, we would not do any of that. We would preserve capital, cut expenses, and improve the bottom line to make it attractive for investors. We are healthy enough that we have the option to try to expand.

Whether they decided to continue on their own or with partners, Ron believed that some progress needed to be made in building the confidence of his current staff to act independently and take on some of his own responsibilities. He explained:

> About a month ago, I get a call from Ben. "We had an accident." I was immediately concerned that someone was hurt and asked what happened. Ben explained that they lost track of the temperature of the toffee, and it overcooked. I replied, "that's not an accident, it's a mistake."' He wanted to know if they should make another batch. I say, "Is Debby expecting it?" and he replies, "Yes." I say, "well there's your answer." These are good people, but they don't feel confident making decisions themselves. Here is another story. Jacki and I had some things we had to do a week and a half ago, and it put a huge burden on Debby, who had to deal with the Valentine's Day packaging, plus the end of our January sale. In the last few days of January, the orders just bombed in, and there were a couple of hiccups. So, I go over to Debby the next day and say, "a little stressed out?" I suggested to her that, if this situation occurred again in the future, she could ask Ben to give her Emily for a few days or talk to Kathy to see whether they had to process all of these orders immediately. I realized that I had never given Debby the authority to make decisions like these. This was a learning experience for both of us. I don't want people to be stressed over their jobs.

Ron retained responsibility for much of the strategizing, planning, marketing, and management of operations. He suggested that he would like to give that up, and was planning to ask Debby if she would take on a salaried position as director of operations and assume some of those responsibilities. He thought that would free him up for other activities.

I still want to make candy. Kristin does all of the hand dipping now, all the clusters. She's great, I can just help out. Kathy does all of the bills. Ben and Debby handle operations. What I would love to do is just the back-end planning, and then be on the road again selling. I'd be happy hopping in the car with $5,000 worth of Buttercrunch and heading off to do a show.

Exhibits

Exhibit 1 – Income Statement

Income Line Items	2012	2011	2010	2009
Sales				
Retail	457,370	403,883	382,995	382,078
Mail Order	346,848	373,849	330,145	277,223
Total Sales	**804,218**	**777,732**	**713,140**	**659,301**
Cost of Goods Sold				
Retail	395,669	301,499	302,566	301,675
Mail Order	213,963	262,237	213,557	200,876
Total Cost of Goods Sold	**609,632**	**563,736**	**516,123**	**502,551**
Operating Expenses				
Advertising	32,241	25,830	21,850	16,123
Employee Benefits	11,706	10,296	8,650	8,650
Payroll Taxes	4,438	5,552	4,538	4,538
Officer Salaries	53,500	68,193	62,093	56,340
Other Operating Expenses	67,367	68,679	63,588	39,612
Total Operating Expenses	**169,252**	**178,550**	**160,719**	**125,263**
Income from Operations	25,334	35,446	36,298	31,487
Gain (loss) in Sale of Fixed Assets	(2,304)	5,000	6,685	950
Interest Income (Expense)	(5,349)	(6,789)	(8,099)	(11,799)
Total Income from Operations	**17,681**	**33,657**	**34,884**	**20,638**
Income Taxes—Current	250	250	250	250
Income Taxes—Deferred	8,364	4,411	7,591	9,293
Net Income	**9,067**	**28,996**	**27,043**	**11,095**

Source: Independent auditor's reports prepared for Mother Myrick's Confectionery for 2009 to 2012.

Exhibit 2 – Balance Sheet: Assets and Liabilities

Balance Sheet Line Items	2012	2011	2010	2009
ASSETS				
Current Assets				
Cash	97,105	79,281	63,673	55,401
Inventory	70,362	59,517	58,488	59,870
Deferred Tax Asset	6,533	14,895	19,308	26,899
Total Current Assets	**174,000**	**153,693**	**141,469**	**142,170**
Property, Plant, and Equipment				
Leasehold Improvements	138,927	138,927	138,649	131,859
Equipment	297,155	293,179	293,872	302,535
Furniture and Fixtures	97,944	107,394	107,394	115,227
Vehicles	8,250	8,250	8,250	8,250
Total Property Assets	**542,276**	**547,750**	**548,165**	**557,871**
Less Accumulated Depreciation	426,397	413,175	404,294	398,341
	115,879	134,575	143,871	159,530
Other Assets	1,500	3,000	3,000	3,000
Total Assets	**291,379**	**291,268**	**288,340**	**304,700**
LIABILITIES AND SHAREHOLDERS' EQUITY				
Current Liabilities				
Notes Payable—Current Portion	27,740	31,600	18,000	17,074
Loans Payable—Credit Cards	34,735	12,220	7,061	16,306
Accounts Payable	13,725	10,547	5,450	4,011
Accrued Wages	9,092	8,772	6,786	2,675
Sales Tax Payable	835	270	296	138
Corporation Taxes Payable	250	250	–	250
Total Current Liabilities	**86,377**	**63,659**	**37,593**	**40,454**
Long-Term Liabilities	blank	blank	blank	blank
Notes Payable—Non-Current Portion	77,542	103,745	193,890	214,786
Loans Payable—Officers	89,945	95,416	57,405	77,051
Total Long-Term Liabilities	**167,487**	**199,161**	**251,295**	**291,837**
Shareholders Equity				
Common Stock, No Par Value	28,387	28,387	28,387	28,387
Retained Earnings	9,128	61	(28,935)	(55,978)
Total Shareholders Equity	**37,515**	**28,448**	**(548)**	**(27,591)**

Balance Sheet Line Items	2012	2011	2010	2009
Total Liabilities and Shareholders' Equity	291,379	291,268	288,340	304,700

Note: The amounts listed as "Loans Payable – Credit Cards" reflect short-term interest-free credit card financing used by the proprietors to improve cash flow.

Source: Independent auditor's reports prepared for Mother Myrick's Confectionery for 2009 to 2012.

Exhibit 3 – One-Page Business Plan

MOTHER MYRICK'S CONFECTIONERY
Fine Chocolates & Cakes

January 2013

Background:

The fudge Factory, Inc. had been in original ownership since its formation in 1977. Located in Manchester Center, Vermont for the past 35 years, the company is reorganized as a manufacturer of upscale award-winning chocolates and cakes that are sold through its retail store in Manchester and online to its mail-order customers. In addition to the retail location, the company operates a 4000 sq. Ft. Production and mail order fulfillment facility in the Manchester Valley Industrial Park. The company employs 12 people year-round (16 during the Christmas season). Since the recession of 2008, the company has enjoyed consistent sales growth each year. Approximately 55% of the company's revenues are generated at the retail store and 45% through its direct marketing channels.

Purpose of this Submission:

The company is at capacity to meet peak seasonal demands from its web and catalog division. This also impacts the company's ability to meet the demands of its retail division during high-demand periods. This is the right time for the company to seek funds for capital improvements while consolidating its outstanding debt.

The company has a term loan with Berkshire Bank that matures in February 2013 with an outstanding balance of $73,628. The company is seeking funds to retire that loan, pay down two smaller high-interest loans totaling $12,000, and seeks additional capital of $90,000 to purchase and upgrade manufacturing and packaging equipment along with leasehold improvements to its pack and ship facility.

Funds will be allocated as follows:

Allocation of Funds

Item	Amount
Chocolate and baking processing equipment	$65,000
Packaging equipment	$9,000
Pack/Ship leasehold improvements	$10,000
Software and Server upgrades	$6,000
Berkshire Bank loan	$73,628
Loan payable A. Verdi	$8,000
Loan payable F. Baker	$4,000
	$175,638

Encl.

Fudge Factory, Inc. 2010 and 2011 Financial Statements
Fudge Factory, Inc. Federal tax returns FYE 4/30/2011 and 2012
Principal's personal financial statement dated 1/15/2013
Principal's Federal tax returns for the years 2010 and 2011

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Exhibit 4 – Jacki and Ron Mancini Early Years

Exhibit 4 – Jacki and Ron Mancini Early Years. At the top a bearded Ron and youthful Jacki prepare fudge. At the centre, Ron and Jacki pose for photos in the store. At the bottom, the couple serves ice cream at the marble-topped counter. [See image description.] **Credit:** Photos courtesy Jacki and Ron Mancini. Used with permission.

Exhibit 5 – Mother Myrick's Candies, Chocolates, and Fudge
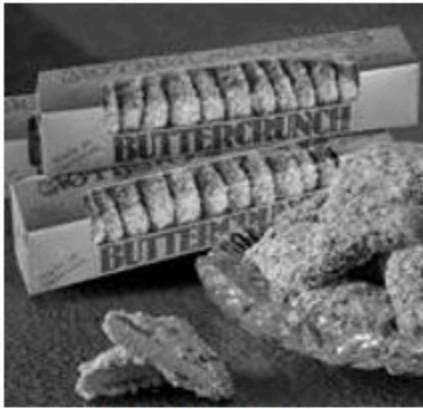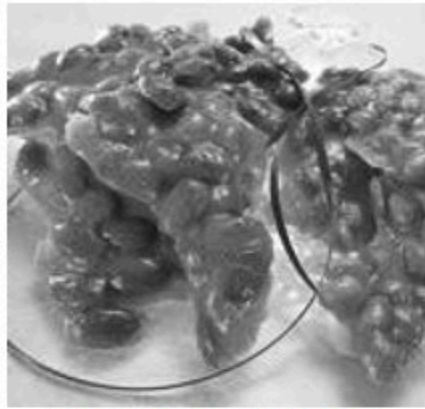
1. Buttercrunch
2. Old Fashioned Brittles
3. Pecan Myricles
4. Sea Salt Caramels
5. Hand-Dipped Glace' Apricots
6. Chocolate Almond Bark
7. Truffle Assortments
8. Fudge Sampler
9. Ron's Hot Fudge Sauce

Exhibit 5 – Mother Myrick's Candies, Chocolates, and Fudge. [See image description.] **Credit:** Photos courtesy of Mother Myrick's Confectionery. Used with permission.

Exhibit 6 – Mother Myrick's Bakery Favourites
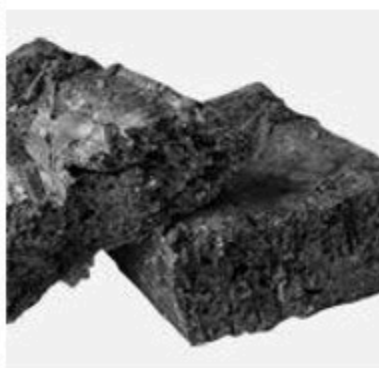
1. Lemon Lulu Cake
2. Sour Cream Coffee Cake
3. Linzer Tort
4. Raspberry Almond Hearts
5. Rugelach
6. Panne Jubilare
7. Chocolate Chip Cookies
8. Double Chocolate Brownies
9. Gingersnap Cookies

Exhibit 6 – Mother Myrick's Bakery Favourites. [See image description.] **Credit:** Photos courtesy of Mother Myrick's Confectionery. Used with permission.

Exhibit 7 – Mother Myrick's Proprietors Jacki and Ron Mancini with Pies at the Retail Location

Exhibit 7 – Mother Myrick's proprietors Jacki and Ron Mancini with pies at the retail location. **Credit:** Courtesy Mother Myrick's Confectionery. Used with permission.

Exhibit 8 – Candy Kitchen and Shipping Area, February 2013 Plant Visit

Exhibit 8 – Candy Kitchen and Shipping Area, February 2013 Plant Visit. The candy kitchen featured a large conveyer belt, multiple cooling racks, and an upright freezer. [See image description.] **Credit:** Photos by Paul W. Thurston, Jr. Used with permission.

Image Descriptions

Exhibit 4 – Jacki and Ron Mancini Early Years

A photo collage of five black and white images:

1. Top left: Man stirring a large pot.
2. Top right: Woman and man hold the large bowl and scrape out the contents.
3. Middle left: Man and woman with arms around each other, looking at the camera and smiling.
4. Middle right: Woman posing with a box of chocolates, looking at camera and smiling.
5. Bottom: A woman and man behind the counter serving two customers, a man and a woman, with an ice cream sundae.

[back]

Exhibit 5 – Mother Myrick's Candies, Chocolates, and Fudge

A photo collage of three rows of three images each showing close-ups of the following products:

1. Buttercrunch
2. Old fashioned brittles
3. Pecan Myricles
4. Sea Salt Caramels
5. Hand-dipped Glace Apricots
6. Chocolate Almond Bark
7. Truffle Assortments
8. Fudge Sampler
9. Ron's Hot Fudge Sauce

[back]

Exhibit 6 – Mother Myrick's Bakery Favourites

A photo collage of three rows of three images each showing close-ups of the following products:

1. Lemon Lulu Cake
2. Sour Cream Coffee Cake
3. Linzer Tort
4. Raspberry Almond Hearts
5. Rugelach
6. Panne Jubilare
7. Chocolate Chip Cookies
8. Double Chocolate Brownies
9. Gingersnap Cookies

[back]

Exhibit 8 – Candy Kitchen and Shipping Area, February 2013 Plant Visit

Three black and white photos show 1) at the top, the conveyer belt, 2) at the bottom left, the cooling rack in the foreground, and small worktables in the background, and 3) at the bottom right, the upright freezer with sink station to the right.

[back]

References

Barry Callebaut. (2023). *Products*. https://www.barry-callebaut.com/en-CA/manufacturers/product-filter.

Boehm's Candies. (n.d.). *Shop*. https://boehmscandies.com/store/

Burr & Burton Academy. (n.d.). *About: BBA by the numbers*. http://www.burrburton.org/

Companies and Markets. (2013). *U.S. confectionery market to reach a value of 37 billion by 2017*. Companies and Markets. http://www.companiesandmarkets.com/News/Food-and-Drink/US-confectionery-market-to-reach-a-value-of-37-billion-by-2017/NI7576.

Consumer Financial Protection Bureau. (2020, September 9). What is a balloon payment? When is one allowed? https://www.consumerfinance.gov/ask-cfpb/what-is-a-balloon-payment-when-is-one-allowed-en-104/

Equinox. (n.d.) *The Equinox story: A living legend, still evolving*. Equinox Golf Resort and Spa. https://www.equinoxresort.com/vt_resort/history/

Franchise Help. (2013). *Chocolate industry and analysis – 2013*. Retrieved August 17, 2013, from http://www.franchisehelp.com/industry-reports/chocolate-industry-report

Freestyle Solutions. (n.d.). Inventory, order & customer management software. http://www.dydacomp.com/Products/Overview

Mintel. (2013). *Market research report, chocolate industry – US – April 2013*. Retrieved August 17, 2013, from http://store.mintel.com/chocolate-confectionery-us-april-2013

Mother Myrick's Confectionery. (2023). *About us.* http://www.mothermyricks.com/aboutus

Orvis. (2023). *About the Orvis company.* https://www.orvis.com/about-us.html

Retail Confectioners International. (n.d.). Retrieved June 20, 2013, from http://www.retailconfectioners.org

Town of Manchester. (n.d.). *Town of Manchester history*. Retrieved June 13, 2013, from http://www.manchester-vt.gov/content/town-manchester-history

World Cocoa Foundation. (2011). *Economic profile of the U.S. chocolate industry*. https://www.worldcocoafoundation.org/wp-content/uploads/Economic_Profile_of_the_US_Chocolate_Industry_2011.pdf

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IS ONLINE HIRING IN THE HIGH-TECH SECTOR BETTER?

Kevin McDermott

It was early in March 2021 when Asha Jemerson, director of human resources at Learning Management Pro (LMP) saw the news that mass vaccinations for COVID-19 were being rolled out to the general population. Businesses and offices were preparing to reopen, and LMP was in the planning stages for its workforce to come back into the office. Over the previous year, LMP employees had been working from home; all of the hiring and onboarding completed by Jemerson and her team had been done without the ability to conduct in-person meetings. While this had been challenging, she felt as though they had performed well – so well, that she was not sure that LMP should switch back to its pre-pandemic approach to hiring and onboarding. She was in a difficult position, trying to assess which components of the new virtual hiring processes to keep, and which should discontinue. She was happy to be in this position though; a year previous, Jemerson and her team were in the midst of a worldwide pandemic.

The Pandemic Hits

In February 2020, Jemerson read an email from senior management informing all staff that they would be working from home due to the emergence of COVID-19 infections around the world. Given this new corporate policy, Jemerson's mind immediately began to consider the implications that working from home would have on their forecasted hiring during that busy time of year. In-person interviews, information sessions, and office tours were no longer possible, but they remained important parts of the hiring process – these processes needed to change quickly. There were advantages to in-person hiring and onboarding, but she knew that there were also some advantages to hiring employees entirely virtually. This pandemic was going to change how LMP conducted hiring, but perhaps some of those changes would be for the better.

Out of an abundance of caution, LMP employees would not be coming back into the office for the foreseeable future. While lock-down rules had not yet been ordered by the Ontario government, LMP executives knew it was coming and saw no need to wait for the order. By sending employees home prior to the government mandated shutdown, they could test out their systems and allow some employees to go back into the office without breaching the forthcoming rules. LMP is a technology-based company, employing staff already comfortable with the use of video conference, filesharing and text-chat technologies, so while shifting workflow to avoid the office would be challenging, it would certainly be achievable.

Jemerson began to think about some of the most pressing organizational changes that she and her team would need to implement. There was little time for planning. The human resources (HR) department would need to take action immediately, which meant there was significant risk of making mistakes. As director, Jemerson was part of the team that managed company-wide talent management initiatives, compensation strategies, learning and development, and ensuring alignment between HR operations and corporate strategies. There were many organizational processes already in place to help with these functions, but most of them involved in-person meetings, room bookings, travel, group orientation sessions, etc. Because employees were not

> The HR department would need to take action immediately, which meant there was significant risk of making mistakes.

allowed to go back into the office except for extraordinary circumstances, and travel was also banned, these processes needed to change.

The stay-at-home policy and the forthcoming government mandated shutdown was complicated by the fact that LMP was growing rapidly. Not only was it bringing on new clients quickly, it was also growing its employee headcount at a commensurate rate. Jemerson and her team needed to continue hiring and onboarding new employees at the same pace as before, if not faster.

LMP Background

At the start of the COVID-19 pandemic, LMP employed approximately 1000 full-time employees. While it had offices around the world, the bulk of its employees worked out of its offices in Ontario, Canada. The office is a thoughtfully renovated and high-ceilinged space in a trendy part of the tech-focused region. LMP produces software and services for the educational sector, including universities and colleges. LMP required skilled software developers with knowledge of a variety of technologies, including web development, application development, and database management. In addition to their own software, LMP engineers needed to integrate their solutions with their clients' heterogeneous infrastructures – a challenging task requiring a breadth of technological knowledge. The region in which LMP operated offered a robust pipeline of highly qualified software developers, thanks to a large cluster of other technology-based firms in the region. The region also has a steady stream of new graduates from several higher-educational institutions. LMP makes good use of the local schools for hiring co-op students for intern positions, creating a funnel for full-time hires after graduation.

LMP was well known as a good place to work, receiving external accolades related to its positive work environment. Factors such as this have contributed to a favourable recruitment environment for LMP, helping it quickly fill vacant positions with skilled local workers. In March 2020, however, despite strong hiring tailwinds, Jemerson and the rest of LMP's HR department had to quickly change their approach to hiring and onboarding; they had many open job postings and LMP had a lot of work to be done.

Pre-Pandemic Hiring at LMP

Prior to the pandemic, LMP utilized a multi-step hiring and onboarding process, including both virtual and in-person activities (see **Exhibit 1– Pre-Pandemic Hiring at LMP**). The first step after a candidate was short-listed for an interview was an HR interview between candidates and a representative from the HR team. These pre-screening interviews were always done over the phone. During pre-screening interviews, HR team members would validate key information about a candidate's application and assure alignment of expectations related to the position. These interviews bring to light fundamental issues related to fit between the candidate and LMP – issues such as salary expectations, job location, eligibility to work in Canada, etc. It is also an opportunity for the candidate to self-select out from the hiring process, based on job factors that are important to them. Pre-screening interviews do not typically delve too deeply into the technical elements of the job; these are left for the next step in the interview process.

Usually, Jemerson and her team would conduct a second phone-based interview that assesses job-relevant skills. As a software company, many of the positions require technical skills – many of which can be assessed through a technical screening interview. Technical screening interviews can include problem-based or factual questions related to technologies necessary for the job. Ideally, these interviews would be conducted by LMP employees who have subject matter expertise, but if the questions are closed-ended with specific answers, these interviews may be conducted by non-technical employees.

Candidates who passed the two screening interviews progress to their first in-person interview. As Jemerson said,

Coming into the office is an opportunity to meet with the team. Some teams would do a deeper assessment of skills. If it's a software job, it may be a coding test. If it's an instructional design position, it may be a mock course – asking candidates how they would go about designing it. If it's a business development position, candidates may be asked to make a sales pitch.

These in-person interviews were conducted by the hiring team and/or the hiring managers, fulfilling several functions in the candidate selection process. First, the in-person interviews provided a more fulsome opportunity for subject matter experts to assess candidates' job-related knowledge, skills, abilities, and other attributes. In contrast to the technical screening interviews, candidates had a broader set of opportunities to show their competencies when speaking with the actual team that the successful candidate would be working with. For most positions within LMP, communication skills were important criteria for hiring, including non-verbal communication such as hand gestures, eye contact, body language, and posture. The assessment of non-verbal communication was easier to do in an in-person setting. Also, bringing candidates into the office provided the opportunity to assess skills in the actual work environment where the job would be situated, providing a higher level of realism and making assessment measures more valid.

A second function that in-person interviews fulfilled was to provide candidates with realistic job previews. This was an important part of the candidate selection process for LMP because it provides candidates with an accurate picture of the job. Ensuring a good candidate–job fit is a two-way road that allows candidates to self-select out of jobs that do not align with their personal preferences. Realistic job previews should be done in situations as close to reality as possible; therefore, in-person interviews provided good opportunities for candidates to see the internal workings of LMP.

The third reason that in-person interviews were important is that inviting candidates into an office allows for a positive candidate experience. "We want to connect with people that are coming in. Candidate experience has been a huge priority for us," said Jemerson. Whether it is in LMP's Kitchener, Toronto, Vancouver or Winnipeg offices, the intent was to have candidates leaving the building with a positive experience. The offices' environments are nice, and candidates were treated well, so the in-person interview became an opportunity to convince the candidate that LMP was a great place to work. The competition for top talent was high in the software development industry, so highlighting a compelling office environment was an important part of the recruitment process.

Onboarding of new employees was done in person. New hires would come to one of LMP's offices to fill out paperwork, including tax and benefits enrolment forms during their first day of employment. From 9 a.m. until 12 p.m., orientation sessions would bring new hires up to speed on organization-level content, including an introduction to the company and information about the various departments. There was also the opportunity to meet with other new hires being onboarded on the same date. At this point, employees would be issued any necessary hardware including laptops and other computer equipment.

Adapting the Selection Process

It was not clear how long stay-at-home measures would last, but Jemerson's team had to assume that LMP employees would be working from home for the foreseeable future. It was a busy time of year for her team and they were in the process of filling multiple vacancies across several departments. The thought of moving interviews entirely online was daunting because hiring managers may not be comfortable hiring people they had never met in person. "There is that lack of physicality that may make managers feel less confident in their hiring decisions," worried Jemerson. Not only that, but LMP's work environments were an important selling point for candidates. What would it mean to no longer showcase their offices to candidates? And for a team whose mandate is to enhance corporate culture, what would a prolonged period of working from home mean for their carefully crafted work culture?

Online Hiring and Onboarding at LMP During the Pandemic

LMP was already conducting some of its recruitment, selection, and onboarding processes online. The initial application process for jobs at LMP was mostly handled electronically. Candidates could apply for jobs through the corporate website, which was integrated into their human resources information system (HRIS). Candidates could also apply through LinkedIn Recruiter.[1] The HRIS was a crucial piece in allowing the HR team at LMP to focus on value-added HR functions, rather than "spending all their time tracking down data from multiple places." HRIS was used to ensure accurate process-flow of candidates' applications as they progressed through the recruitment and selection funnel. This reduced human error, which improved the overall candidate experience. Also, the increased reliance on LMP's HRIS and LinkedIn Recruiter had allowed LMP to have more access to recruitment data, allowing the HR team to "be extremely metrics focused" – increasingly utilizing data for improved decision-making.

Recruitment during the pandemic involved the dissemination of job descriptions through targeted recruitment tools such as LinkedIn Recruiter or online job fairs. The HR team hosted online recruitment "ask me anything" (AMA) meet & greet events, where individual departments would address questions from potential candidates. The AMA events acted as an alternative to realistic job previews and helped candidates paint a picture of what it would be like to work in the various LMP departments. They provided candidates with an informal means of connecting with department executives and provided a robust pipeline of excellent candidates. "We got really good feedback on those because it felt to the candidates that they got a look behind closed doors, and to them that felt different," said Jemerson.

Fortuitously, affordable video conferencing solutions and quality internet connections had become the norm at the beginning of 2020. This allowed LMP and job candidates to have reliable access to quality video conferencing technologies. For internal communication, LMP employees made heavy use of the Slack collaboration software.[2] However, recruitment and selection activities typically involve communication with candidates external to the organization. To minimize friction in setting up online meetings with stakeholders who are not connected to their internal Slack network, interviews, and recruitment initiatives such as the AMA events were conducted online using the Zoom video conferencing platform.[3] At the time, barriers to using Zoom software for video conferencing were relatively low – meetings could be set up between unconnected parties through the sharing of a web link. This simple feature coupled with the ubiquity of email communication for sharing the Zoom meeting links allowed for a minimal learning curve for LMP employees and candidates alike.

Another important component of the hiring process involved changes to the onboarding process. LMP was in a unique position to offer orientation training online because their flagship software is a learning management system designed to provide instructional content to students online. The HR team worked with in-house instructional designers to develop an online course known as the "pre-boarding course." It included the same learning content that was delivered during the in-person orientation – course modules included content about the company, departments, expense reports, policies, and everything else that would be found in the first-day orientation. Jemerson described it in this way:

> We would send the pre-boarding course to all new hires before starting. They would enter some of their employment information, previously this was done when they started, using paper forms. Now everything is electronic and much more efficient ... The course component is used to learn about the LMP culture – get pre day-one information that gives them a feel for the organization.

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1. See the LinkedIn Recruiter tool.
2. See the Slack website.
3. See the Zoom website.

The pre-boarding course was self-guided, meaning that it could be completed by new hires at their leisure, avoiding the administrative overhead of scheduling onboarding meetings. This approach was very scalable, meaning that they could produce the course only once, but deliver it to any number of new hires. This also reduced the amount of organization-level orientation during their first week on the job, allowing more time for teams to provide department-level training.

Some Advantages of Online Hiring and Onboarding

LMP had mostly learned to work effectively virtually. Despite all of its offices being closed, LMP hired more people in 2020 than in any other year in their history. This growth was due to the worldwide increase in demand for online instruction, so learning management platforms were very sought after. In some ways, it was fortuitous to have all of these new employees working from home – Jemerson noted: "We wouldn't have had space for all of the new hires if we had to find physical space for them." This allowed for the deferral, or even elimination of office expansion initiatives, avoiding increased office expenses.

The HR team at LMP surveys all candidates about their experience throughout the recruitment and selection process, including those who are not eventually hired. By tracking candidate satisfaction prior to the pandemic and again at the end of 2020, they were able to show that candidates were equally satisfied with the online-only interview process. "Based on our internal surveys, the candidate experience has stayed flat. Also, last year [2019], before the pandemic we won an external award for excellence in candidate experience; we won that same award this year [2020]."

LMP's ability to quickly fill roles improved; this was related to an increased acceptance throughout the organization of hiring full-time virtual employees, those who are not necessarily tied to any particular LMP physical office. Jemerson pointed out that this "expands LMP's hiring reach. It shouldn't matter where people live as long as we are legally able to operate in that particular location. We're happy to hire the best people for the job." Feedback from hiring managers after three to six months of onboarding new hires using online recruitment, selection, and onboarding had been better than expected. Jemerson noted that hiring managers were saying, "Wow, the quality of our hires has been excellent," and that observational data on new hire turnover appeared to be quite low.

The switch to online hiring was associated with improved adherence to interview best practices among hiring managers. A typical struggle of HR departments is to ensure that hiring managers follow reliable and valid interview protocols, including: asking the same questions of all candidates, using the same assessment tools in the same way for all candidates, and taking detailed notes that justify candidate assessments. To ensure reliable and valid job interview assessments, LMP uses "scorecards" for the standardized assessment of interview candidates. When interviews were done in person, scorecards were frequently not filled out by the hiring manager until after the interview. This could lead to inaccurate memory of events and make judgement more susceptible to cognitive bias and unintentional discrimination. Jemerson observed that when hiring managers are talking to the candidate in a video conference, "the scorecard can be right in front of them and they can capture their assessments more easily. It has definitely been a big win." The social barriers to typing throughout an interview seemed to be lower in an online setting, increasing the quantity and quality of interview notes.

While very real challenges still existed for LMP employees working from home, such as expectations to work with young children in the home, and coping with feelings of isolation, some aspects of the LMP working environment had demonstrably improved. Jemerson noted:

> We survey our employees regularly on how they are feeling. We have noticed people self-reporting that they are more engaged. The ability to have more flexibility in their life – the reduction of commute time alone. A lot of people have commented on feeling more productive once they were over the adjustment period. A large portion of our people would be okay to do a hybrid approach – not a 100%, full-time return to the office.

End of the Pandemic Leads to Tough Decisions

By the middle of 2022, most of the population was emerging from the pandemic and feeling comfortable with heading back into the office. So LMP's office spaces could begin to safely open back up. With the prospect of LMP employees going back to the office to conduct their work, either full-time or part-time, the HR team needed to make some decisions once again. What should they do once their offices open back up? Should they change their hiring and onboarding processes once again? Jemerson and her team had a short amount of time to weigh these important decisions.
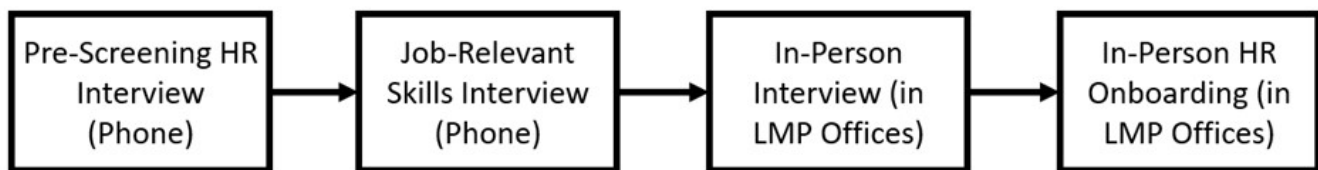
Exhibits

Exhibit 1: Pre-Pandemic Hiring at LMP

Exhibit 1: Pre-Pandemic Hiring at LMP. [See image description.] [Back]

Image Descriptions

Exhibit 1 – Pre-Pandemic Hiring at LMP

A flow chart outlining a sequence of steps in LMP's hiring process: pre-screening HR interview (Phone), job-relevant skills interview (phone), in-person interview (in LMP offices), then in-person HR onboarding (in LMP offices). [Back]

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A PROJECT MANAGEMENT CRISIS: MOVING A MULTI-INSTITUTIONAL COLLABORATIVE IN-PERSON SPRINT ONLINE

Kimberlee Carter; Jane Gravill; and Fatih Yegul

Introduction

It was 3 p.m. on Tuesday, March 17, 2020, and Kim Carter, Professor in the School of Business at Conestoga College, panicked. Carter was the project lead for a multi-institutional collaboration project called *Medical Terminology Open Educational Resources (MT OER)*. She had just received communication that the college was closed until further notice. On the same day, Marie Rutherford, a collaborating partner from Georgian College, called to ask, "has the project been pulled, and what are we going to do?" All in-person events at both colleges were cancelled due to concerns and unknowns over the contagious COVID-19 virus that had resulted in a global pandemic. The MT OER collaboration project was two weeks into phase 3, which involved multiple faculty subject matter experts (SMEs) adapting chapter content to prepare for the launch of phase 4, a two-day sprint (see **Exhibit 1 –– MT OER Collaboration Project Plan and Schedule**). The phase 4 sprint, an iterative agile approach to completing tasks, was critical in completing the project in time for publication in August 2020. Phase 3 was in jeopardy since all faculty SMEs were pivoting their work to accommodate remote learning requirements until the college re-opened. All phases of the project had to be completed on time to meet project timelines and to allow integration of the MT OER in Fall 2020 courses. Carter exclaimed, "All the work to get to this point, and now we may not be able to complete the project. What will I do for a textbook this fall? I don't have one for the health care terminology course."

The project's key deliverables were open educational resources (OER) that encompassed a 20-chapter openly licensed digital textbook, interactive learning objects, and accompanying ancillary resources to be published in time for Fall 2020 delivery. A key component of the phase 4 development was the in-person sprint, which was critical to the MT OER being published on time. The in-person sprint was scheduled for April 29 and 30, 2020, at Conestoga College Institute of Technology and Advanced Learning (ITAL) in Kitchener, Ontario, Canada. Since in-person events were no longer allowed, Carter and Rutherford had to re-evaluate the situation, including the project plan, to determine if, and how, this project could be completed in time for faculty to have the resources in early August. An early August delivery ensured time for course preparation so that learners had the resources on the first day of classes in September of 2020. Carter needed to re-evaluate whether the key deliverables could still be met and adjust the project plan based on situational factors.

> Carter needed to re-evaluate whether the key deliverables could still be met and adjust the project plan based on situational factors.

Background

Conestoga College has campuses in Kitchener, Waterloo, Cambridge, Guelph, Brantford, Stratford, and Ingersoll, Ontario. The college has over 20,000 students and a variety of programs that suit a diverse study body including degree,

diploma, and certification programs.[1] Conestoga College School of Business is student-centric and prioritizes the use of OER materials in its programs because OER are free to use, so they reduce financial barriers for students.

Carter was the curriculum guide and the faculty member responsible for designing the curriculum and choosing resources for healthcare terminology in the health office administration diploma program in the business school at Conestoga College. Curriculum guides at Conestoga played a key role within their programs, as they were responsible for course development and ensuring courses contained all required materials in preparation for the coming term. Carter became interested in developing OER for her courses after learning about the social justice implications for students who could not afford the high cost of commercial textbooks.[2] Students who cannot purchase textbooks are disadvantaged. Without access to the textbook information, they can fall behind or drop out of the courses, and the associated program. Health office administration textbooks are expensive as this program of study combines business and health, often requiring faculty to customize resources to suit course delivery. OER could be customized for courses, be made available to students at no cost, and are digital by design. These benefits matched Carter's values of equitable and affordable education for students. Carter embarked upon a quest to learn more about publishing platforms and open licenses, and to find like-minded faculty to assist her. A collaborator was found in Rutherford, a colleague from Georgian College, College of Applied Arts and Technology (CAAT). After some discussion and excitement at the annual Technology Enabled Seminar and Showcase (TESS) conference in November 2019, the multi-institutional collaboration project was formed. Carter and Rutherford left the meeting armed with a plan to advocate at their respective institutions for support to complete the MT OER project.

Rutherford had previously authored a published textbook, and brought 22 years of subject matter expertise, teaching experience, and an instructional design lens to the project. She was the curriculum guide for an anatomy and physiology course in the office administration – health diploma program and faculty in the business school at Georgian. College, College of Applied Arts and Technology (CAAT). Rutherford had met Carter while participating in eCampus Ontario's Empowered Educator program, which included a curator module where they learned about developing OER. During this meeting, they discussed the lack of OER for Health Care Administration programs. Carter envisioned a medical terminology OER with content divided up by the eleven body systems, introductory chapters to medical terminology word breakdown, and an overview of how body systems work together, mental health, and chapter chapters focused on pathophysiology such as oncology. Her vision included interactives and videos throughout each of the 20 chapters. Carter demonstrated one chapter of completed content as an example of what could be possible. This was the launching pad for the MT OER multi-institutional collaboration project. Rutherford advocated and successfully gained support from Georgian College leadership to participate in this project.

In a presentation to the chair and dean of the business school, Carter received approval and support to host a multi-institutional sprint at Conestoga College in the spring of 2020. The agile sprint approach plan was to have small groups of subject matter experts (SMEs) and student participants each review one chapter of content at a time, then a different small group would make additions and edits, and a final group of support people would copyedit and clean up the code. On day two, a similar approach was to be used to build interactives and additional resources like slide decks and test bank questions. Any work not completed during the two-day sprint would be divided up and completed within two weeks post-sprint. Rutherford received approval to participate in the project from Georgian. Carter and Rutherford knew a large amount of preparation was needed to be ready to sprint in the spring. Carter and Rutherford met weekly to prepare a project plan with the first phase set to start in early January. Phase 1 involved recruiting SMEs teaching in similar programs from nineteen out of twenty-two Ontario colleges. Phase 2 involved technical training for SMEs and logistical planning, such as hotel bookings. In phase 3, SMEs began writing content and logistical planning intensified,

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1. Conestoga College, n.d.

2. Jhangiani & DeRosa, 2017.

such as room booking, equipment booking, and meal planning as more support people joined the project (see **Exhibit 1 –– MT OER Collaboration Project Plan and Schedule**).

Situational Factors

Carter and Rutherford successfully gained support from their institutions to work on the project during the Winter and Spring terms of 2020. Chapters were divided up between Carter and Rutherford, and more faculty SMEs from around the province agreed to join the project by contributing chapters. A project sprint was to be hosted by Conestoga College on April 29 and 30. A sprint is an agile project management approach that allows for fast production by improving efficiency and adaptability, while minimizing waste.[3] Following an agile approach at the two-day event would allow for the re-evaluation of deliverables and adjustments before continuing on to the following deliverable. The plan was to support faculty SMEs to complete chapters and peer review others' chapters. Then have students provide a review of subject content and construct digital learning objects with faculty using new H5P technology. H5P is an acronym for HTML 5 Package, which was a relatively new technology that gave course developers a toolkit of applications to develop interactive components such as flashcards with audio, quizzes, matching exercises or knowledge checks within their course resources. During the two-day sprint event, the participants would also collaboratively develop interactive pre-assessments and post-assessments of chapter readings, with ancillaries such as slide decks and test banks. Five Ontario colleges committed to sending faculty SMEs, students, and support staff, including instructional designers, project managers, technology for teaching experts, and library supports. Rooms, technology, and motivational speakers had been booked. Meal plans and schedules had been formulated.

On March 17, 2020, months after that initial meeting in November 2019, all in-person events were cancelled, and future events were paused due to the COVID-19 global pandemic.[4] International flights were restricted, and class enrolment numbers still needed to be determined. It was not business as usual. Carter's challenge was how to re-engage faculty so they would complete the project without the in-person sprint event. Carter explained, "The priority is to convert courses for remote delivery, having an online digital resource ready for fall will support this priority." Rutherford exclaimed, "I have faculty willing to contribute medical transcription reports for activities that we can use immediately."

As the pandemic and restrictions continued, people were told to stay home and work from home. People were stressed due to so much uncertainty about the future.[5] They cared for multi-generational family members in their homes, assisted children with their studies, and worried about the future. Faculty continued to convert the delivery of courses, and with their students, learned to navigate new technologies like video conferencing to complete course work. Internet bandwidth was not distributed equally, creating inequities in the ability of students to work and learn, despite internet providers waiving overage fees.[6] People who lived outside of major cities often did not have adequate internet infrastructure to support full days of working and in-home learning.[7] For the project to continue, all of these situational factors had to be successfully navigated.

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3. PMI, 2021.

4. Conestoga College, 2020.

5. Cecco, 2020.

6. Breen, 2020.

7. Jacobson, 2020.

Alternatives Explored

Some of the challenges to completing the project sprint remotely included technical logistics. For example, people were new to virtual conferencing software, and each institution used different platforms. Hence, not everyone was familiar with Zoom, Conestoga's choice of video communication software. Sprint attendees had extra situational factors, and meeting for two full days did not appeal to many participants. Emails sent out to the group requesting responses generated increasingly fewer results, which seemed to indicate that people might not be able to participate on April 29 and 30 due to factors such as workload, family stressors, or discontinuance of institutional support. Moving the dates of the project sprint was problematic as there were no consistent dates that everyone would commit to. People were unsure if they could complete their portions of the project and they were reluctant to commit to two full days of virtual conferencing.

Institutions could no longer financially support allocating participants to a virtual project sprint. However, Conestoga agreed to continue to provide resources such as tech support for Pressbooks, the publishing platform used for the OER, a copyright liaison, a tech liaison, and a final review editor. Faculty being compensated for converting courses for remote delivery were approached to see if part of that conversion compensation could be allocated to complete the OER project. Carter advocated with her colleagues, explaining, "these resources will be digital and free from copyright concerns for remote delivery." Program students who had been assisting with planning for the project sprint were asked if they would be interested in participating in building the H5P learning objects and working with faculty to create the OER chapters. Three students agreed to take on these tasks and were compensated with co-curricular recognition, an acknowledgment in the book, and an honorarium.

However, scheduling project tasks became problematic, as no one would commit to two full virtual days. Carter needed to determine whether it was too risky to continue with the project, given the current scenario, or whether it was feasible to continue trying to get commitments from project members during such an uncertain time. It was time to determine if people really needed these resources for their teaching in the fall. Carter asked Rutherford, "Do you think the faculty who needed these resources for fall would be willing to work asynchronously?" Rutherford responded, "Let's find out?"

After a series of emails, chats, texts, and phone calls, it was determined that the faculty needed the textbook and H5P learning objects for Fall 2020. Many faculty had difficulty accessing digital copies of their commercial resources and were reluctant to share information from those paid resources in the remote environment for fear of copyright infringement.[8] Students who relied on a physical library copy of the commercial resources or shared resources with other students were disadvantaged, as they could no longer access the library. Most also did not live with other students with whom they might have shared textbooks. To complicate matters further, several publishers would not allow the purchase of an e-text version of their publications for student use through libraries.[9]

The conclusion was that people required the resources, but they could not commit to a large amount of virtual synchronous time. Carter knew a significant amount of flexibility would be required to engage faculty in completing chapters and to ensure some MT OER version was ready for Fall 2020. This meant re-evaluating the final deliverable of the digital textbook with ancillaries. Carter and Rutherford wondered if ancillaries such as test banks and slide decks could wait for a future edition. This meant finding a solution that would effectively accommodate faculty workload, faculty internet challenges, and stressful situational factors to meet the deadline.

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8. Craig, 2021.

9. McLaughlin Library, 2022

Dilemma

There was a looming threat that this project plan would go "off the rails" and that these OER would not be developed and published in August 2020. Carter knew she had to identify all relevant risks in this precarious situation to establish an alternative plan to meet the publishing timeline. If the project was not completed in time, the resources would not be ready for Fall 2020, and the course would have to run without a customized textbook. Carter had to decide if the project plan could be adapted and if people were available to complete the tasks, or if it was too risky and she should cancel the project and look elsewhere for resources. The project risks had to be re-evaluated based on the pandemic situation, and a revised project schedule including a new communication strategy had to be created. A decision had to be made on how or if the project could move forward. Carter had to evaluate the situation and determine whether it made sense to move forward. Where should she start?

Exhibits

Exhibit 1 – MT OER Collaboration Project Plan and Schedule

ID	Task	Timeline
1.0	**Phase 1: Consult and plan** • Recruit collaborators for authorship and sprint participation • Prepare an email seeking support from the deans at 22 colleges • Prepare email to be sent to faculty at participating colleges • Prepare MS Forms to gather participant list and offers for collaboration	Three weeks, Jan. 2020
2.0	**Phase 2: Training and sprint planning** **Collaborator training** • Onboard collaborators • Pressbook chapter/section assignment Pressbook training • Creative commons licensing training • Adapting training **Sprint planning** • Block hotel rooms • Book rooms at Conestoga College • Arrange co-curricular record postings for student participants	Four weeks, Jan. to Feb. 2020
3.0	**Phase 3: Writing** • Faculty writing/adapting chapters from Open Stax A&P book **Sprint planning** • Book meals with the cafeteria • Book technology with IT (Information Technology) • Arrange for IT support • Meet with support being sent from multiple colleges for: • Project management • Instructional design • H5P training implementation • Editing	Six weeks, March to April 2020

ID	Task	Timeline
4.0	**Phase 4: Sprint** **April 29** • Motivational kick-off speaker • Faculty peer review • Student review • Assign the remaining work to be done asynchronously **April 30** • H5P training • H5P development • Assign remaining H5P builds to be done asynchronously • Slide decks for each chapter • Test banks for each chapter	Two days, April 29 & 30
5.0	**Phase 5: Post-sprint development** • Complete adaptations to remaining chapters and the identified chapter needs from the project sprint	Four weeks, May 1 to 31
6.0	**Phase 6: Accessibility checks/copy edits/revisions** • Library supports • Revisions sent to collaborators • Collaborators send back to library support for completion.	Eight weeks, June 1 to July 31
7.0	**Phase 7: Upload and publish to the eCampusOntario Open Library** • Library supports	Four days, July 31 to Aug. 4

[back]

Glossary

adaptive approach: A type of approach that allows for refinement and changes after each iteration is sometimes called an agile approach when there is uncertainty about a project.[10]

H5P (HTML5 content): A platform to create interactive content or learning objects that do not require the user to know code. To learn more, visit the H5P website [new tab].

minimum viable product (MVP): Describes the least number of features that would still deliver value to the end user.[11]

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10. PMI, 2021.

OER – open educational resources: These are resources in which the creator has applied a creative commons license to their work and, depending on the license applied, allows the content to be copied, distributed, edited, remixed, and built upon. To learn more about the Creative Commons license, visit the Creative Commons website [new tab].

predictive approach: A type of approach, also known as a waterfall approach, reduces uncertainty early and has well-defined phases that may use templates from prior projects.[12]

project sprint: This is a term in the context of the OER sprint that refers to the two-day event that was planned to use an iterative approach to complete specific tasks to advance the project.

SME (subject matter expert): A specialist in a particular subject. Faculty specialize in a subject they have studied through formal education and have worked in the field for several years.

sprint: This is a term that means to take an agile or iterative approach to a project.[13] In the context of developing OER, it means bringing many people together to work through multiple tasks in a circular path. The cooperation allows for fast production as each phase is completed; it can be evaluated before proceeding to the next steps.

Technology and Education Seminar and Showcase (TESS) Conference: An annual conference where eCampus Ontario members are celebrated, showcase, and share their work. To learn more, visit the TESS conference website [new tab].

References

Breen K. (2020). *Coronavirus: Internet providers suspend data overage fees for home internet*. Global News. https://globalnews.ca/news/6673413/coronavirus-rogers-data-overage-fees/

Cecco L. (2020). "Stay home": Justin Trudeau closes Canada's borders over coronavirus. *The Guardian*. https://www.theguardian.com/world/2020/mar/16/justin-trudeau-closes-canada-borders-coronavirus

Conestoga College. (2020, March 17). COVID-19 Update: March 17, 2020. *Conestoga news*. http://blogs1.conestogac.on.ca/news/2020/03/covid-19_update_march_17_2020.php

Conestoga College. (n.d.). *Conestoga's story*. https://www.conestogac.on.ca/about/overview.

Craig, C. (2021). Commentary/copyrights limits and learning: Lessons from the COVID-19 quarantine. *Canadian Association of University Teachers*. https://www.caut.ca/bulletin/2021/02/commentary-copyright-limits-and-learning-lessons-covid-19-quarantine

Jacobson, A. (2020, March 27). "Internet is the only lifeline they have": Canada needs to confront "digital divide" amid COVID-19 crisis. *Spark*. CBC Radio. https://www.cbc.ca/radio/spark/working-from-home-data-surge-a-balancing-act-for-isps-tech-expert-1.5511650/internet-is-the-only-lifeline-they-have-canada-needs-to-confront-digital-divide-amid-covid-19-crisis-1.5513206

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11. PMI, 2021.
12. PMI, 2021.
13. PMI, 2021.

Jhangiani R. & DeRosa R. (2017). *Open pedagogy and social justice*. Digital Pedagogy Lab. https://spscc.pressbooks.pub/openpedagogy/chapter/open-pedagogy-and-social-justice/

PMI. (2021). *A guide to the project management body of knowledge (PMBOK guide)* (7th ed.). Project Management Institute.

McLaughlin Library. (2022, November 11). *Commercial textbooks present challenges in a virtual environment*. University of Guelph. https://www.lib.uoguelph.ca/news/commercial-textbooks-present-challenges-virtual-environment/

Download a PDF copy of this case [PDF].

Read the Instructor's Manual Abstract for this case.

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THE RACE IN THE CANNABIS SCREENING DEVICE INDUSTRY: WILL GUARD-EX BE A WINNER?

Jane Gravill

On February 4, 2019, Dastiger Khan, CEO of Guard-Ex Corp. and his team were preparing for a meeting with the Ontario Association of Chiefs of Police to present the implementation plan for the new cannabis screening device their firm had designed and developed – the GX420. Guard-Ex was part of The Accelerator Centre's JumpStart program located within the Schlegel Centre for Entrepreneurship & Social Innovation at Wilfrid Laurier University, Waterloo, Ontario, Canada. Khan wondered what implementation strategy Guard-Ex should adopt to achieve the firm's goal of becoming a global leader in the emerging marijuana screening device industry.[1]

All figures in Canadian dollars unless otherwise noted.

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1. Quotations not otherwise cited are from the author's personal interviews with Dastiger Khan and his team.
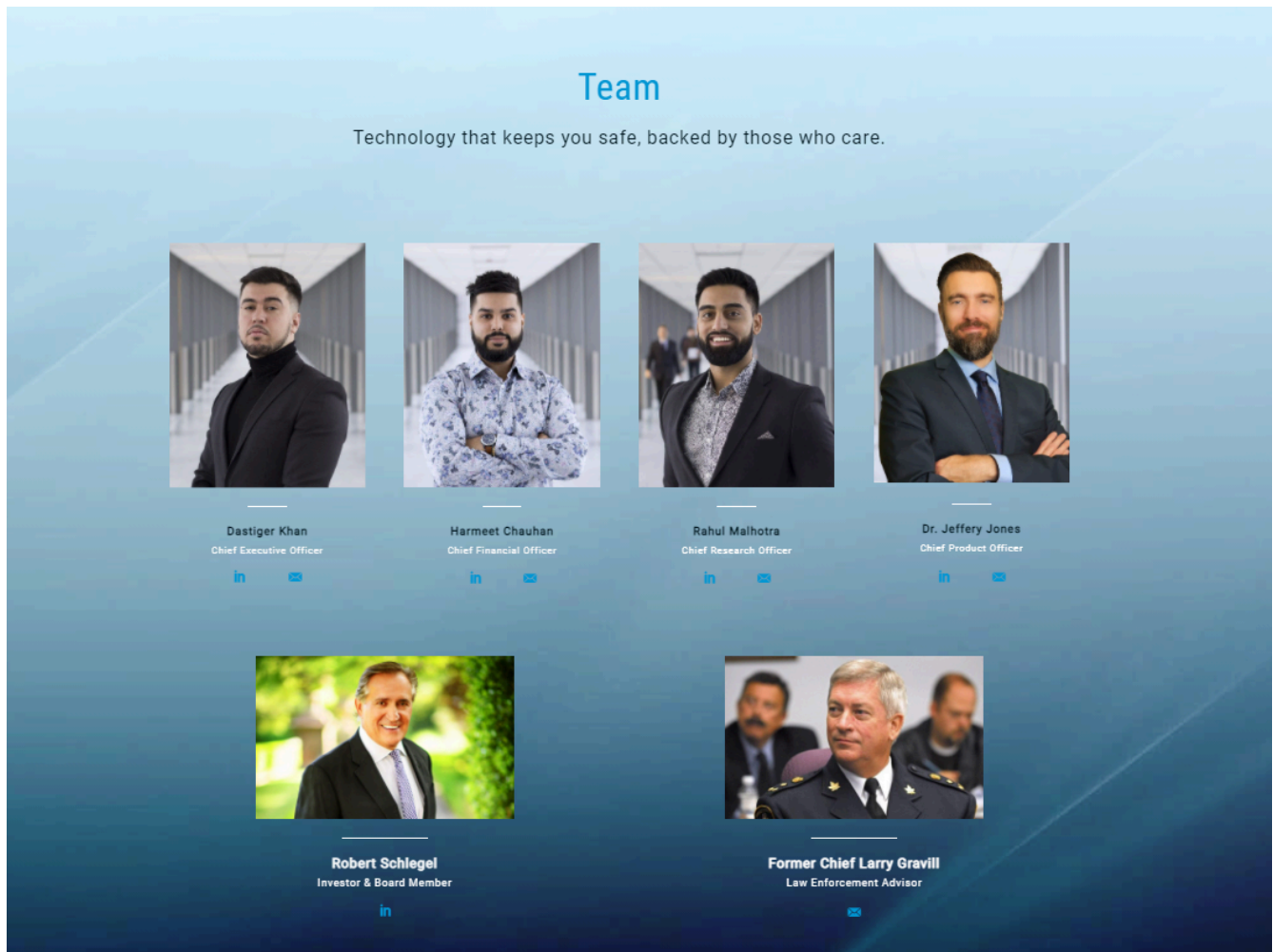
Guard Ex Technology Team. [See image description]. **Credit**: Courtesy Dastiger Khan. Used with permission.

Introduction

As Dastiger Khan, CEO of Guard-Ex Corp., sat in his office on a chilly Monday, February 4, 2019, morning sipping his cup of steeped tea, he wondered what strategy Guard-Ex should implement to achieve the firm's goal of becoming a global leader in the emerging marijuana screening device industry. Guard-Ex was part of The Accelerator Center's JumpStart program located in the Laurier Launchpad incubator within the Schlegel Centre for Entrepreneurship & Social Innovation at the Wilfrid Laurier University, Waterloo, Ontario, Canada. The firm had designed and developed their own GX420 cannabis screening device. Khan and his team were meeting that morning to prepare for an important presentation with the Ontario Association of Chiefs of Police the following week. Khan urgently needed to finalize an effective implementation strategy for their presentation as he knew that the association was expecting to learn how the device would be implemented in the field. Khan reflected upon an article he had read recently that indicated almost 70% of most IT projects fail, and many of those project failures were due to poor implementation strategies.[2] He did not want the GX420 to become another statistic. The Guard-Ex team was aware that the implementation phase of the GX420 project would be the most delicate phase of the project, and that their next steps were likely to determine whether the

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2. Jain, 2018.

GX420 would become readily adopted in the field, and position the firm as a leader in the industry, or become a victim of the factor of substitution. The race was on.

Khan knew that his firm had developed leading-edge technology that would be in high demand within the marketplace since marijuana had been legalized in Canada on October 17, 2018. Many serious questions had been raised by the public, politicians, police services, and private organizations regarding how the now-legalized use of weed was going to be monitored. Khan believed Guard-Ex had the answer, and he was not alone. Investors, police chiefs, and logistic executives all agreed the GX420 was an innovative and effective solution to a growing impairment screening problem in society.

"Considering that impaired driving remains a leading criminal cause of death in Canada, there is a strong incentive to both enforce and deter impaired driving on our roadways," said Bryan Larkin, Chief of Waterloo Regional Police Service (WRPS). "I am very excited by the Guard-Ex team and their passionate commitment to the modernization of roadside impairment screening. They are poised to become another shining example of a Waterloo Region-based company that seeks to leverage cutting-edge technology, creative innovation, and community collaboration to help improve safety and well-being in our society," said Chief Larkin.[3]

Said Laura Allan, Executive Director, Schlegel Centre for Entrepreneurship & Social Innovation, "This isn't just an idea that's financially great, it's helping solve a crucial social problem. The response [Guard-Ex has] gotten from police chiefs, police services, politicians and private companies has been unanimous. They are on the right path."[4]

Guard-Ex was in the later stages of development and testing for their GX420 mobile impairment screening device. Khan was growing anxious as he was still unsure of the optimum implementation strategy the firm should use to launch the GX420 — and time was running out. Competition in this space was fierce. Clients were evaluating options and were eager to make decisions to solve the cannabis impairment screening problem. He knew his team had to act quickly if they were going to secure a shot at gaining a foothold in the race to become the device-of-choice in the marijuana screening industry.

As Khan sipped on his tea, waiting for the rest of the team to arrive, his mind raced with implementation ideas that the team had considered. He wondered if Guard-Ex should initially focus all efforts on gaining adoption within one police service such as the WRPS or work with several police services to gain more feedback. Should the team work with the WRPS as they are the largest police service in the area and learn how the use of the Guard-Ex device can overcome legal hurdles to best achieve broad adoption of this technology in the policing services? Or should they implement a pilot approach within one particular division within the service to iron out the wrinkles there first on a smaller scale? Train all police officers in the division eligible to use the device to gain feedback, or only a small test group to increase the richness of interaction? Implement a phased approach across all divisions or add another service to test the device in varying situations? Should Guard-Ex simultaneously focus on private industry, given the race to gain a foothold

> "This isn't just an idea that's financially great, it's helping solve a crucial social problem." — Laura Allan

there and the fact that organizations such as trucking firms had expressed interest in implementing screening devices to ensure their employees were fit for work? Should he work with one police division and pilot the technology until the final prototype is developed and then phase the implementation out to other interested services? Address both trucking and policing pilots simultaneously to gain implementation, and perhaps adoption, ground more quickly? Khan knew that private and public sector needs were quite different so effecting testing in each sector was going to be critical to success.

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3. Laurier Alumni News, 2018.

4. Laurier Alumni News, 2018.

Would the private sector be interested in the device if it was not approved through the judicial system as an acceptable test in the courts? Where should he start? He needed to develop an implementation plan that would allow the firm sufficient time to test their new device in the field and gain feedback from users to ensure the device would be fit to be evaluated and approved within the court system. Khan knew that validation of the GX420 device within the legal system was key to success. Khan also knew that shortcuts during the later stages of the development and pilot testing process could seriously compromise the quality of the end-product or, in the worst- case scenario, derail the entire project during implementation.

Khan was confident that the technology his firm was developing was the right answer to the problem of impairment screening but was less confident in how to ensure that technology was going to be implemented in the field, approved in the courts, and adopted as an industry standard. He had good contacts in the areas of policing and trucking, good advisors and was building important relationships in the industry but he was not sure what approach to piloting and finalizing the implementation of the device would best serve the firm to achieve their goals. Khan realized that the technology needed to be ready for implementation before plans were made, and that he needed to work with his team and potential clients in policing and the private sectors to determine what strategic direction best served the firm for implementation of the device into the field? Developing a strategic implementation plan for the final prototype would take time — but could Guard-Ex wait? Where should he start?

Guard-Ex Corp.

The idea to develop an impairment screening device originated in October 2016, when Dastiger Khan, Bara Fatal, and Anthony Devallis discussed the notion at a party they were hosting. The three colleagues often hosted parties for their peers; this experience provided them with some insight into the urgent need for a process that would help deter people from choosing to drive home impaired.

Guard-Ex was officially incorporated on March 8, 2017, to address the need in the industry for an impairment screening device, since the use of marijuana was to be legalized in October 2018. The industry was scrambling to determine how use of this drug was going to be monitored and controlled. After buying out the other co-founders in June 2017 to ensure the firm maintained the strategic focus he envisioned, Khan brought on three colleagues to join his team who were also considered co-founders for the firm. Going forward, Guard-Ex was operated by a team of four university students from the Waterloo Region, Khan from the University of Waterloo, and the other three from Wilfrid Laurier University. Khan was confident that this new team could work together to manage the firm going forward to achieve his vision.

Guard-Ex worked with the Laurier Centre for Cognitive Neuroscience and the University of Waterloo's School of Optometry and Vision Science to develop the impairment screening device prototype. The Guard-Ex team, along with their industry advisor, Retired Waterloo Regional Police Chief Gravill, conducted many presentations within the community to educate and build relationships with key potential clients such as the Ontario Association of Chiefs of Police, the Waterloo Regional Police Service, the Toronto Police Service, as well as the York, Peel, and Niagara Regional Police Services. The team also met with Challenger, a motor freight logistics company in the Waterloo Region, with the aim of obtaining a signed memorandum of understanding (MOU) to conduct a pilot implementation program with their device.

Guard-Ex Organization Roles

The Guard-Ex organizational roles were assigned as follows: Dastiger Khan, Chief Executive Officer; Rahul Malhotra, Chief Research Officer; Baltej Sandhu, Chief Marketing Officer; And Harmeet Chauhan, Chief Financial Officer. (See **Exhibit 1 – Guard-Ex Organization Chart.**)

Dastiger Khan, CEO

Dastiger Khan graduated from the University of Waterloo, with a degree in economics, in April 2019. Khan began his studies at the University of Waterloo in the mathematics program and realized the program was not aligned with his interests. Once he transferred into the economics program, he realized that he found a great fit and excelled. Khan played as a flanker for the University of Waterloo's rugby team and was the chapter VP external relations at the Kappa Mu fraternity.

As VP External Relations Khan gained significant experience in organizing school group activities, motivating members, and managing chapter volunteer hours. Typically, the chapter would log 3000 hours of volunteering annually, approximately 10 hours per meeting. During his year as VP External Relations, the chapter logged over 6000 hours of volunteering and grew a budget of $3000 to $9000 through funds generated. This growth was fueled by Khan's passion and his ability to inspire a team. One of Khan's favourite events was the university's DiaBEATthis event. This event raised $4000 toward finding a cure for diabetes.

Khan commented, "I feel good about organizing these types of events. It is for a good cause and is worth it. About two years ago I loved partying, and now I can go out and have fun, and help others too." Serving as VP External Relations and hosting parties for the chapter played a key role in sparking his idea for developing a solution to the growing impairment detection problem. Khan explained, "I saw a need to develop a process that would deter people from driving impaired and wanted to do something about it." Khan added, "Me and my partners, we threw a lot of events...and we always promoted designated drivers at our parties. What we often noticed was that individuals would be fine with not drinking and driving [but] they would be fine with smoking a joint or hitting a bong."[5]

Khan was passionate about his start-up company, his team, and the solution they were developing to solve a major problem for drivers and society. "A lot of startups in Canada don't aim to be the next Facebook or Google," said Khan. "They aim to be bought out by them. We're not doing that. We want to get to the top."

Dragon's Den Victory – Guard-Ex Faced the Dragons and Won!

Guard-Ex was invited to attend the Dragon's Den reality TV show to pitch their impairment screening device business idea to these experienced investors on October 18, 2018, the day after marijuana was legalized in Canada.[6] The Guard-Ex team faced the Dragons and won![7] Five of the six Dragons were so impressed with the team's business presentation they offered Guard-Ex a deal even higher than the Guard-Ex team proposed. Seeing potential in the Guard-Ex business plan, the Dragons offered $300,000 for 15% of the business rather than the $100,000 requested. Guard-Ex accepted the deal and celebrated their epic victory in the Den. After the Dragon's Den victory, Bob Schlegel, founder of the Schlegel Centre of Entrepreneurship & Social Innovation, offered to invest an additional $500,000 in the team to help develop their device and implement it into the field. Guard-Ex was thrilled to have secured these investments to fund the development and implementation of their GX420 device.

Video: Guard-Ex Pitch on Dragon's Den

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5. Hall, 2019.

6. Connolly, 2018.

7. CBC, 2018.

> 📊 *One or more interactive elements has been excluded from this version of the text. You can view them online here: https://ecampusontario.pressbooks.pub/oatcj/?p=357*

Source: CBC, (2018). GuardEx. (7 min, 17 sec). *Dragon's Den* (Season 13, Episode 5) https://www.cbc.ca/player/play/1345672771763.

However, after some review, Guard-Ex decided to back out of the deal with the Dragons. Off-camera, the Dragons' approach to the strategic direction of the firm was not in alignment with the direction that Guard-Ex was comfortable with. Given the early stages of their prototype development, Guard-Ex believed that the Dragons were making too many demands. The Dragons wanted to solidify contracts and secure deals before the product was fully developed. Guard-Ex believed it was too soon in the development process to make deals with external parties that were dependent upon the functionality of the end product. The Guard-Ex team explained that this was one of the most challenging decisions they had to make, but they stood their ground. Khan commented, "Turning down the Dragon's deal was a tough call for us. It was hard to say no to that. We had to do the cost/benefit analysis. We would be moving a lot faster if we had taken the deal, but we would not have the rights that we have now and the pathway that we have would not be our own. We do not give up our rights, we are not like that.'

Ultimately, the Dragon's controlling approach was not acceptable to Khan and his Guard-Ex team, so they informed the Dragons that, although they appreciated the feedback and support, the deal was off.

Investors & Advisors

Robert J. Schlegel, CPA

CEO, Founder, Entrepreneur, Philanthropist
Pavestone Co, Bedrock Logistics, Schlegel Centre for Entrepreneurship & Social Innovation

Schlegel graduated with his B.A. from Wilfrid Laurier University, School of Business and Economics, Waterloo, Ontario, Canada in 1972 and earned his CPA in 1975. Schlegel founded Pavestone Co. and Bedrock Logistics as well as the Schlegel Villages nursing homes.

Born and raised in the Waterloo Region with a Mennonite background, Schlegel demonstrated an entrepreneurial spirit early in life and continued to fuel this passion. After the family businesses expanded south of the border in Texas in 1979, the family decided to move to Texas in 1985 to better support the businesses and reduce travel time. Schlegel had the passion, entrepreneurial spirit, and persistence to be successful and wanted to give back to others to educate and inspire those interested in entrepreneurship. He founded the Schlegel Horizon Foundation from which he established the Schlegel Centre for Entrepreneurship & Social Innovation in 1998. Located at Wilfrid Laurier University, Waterloo, Ontario, the Schlegel Centre for Entrepreneurship & Social Innovation added the LaunchPad incubator program to expand services for Laurier alumni, and this program was where the Guard-Ex venture was formed.

Schlegel was so impressed with the Guard-Ex team that he decided to invest $ 1 million in the venture in February 2019. This was Schlegel's first investment in a company being developed through the LaunchPad Centre. "When I first heard about Guard-Ex, I was intrigued by the concept," Schlegel said. "Everything else out there requires a blood test and that

doesn't prove impairment."6 Schlegel made up his mind to invest a total of $1 million after meeting the Guard-Ex team. "They were the most energetic guys I had ever seen there.," said Schlegel.

Laura Allan, Executive Director, Schlegel Centre for Entrepreneurship & Social Innovation, and champion of the LaunchPad Incubator, indicated that she was thrilled by the significant investment. "These students are hustlers, and I mean that in the best possible way. They had a business running parties, and they would see people leaving and getting behind the wheel who looked impaired. They thought, 'this has to be fixed' and they're passionate about finding a solution." said Allan.[8]

Schlegel added that the investment made sense to him as the implementation of the GX420 was well aligned with his own personal principles. He commented, "The tagline in my emails used to be, 'safety first, then quality, then quantity.' This is a product that's going to improve safety."[9]

R. Larry Gravill, Honorary PhD, BA

Guard-Ex Advisor, Retired Waterloo Regional Police Service Police Chief and Citizenship Judge

Gravill served as an advisor to Guard-Ex and worked with the Guard-Ex team to establish connections in the areas of policing, and the judicial system, participated in potential client presentations and provided feedback regarding the use of the GX420 in the field.

Gravill earned his B.A. degree in 1973 and an Honorary Doctor of Laws Degree in 2009 from the University of Waterloo, Waterloo, Ontario, Canada. Gravill served as chief of the Waterloo Regional Police Service (WRPS) for 15 years and retired in 2007 after 37 years of experience on the force. Initially, he served three years with the Ontario Provincial Police, then he joined the WRPS in 1973. He had many special assignments over the years, including a secondment to the Ontario Police Commission for two years, graduate programs at the F.B.I. National Academy in Virginia, and was the president of the Canadian Association of Chiefs of Police. He moved up through the ranks as Executive Officer to the Chief of Police, Superintendent of Field Operations, Deputy Chief of Administration and was appointed Chief of Police in 1992. After retiring as chief, Gravill was appointed as a Citizenship Judge for the Waterloo Region and served in this capacity until 2018.

Gravill was no stranger to the world of police-oriented information systems. He championed the implementation of the first police network to extend beyond the political and geographical boundaries in 1981 which provided the foundation for more advanced information system integration among police services in the years that followed. The Police Regionalized Information Data Entry (PRIDE) system allowed participating police services to integrate systems and share information electronically. PRIDE grew to include other municipalities such as Stratford, Brantford, and Guelph. WRPS was a leader in the level of systems integration among police services and worked to leverage this resource to provide premium, proactive service to the community.

Schlegel introduced Gravill to the Guard-Ex team in August 2018. Schlegel was aware of Gravill's extensive experience in policing, and the two were long-time friends, having attended Waterloo-Oxford District High School together. Guard-Ex recognized Gravill's experience with policing, legal systems, and the relationships he had established in these areas and realized he would be an excellent advisor for their team. They knew that he could provide valuable feedback regarding the

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8. Krigsman, 2009.

9. Laurier Alumni News, 2018.

prototype and functionality in the field, as well as introduce the team to potential clients, such as the Ontario Association of Chiefs of Police, Waterloo Regional Police Service, and other police agencies in the Golden Horseshoe. Gravill came on board as an official advisor for the Guard-Ex team in May 2019.

The Impairment Screening Device Industry

In 2018, the marijuana screening industry worldwide was estimated at $6 billion and was forecasted to increase at a rapid pace.[10] The use of marijuana had transitioned from illegal to legal in Canada on October 17, 2018.[11] The legalization of marijuana spawned an explosion in the impairment screening device industry. Significant attention was placed on developing effective screening and monitoring of marijuana use. Safety and quality testing in the recreational and medicinal cannabis market had exploded in North America.[12] The industry was scrambling to solve the problem as now that using marijuana was legal, police urgently needed a way to consistently test drug levels roadside.

There were challenges in the industry, as developing devices to effectively detect marijuana use requires more sophisticated testing than other types of drugs and involves a number of factors, creating many hurdles for start-ups to overcome. Most cannabinoids[13] are fat-soluble compounds that can easily store in fat and take a much longer time to be eliminated from the body compared to other recreational drugs. The length of time varies greatly according to the users' metabolism, quantity, and frequency of use. It also depends on whether actual tetrahydrocannabinol (THC) or THC metabolites were being tested for, as metabolites have a much longer detection time. Typically, marijuana could be detected up to 3 to 5 days after exposure for infrequent users; for heavy users: 1 to 15 days; for chronic users and/or users with high body fat: 1 to 30 days. Heavy marijuana users could produce positive tests for 1 to 3 months after ceasing use.[14]

False positives were known to be triggered by consuming hemp-seed bars and other products, although the more sophisticated and expensive gas chromatography-mass spectrometer (GCMS) device was able to discern the difference.[15]

Research reported that dietary zinc supplements could mask the presence of THC and other drugs.[16] However, a contradictory study refuted the possibility of self-administered zinc producing false-positive results.[17][18]

Anyone caught with THC levels above regulation could be charged with a summary offence, which was similar to the misdemeanor class of offences in the U.S. If a driver was caught with more than the five nanogram THC limit after already being convicted of a summary offence, they could be indicted on impaired driving, which bumps the charge up to the class of offences comparable to those of felonies in the U.S. Effectively detecting levels of THC was critical.[19]

Developing a device that was able to avoid false positives was key to the credibility of the industry. Guard-Ex was confident that their comprehensive testing GX420 device would deliver consistent results given the variety of metrics measured.

10. Pender, 2018.

11. Froese, 2018.

12. Beadie, 2018.

13. For more information, see Cannabinoid - Wikipedia [new tab].

14. Rudd, 2018.

15. Tasker, 2018.

16. Yang, Lewis, Bello, Wasilewski, Clarke, & Kotra, 2017.

17. Strathmann & Lin, 2013.

18. Venkatratnam & Lents, 2011.

19. Tasker, 2018.

Court System Challenges

Challenges resided in the court system for Guard-Ex as hurdles toward formal acceptance for the marijuana testing device results continued to exist. Examples of cases entering the court system protesting the drug screening test results were increasing. For example, a woman in Nova Scotia challenged an impairment test conducted during a routine RCMP checkpoint on Jan. 4, 2019.[20]

The driver, Michelle Gray, indicated that she was not worried about the test as she had taken her cannabis at least six hours before the checkpoint to treat her multiple sclerosis symptoms. However, she tested positive and was taken to police headquarters for an expanded sobriety testing. Gray passed the sobriety test and was let go; however, she had to pay $300 to get her car from the impound, missed four days of work, and was embarrassed to have had to go through the experience in front of her son, who was a passenger in the car. RCMP Corporal Lisa Croteau explained, "There is no correlation between the level that you're at, the active THC in your body, and impairment." Gray had her license suspended and her car impounded because the Motor Vehicle Act instructed police to issue suspensions for drivers who failed a roadside screening test. Hence, it was critical for the devices used in these marijuana screening tests to be accurate and reliable. When testing for marijuana, there were a number of factors that needed to be considered compared to testing for other drug usage such as alcohol.

The formal process that Guard-Ex and other firms hoping to gain a foothold in the impairment detection device industry had to go through was lengthy. First, the firms had to present their solution to the Drug and Driving Committee to gain obtain their approval. After approval, the Drug and Driving Committee, which was part of the Canadian Forensic Society, would send the information to the Attorney General of Canada to be incorporated into the Criminal Code as a device included in the Criminal Code Device Appendix. Once the new device was included in this appendix, it could formally be used in the process to convict offenders.

Despite these challenges in the impairment device screening industry, screening device start-ups were forming throughout North America and firms were investing significant resources in the race to develop the ideal marijuana screening device that would be adopted across the industry as a standard.

The Guard-Ex device had a strong position compared to competitors in the industry as the GX420 did not simply test for THC levels. The Guard-Ex device tested five different physiological factors to determine impairment and was substantially more reliable that a single-factor test, especially considering the impact of marijuana use on the human body and longer-lasting effects.

Competition

Competition in the impairment screening device was high. There were several key competitors located in the Waterloo Region that were developing devices to detect substance use and were supported by research hubs in the area. The race was on to determine who would implement their technology in the field first and gain a strong foothold in the growing industry. (See **Exhibit 2 – Competitor Comparison Chart**.)

SannTek was based in the Velocity Garage in downtown Kitchener and used nanotechnology to analyze breath samples to detect impairment. Both start-ups were developing hand-held devices that police could use to quickly determine if

20. Petracek, 2019.

a driver has been participating in substance use but had taken drastically different approaches to solving the problem. SannTek was based upon a vastly different technology and testing approach compared to Guard-Ex.

Cannabix Technologies Inc. focused on marijuana breathalyzer development for law enforcement and the workplace. Cannabix was developing breath testing technologies that were durable and portable to enhance screening of marijuana-impaired driving offences on roads. Cannabix was working to develop drug-testing devices that would detect tetrahydrocannabinol (THC), the psychoactive component of marijuana that causes intoxication, using breath samples. These devices would be used to provide screening of THC at the roadside and identify drivers under the influence of marijuana. In particular, Cannabix was focused on developing breath testing devices for THC screening that would target recent use of THC, (within a 2- or 3-hour time period at the time of testing) in contrast to saliva or urine testing for THC, which could be invasive and take a considerable amount of time for laboratory analysis. The Cannabix devices were also intended to be useful for other practical applications, such as testing employees in the workplace where impairment by THC could be hazardous. Cannabix did not have a device that was federally approved and had not made it to market yet. The firm was following the reverse initial public offering strategy to try and get to market as quickly as possible.

Draeger was the only competitor with a solution, the Draeger DrugTest 5000, that was federally approved. The Draeger solution was adopted by Manitoba police with mixed results.[21]

Abbot was a healthcare firm based in Illinois, U.S., who had recently had their SoToxa hand-held impairment detection approved to be part of the Criminal Code Device Appendix. Abbot acquired Alere, a Massachusetts manufacturer of saliva-testing drug devices, for $5.3 billion (US) and indicated that the SoToxa hand-held device was able to produce test results in less than five minutes.[22][23]

Information Technology – The GX420 Device

The GX420 marijuana screening device was designed primarily to be used for roadside impairment screening purposes. The device examined physiological signs such as eye movement, body temperature, muscle activity, brain waves, and heart rate and used machine learning to accurately identify key indicators exhibited by an impaired individual. The measurement of five physiological indicators to detect impairment gave the GX420 device an advantage over other devices being developed as the competing products were more limited in screening abilities and were more invasive to administer, compared to the GX420 because they measured chemicals from saliva, breath, or urine.

Guard-Ex partnered with SnapPea Design, located in Waterloo, Ontario, for product design and development. Dastiger commented,

> Choosing the right firm to help with the product design and development was relatively easy, as we already had a good relationship with SnapPea. We did look at other firms, but some did not have the software capabilities we needed, and the price was pretty much the same across the board. SnapPea was one of our advisors. They already had an idea of our focus, so it was easy to talk to the about what we wanted to do. Their approach fit with what we wanted to do, and this fit was a priority. We go to their office two to three times per week and email or call them often.

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21. Strathmann & Lin, 2013.

22. Petracek, 2019.

23. Platt, 2019.

The GX420 device operated based on machine learning, python programming, and artificial intelligence technology. The device was easy-to-use and small, which provided benefits for mobile use in the field. Officers or others administering the test could be trained in one or two sessions to operate the device and perform the necessary tests. The device was a VR headset placed upon the subject's head and it measured physiological reaction time to determine any impairment. If a police officer suspected that a driver may be impaired, the Guard-Ex device would be strapped over the driver's face. The officer could read the driver's eye movements and other biological indications of impairment on the laptop screen located in the cruiser. The process to gather the physiological measurements took approximately one minute.

There were two lights on the front of the device headset. One light was the colour red, and the other light was the colour green. If the red light was on after the driver completed the physiological measurement process, the driver was free to go, as this meant that there were no indicators of impairment in the readings. If the green light was on after the test, the procedure required the officer to take the driver to the station for additional testing.

Chemicals such as THC can remain in the body for extended periods of time and tests based upon competing devices that evaluate only current levels of chemicals using breath or saliva samples did not consider the cumulative effects of chemicals in the body. This was an additional advantage that the Guard-Ex GX420 device had over other devices on the market in detecting impairment. Not only did the device detect marijuana, and a long list of other drugs including cocaine and opiates, but it also determined whether a person was fit to perform responsible actions such as driving a truck, operating a machine, or flying an airplane.

Device Testing

Testing of the GX420 device was conducted at the Laurier Centre for Cognitive Neuroscience to ensure the technology was operating as intended, and to finalize the design. (See **Exhibit 3 – GX420 Device Pilot Testing Flowchart**.) After the Centre for Cognitive Neuroscience validated the technology, Guard-Ex produced 10 prototypes for the police cruisers for testing in July 2019. Initial testing was focused within the Waterloo Regional Police Service to achieve the most efficient and streamlined data collection. The Waterloo Regional Police Service used all 10 GX420 devices for testing purposes. Members of the police service also volunteered to test the device before and after their shifts to provide Guard-Ex with additional feedback and data regarding their unit. Many roadside pilot tests were organized in combination with the standard police roadside testing during holiday weekends and other events. During these pilot tests, the Guard-Ex team asked civilians if they were interested in participating in the pilot test, and most civilians agreed to volunteer to participate in the study. The pilot tests provided Guard-Ex with useful data for further development of their device and the data was also helpful toward the implementation of machine learning algorithms. Ten thousand sets of data were required to implement the Guard-Ex machine learning model. Therefore, testing the device as frequently as possible to obtain the necessary data was important.

Another GX420 device was given to Challenger Motor Freight for pilot testing purposes. Fifteen employees within the Challenger Motor Freight company volunteered to check their vital signs before and after every shift.

The Guard-Ex team set up a testing booth, staffed by Guard-Ex team members and WRPS officers, at the popular EverAfter event in Waterloo, Ontario, in June 2019, to recruit volunteers to test their device.

Pricing

There were two pricing models for the Guard-Ex solution. One pricing model was based upon a purchase of a GX420 device for $4000 per unit plus a $350 monthly fee for the software. The second pricing model was based upon a monthly

subscription for both the hardware and software. The monthly hardware subscription price was $300, and the monthly software subscription was $350.

Going Forward

Khan realized that evaluating the options to determine the best implementation plan for the GX420 impairment-testing device was critical and that organizing an ideal implementation plan would take time, but could Guard-Ex wait? Where should he start to prepare his recommendation for the roll-out of the Guard-Ex device in the field to ensure the strategy would secure clients, pass hurdles in court, and gain the firm a strong foothold in the marijuana screening device industry fast enough to remain competitive?

As his team members began entering the boardroom to prepare for the upcoming presentation to the Chiefs of Police, Khan knew what he had to do.

Exhibits
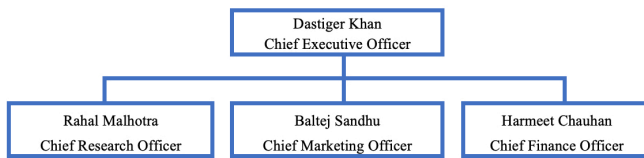
Exhibit 1 – Guard-Ex Corporation Organization Chart

Exhibit 1 – Guard-Ex Corporation Organization Chart. [See image description.]

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Exhibit 2 – Competitor Comparison Chart

| Competitor	Technology	Federally Approved	Substance Measured	Application
SanTek	Nanotechnology, hand-held device to analyze breath samples	X	THC via breath sample	Roadside testing
Cannabix	Breathalizer device used to sample breath	X	THC via breath sample	Roadside testing, workplace application in progress
Draeger	Draeger DrugTest 5000 device, oral fluid test	Yes	THC, cannabinoids, cocaine, amphetamines, opiates	Roadside testing
Abbott	SoToxa handheld device, oral fluid test	Approved Criminal Code Device Appendix	THC via saliva sample	Roadside testing
Guard-Ex	GX 420 VR Headset, machine learning, AI	X	5 physiological reaction times to measure fitness for driving, work	Roadside testing, workplace application in progress

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Exhibit 3 – GX420 Device Pilot Testing Flow Chart
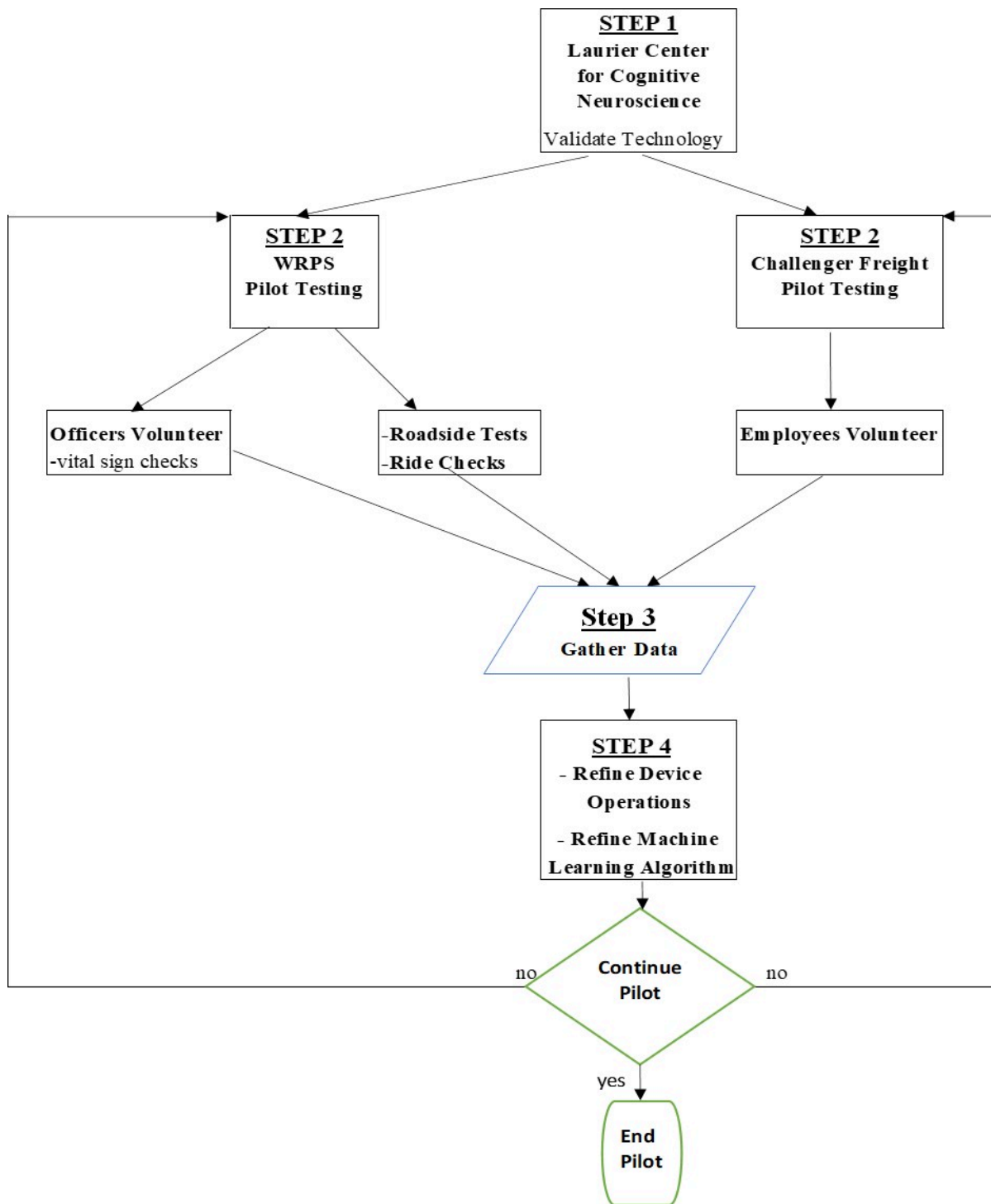
Exhibit 3 – GX420 Device Pilot Testing Flow Chart. [See image description.]

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References

Beadie, A. (2018, October 23). *New frontiers in the cannabis testing industry*. Analytical Cannabis. https://www.analyticalcannabis.com/articles/new-frontiers-in-the-cannabis-testing-industry-310395

Connolly, A. (2018, October 10). *Conservatives decry justice minister's remarks that impaired driving charges will come "case-by-case."* Global News. https://globalnews.ca/news/4532578/cannabis-legalization-conservative-critics-charges/

CBC. (2018, October 18). Up in smoke (Season 13, Episode 5). Dragon's Den. https://www.cbc.ca/dragonsden/episodes/season-13/episode-5-season-13

Froese, I. (2018, September 28). *At least 2 Manitoba police forces will weed out impaired drivers with pot-screening device*. CBC News. https://www.cbc.ca/news/canada/manitoba/manitoba-police-forces-drager-device-rivers-morden-1.4839712

Hall, J. (2019, May). How cannabis-fueled frat parties led to a new roadside screening device. *Toronto Star*. https://www.thestar.com/news/cannabis/2019/05/10/how-cannabis-fuelled-frat-parties-led-to-a-new-roadside-screening-device.html

Jain, J. (2018, February 23). Project management techniques to avoid project failure. *PMI Institute*. https://www.whizlabs.com/blog/project-management-techniques-to-avoid-project-failure/

Krigsman, M. (2009, January 14). *Study: 68 percent of IT projects fail*. ZDNET. https://www.zdnet.com/article/study-68-percent-of-it-projects-fail/

Laurier Alumni News, (2018, November). Police to introduce student-developed cannabis screening by Guard-Ex. *Laurier Alumni News*. https://www.laurieralumni.ca/s/1681/15/social.aspx?pgid=3098&gid=2&cid=8718.

Pender, T. (2018, October 10). Waterloo Region start-ups say their technology can help police detect drivers high on marijuana. *Waterloo Region Record*. https://www.therecord.com/business/2018/10/10/waterloo-region-startups-say-their-technology-can-help-police-detect-drivers-high-on-marijuana.html

Petracek, H. (April 2, 2019). *N.S. woman to challenge law after testing positive for cannabis at checkpoint*. CTV Atlantic. https://atlantic.ctvnews.ca/n-s-woman-to-challenge-law-after-testing-positive-for-cannabis-at-checkpoint-1.4362087

Platt. B. (2019, April 22). After lengthy delay, government prepares to approve second device for testing drivers' saliva for cannabis. *National Post*. https://nationalpost.com/news/politics/after-lengthy-delay-government-prepares-to-approve-second-device-for-testing-drivers-saliva-for-cannabis

Rudd, J. (2018, July). *Trends in the cannabis testing industry*. Analytical Cannabis. https://www.analyticalcannabis.com/articles/new-frontiers-in-the-cannabis-testing-industry-310395

Strathmann, F. & Lin, C. (2013). Elevated urine zinc concentration reduces the detection of methamphetamine, cocaine, THS and opiates in urine by EMIT. *Journal of Analytical Toxicology, 37*, 665–669.

Tasker, J.P. (2018, June 20). *Trudeau says pot will be legal as of Oct. 17, 2018*. CBC News. https://www.cbc.ca/news/politics/cannabis-pot-legalization-bill-1.4713839

Yang, Y., Lewis, M.M., Bello, A.M., Wasilewski, E., Clarke, H.A., & Kotra, L.P. (2017). Cannabis sativa (hemp) seeds, tetrahydrocannabinol, and potential overdose. *Cannabis Cannabinoid Research, 2*(1), 274–281. DOI: 10.1089/can.2017.0040

Venkatratnam, A. & Lents, N. (2011). Zinc reduces the detection of cocaine, methamphetamine and THC by ELISA testing. *Journal of Analytical Toxicology, 35*, 333–340.

Image Descriptions

Image 1

Top of slide begins with title "Team" and the tag line: "Technology that keeps you safe, backed by those who care." Below there is a row of four headshots:

1. Dastiger Khan, Chief Executive Officer
2. Harmeet Chauhan, Chief Finance Officer
3. Rahal Malhotra, Chief Research Officer
4. Dr. Jeffery Jones, Chief Product Officer

At the bottom there are two additional photos:

1. Robert Schlegel, Investor and Board Member
2. Former Chief Larry Gravill, Law Enforcement Advisor

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Exhibit 1

This organizational chart depicts the hierarchy of the Guard-Ex Corporation. The top level shows Dastinger Khan, Chief Executive Officer. The next level below reads, from left to right, Rahal Malhotra, Chief Research Officer, Baltej Sandhu, Chief Marketing Officer, and Harmeet Chauhan, Chief Financial Officer.

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Exhibit 3

This is a flowchart outlining the Guard-Ex device pilot testing.

- Top of chart begins: Step 1: Laurier Center for Cognitive Neuroscience, validate technology.
- Step 1 moves to two branches Step 2: WRPS pilot testing and Step 2: Challenger Freight pilot testing.
- WRPS pilot testing goes to 1) officers volunteering and vital sign checks and to 2) roadside tests and ride checks.
- Challenger Freight pilot testing goes to employee volunteers.
- All Step 2 branches merge at Step 3: gathering data.
- Step 4: Refine device operations and refine machine algorithm follows Step 3.
- Step 4 goes to the yes/no option to Continue Pilot
- No option returns to Step 2: WRPS pilot testing and to Step 2: Challenger Freight pilot testing

- Yes option goes to End Pilot at bottom of flow chart

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HANDLING SOURCING ISSUES IN EMERGING INDUSTRIES: ECOSTRAT'S BIOMASS SUPPLY DILEMMA

Fatih Yegul and Azim Shamshiev

All figures in Canadian dollars unless otherwise noted.

It was a cold but sunny winter afternoon early in 2014, and it had been a regular workday for Pat Liew, Director of Business Development at Ecostrat, with no bumps and bruises until he opened the email from one of Ecostrat's key customers (the customer). The customer complained that the biomass wood supply they received from Ecostrat did not meet the specifications required by their newly installed biomass boiler. Liew quickly reviewed all the documents, including the request for quote (RFQ), the purchase order, the order receipt from the customer, the internal sales order, the shipping documents, etc. Though all of the paperwork looked accurate, Pat was puzzled because the biomass wood chips clearly did not fit the brand-new boiler, and this was a showstopper. He wondered how this could have happened. With many unanswered questions, he picked up the phone to call the customer to determine the best next steps to resolve this problem.

Biomass Industry and Wood Chips Boilers

Bioenergy includes various renewable energy sources derived from biomass. According to the International Renewable Energy Agency (IRENA), 70% of the renewable energy supply and 10% of the total primary energy supply globally comes from bioenergy.[1] Biomass comes in different forms, such as wood, agricultural residue, food waste, and animal manure. Of these, woody biomass is the largest source of bioenergy. Bioenergy from wood is considered sustainable because its carbon emissions are largely offset by the carbon sequestered by trees. However, to be both renewable and carbon-neutral, wood must be sourced from sustainably managed forests, and its life-cycle carbon emissions must be minimized. Bioenergy facilities typically utilize by-products of logging, forest thinning,[2] and wood processing operations, as well as post-industrial, C&D (construction and demolition), and urban wood waste (e.g., waste from the clearing of yards or power lines).

Woody biomass can be turned into biopower (heat and electricity), biofuels (gasoline, diesel, and sustainable aviation fuel), renewable chemicals, or other bioproducts. Power is produced by the combustion of wood in large biomass power plants or small-sized biomass boilers. Companies and institutions (e.g., hospitals and schools) can install small biomass boilers to partially replace fossil fuel power generation. They are often incentivized to reduce their carbon emissions by governments through renewable energy credits.

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1. IRENA, 2020.

2. Thinning is an effective and powerful forest management tool that promotes tree growth and restores forest health. When thinning, forest operators remove slower-growing or defective trees to provide more space for the remaining trees to grow. (Oregon Forest Resources Institute, n.d.).

Aggregators are essential players in the biomass industry. They are intermediary entities that aggregate biomass from various suppliers (biomass generators) and provide it to one or more end-users (facilities using biomass as feedstock). While some end-users source feedstock directly from multiple suppliers, others work with aggregators to minimize sourcing complications and headaches associated with managing multiple contracts and to reduce the risk and impact of supply disruptions. Aggregators can have more flexibility to deal with potential supply chain or supplier failures (such as breach or insolvency) as their wide supply networks allow them to replace the lost supply quickly. Aggregators' deep market experience may enable them to anticipate and mitigate supply chain disruptions. Also, a single master supply contract with an aggregator can facilitate project financing with capital markets.

Whole tree chip (WTC) is a type of forest biomass derived from forest thinning residue and low-grade trees. It consists of chipped crowns, branches, trunk, and bark. In some rare cases, the feedstock may be inconsistent in size, creating problems for biomass facilities.

Ecostrat

Ecostrat is a leading company in the bioeconomy sector in North America. Its biomass supply group has over 25 years of experience aggregating wood fibre and organics for bioenergy projects across the continent. Ecostrat's advisory group supports bio-project developers, lenders, and investors in evaluating biomass supply chain risk. Ecostrat developed the world's first comprehensive framework, the Biomass Supply Chain Risk Standards, now a CSA National Standard of Canada, for evaluating biomass projects and designating bioeconomy development opportunity zones.

Customer's New Wood Chip Boiler

The customer was a Fortune 500 corporation with multiple facilities in North America. The customer purchased a wood chip boiler for one of its manufacturing facilities to support its corporate sustainability goals of reducing carbon emissions. The customer was also motivated by some government grants that incentivized environment-friendly initiatives. The customer operated in a highly regulated industry, which required the boiler to be installed inside an enclosed structure to keep fumes away from the manufacturing facility.

With the excitement of getting closer to achieving their sustainability goals while enjoying the government grants, the project team hurried to collect bids from biomass boiler providers and contractors. The installation project started soon after the contracts were signed with the winners. The customer was happy to acquire a good-quality boiler with an economic life of 20 years. Closer to the time of commencement, the customer, in consultation with the boiler supplier, sent out RFQs to biomass aggregators, including Ecostrat, to buy 15,000 to 20,000 tons of WTC annually. The customer's review of quotes resulted in a multi-year supply contract with Ecostrat. The Ecostrat team was excited to sign a deal with another prestigious customer. As a biomass aggregator, the role of Ecostrat was to work with the local wood chip suppliers to gather enough wood chips and ensure a stable biomass fuel supply for its new customer's boiler.

Ecostrat made all the necessary arrangements with local partners, and the first shipment was on its way to the customer. As the customer received the first batch of the WTC, Ecostrat got one step closer to the beginning of another long-term business relationship. All transactions went so smoothly that the Ecostrat sales team never imagined the significant complications that would surface in just a matter of days.

What Was the Problem With the Wood Chips?

The biomass industry had not yet achieved maturity. Nevertheless, it still offered many financial and environmental benefits to organizations that adopted biomass as their fuel source, accompanied by government incentives promoting green initiatives. As with any developing business sector, the biomass industry has caveats demanding caution from its clients. For instance, as it relates to this case, there are no established standards that govern the specifications of the many different types of wood chips available. The specifications of wood chips available in one region, such as size and moisture content, can vary significantly compared to those available in another region, based on its climate and flora.

> There are no established standards that govern the specifications of the many different types of wood chips available.

The wood chip boiler technologies are diversified to meet the needs of different regions with different wood baskets. A boiler designed for the size and moisture content of the wood basket in southern New England in the U.S. may not function properly with the wood chips available in northern Ontario, Canada. Therefore, companies planning to acquire wood chip boilers must allocate resources to study and understand the local wood basket (i.e., specifications and supply conditions of locally available wood chips) before making any long-term investment decisions.

Liew learned that the customer, due to marketing pressure from the boiler provider, rushed the decision process and installed a boiler that consumed a type of biomass that was not available in the local wood basket. In this case, the percentage of oversize material it could tolerate was far less than the percentage typically available in the local wood basket.

One small mistake in the wood chip terminology caused a big challenge for the customer. Based on feedback from the boiler manufacturer, the customer specified WTC as the boiler feedstock in its RFQ. However, in the customer's region, WTC meant chipping trees together with the crown and the bark, inevitably creating many oversized pieces. While woody biomass produced in this manner was typically used by power plants in that region, it was not suitable for the type of boiler the customer had installed. Apparently, the boiler manufacturer was not aware of this difference. Now stocked with biomass that would not fit its recently installed boiler, the customer urgently needed an alternative solution. In Liew's own words: "what's going on with this customer is actually quite common in the industry. Boiler manufacturers [...] just want to sell the equipment. They don't really care if the facility is able to source the material."

Ecostrat's Options

Once the root cause of the problem was identified, Liew and his team met to evaluate their options. Evidently, they were not in breach of the contract terms with the customer. Now that it became clear that the material received by the customer was out of spec, Ecostrat would have to cancel all the deals made with local suppliers.

Liew checked the contract terms to ensure that Ecostrat was not obligated to pay penalties to local suppliers and could renege on the contract with the customer without any serious ramifications. Thus, terminating the contract and ending the relationship with the customer was an option to consider, though the team would need to redirect their valuable resources into finding new customers.

However, Liew was aware that there could be alternative solutions to propose to the customer. So, he requested some time from the customer to explore those alternatives. Some machinery manufacturers offered specialized equipment – called a resizer or hammer mill – that could resize the wood chips as per the specifications before feeding them into

the boiler. The customer could acquire a typical fitting resizer for their boiler with an investment of about $70,000. However, it turned out that the resizer would not fit inside the enclosed space where the boiler was housed, and the regulations did not permit the installation of the resizer outside the enclosed area. Therefore, Liew contacted a contractor to assess the cost of a project to expand the boiler space to fit the resizer. The total estimate, including the expansion and the boiler, was in the ballpark of $350,000.

In the meantime, Liew contacted the local wood chip suppliers to understand whether they would be willing to resize the wood chips for an additional cost before shipping. He was able to find enough suppliers who agreed to resize the wood chips. It would cost the customer $5 to $8 extra per ton of wood chips (due to variable market supply conditions).

Reflecting upon the options he uncovered in his analysis of the situation, Liew gathered his team to discuss the best next steps to resolve the issue. He was hesitant to renege on a potentially profitable deal with the customer but realized the shortcuts the customer took in installing a non-compliant boiler had caused the problem. Could he return to the customer with recommendations based on the options he explored to salvage the deal, saving the team from future efforts toward finding a new customer? Was it worth it?

References

IRENA. (2020, September). Recycle: Bioenergy. *Circular Carbon Economy Report, 5*. International Renewable Energy Agency. https://www.irena.org/publications/2020/Sep/Recycle-Bioenergy

Oregon Forest Resources Institute. (n.d.). *Thinning for forest health.* https://oregonforests.org/node/113

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IMPLEMENTATION OF AN ACCESSIBILITY ONLINE SYSTEM AT THE INTERNATIONAL BUSINESS AND TECHNOLOGY ACADEMY

Anne Paulson and Jane Gravill

All figures in Canadian dollars unless otherwise noted.

As Julie Jones drove into work early on Monday morning, April 4, 2017, she reflected upon the difficult decision that lay ahead in preparation for her team meeting later that day. She had been Manager of Accommodation Services (AS) for only a few short months and had taken on the role in the middle of a systems implementation project for the department. She did not know much about implementing a new software, but she knew that her decision of whether to proceed with the long-awaited AS system go live date of May 9, 2017, would have a major impact on her staff and the students at International Business and Technology Academy (IBTA) who relied upon their services.

Accommodation Services (AS)

AS was an academic support unit within IBTA, a higher education institution that prided itself on research and innovation. After a reorganization in 2016, AS was made a subunit of the Student Experience Office (SEO), which was led by Samantha Saber, Director of Student Experience. IBTA's strategic plan included creating a vibrant student experience and promoting a sound value system. There was a strong governance model which included a board of governors to take responsibility of academy affairs and a senate for establishing policy.

The AS department provided academic support for approximately 2500 students at the academy. All students with a disability were eligible to register with AS. Depending on the student's circumstances they may then receive accommodations and support from AS. Academic accommodations include classroom and milestone accommodations, such as testing accommodations or the use of assistive technology in the classroom. AS offered a wide range of services, such as providing transportation and ensuring accessible seating was available in class; creating alternative formats of textbooks and other course materials; and providing accommodations for exams such as a private space, a computer, or extra time. AS strove to support equitable access to post-secondary education. Although a part of the institution, AS received funding directly from the Ministry of Education based on the volume of students registered. AS had a staff of 15 regular full-time employees reporting to the manager and as well as part-time staff to provide additional services such as creating alternative textbook formats and proctoring exams at the start and end of each term (see **Exhibit 1 – Organization Chart**).

Manager of Accommodation Services, Julie Jones

In January 2017 Jones joined the International Business and Technology Academy as Manager of Accommodation Services. Jones had many years of professional experience and a robust education earning a doctorate and multiple

master's degrees, including a master's degree in critical disabilities. Having temporarily experienced complete vision loss, Jones was inspired to work toward supporting people with disabilities and creating an equal playing field for everyone.

Information Management Processes at AS

AS relied on Microsoft Access and Excel software programs, and triplicate paper-based forms to manage student information and facilitate their processes. The MS Access database contained a record of each student along with basic demographics and disability information. Theoretically, the MS Access database also indicated whether a student was still actively registered with AS and was a repository for case notes. However, in practice, there was a great deal of inconsistency with respect to how staff used and updated the records, making it difficult to draw any meaningful data. This also resulted in challenges with reporting to the ministry regarding the number of active students because the staff thought the data from the system could not be trusted.

The MS Excel spreadsheet had a number of complex macros and included information regarding what academic accommodations each student was eligible for, the courses they were enrolled in each term, their exam schedule and exam accommodations, and free form notes. This was considered the primary and most accurate source of information regarding services for students from AS, because in theory, all students receiving service each term were recorded in the spreadsheet. By the time Jones joined the team, the MS Excel file was so large that it often crashed, and some staff were unable to open the file at all, which made them dependent on their own version of the file.

Triplicate paper-based forms were used to facilitate student requests for accommodations and reviews by advisors in AS. These triplicate paper-based forms were handed in to staff at AS who populated some information into the Excel spreadsheets. Only after this partial data entry into the MS Excel spreadsheets was complete would the information be reviewed by advisors. Then, assuming there were no complications, the requests would be approved. This process took multiple weeks, meaning that students who did not submit the forms well in advance of the start of term went without needed accommodations for the first few weeks of class. Once requests for accommodations were approved, the students were required to pick up the triplicate forms, one for each class, and take it to their professors for signing as well. Once this signature was obtained, the professor, student and AS were each to keep a sheet of the triplicate form. It was the student's responsibility to ensure each party had the form. It was not uncommon for forms to either not be returned to AS or to be lost. If AS did not have the triplicate form on file, it resulted in students not receiving academic accommodations or students coming in for exam accommodations and AS not having the required resources such as a copy of the exam, a proctor, or the equipment set up to support the student.

Additionally, it was challenging for staff to get a full picture of a student's history with AS, because information was in various places (email, Access, Excel, paper forms). This made it difficult to make recommendations for changes to accommodations based on the student's history and progress. Occasionally, a court mandate could require AS to submit all information relating to a student's file and it was virtually impossible to be confident that they could fully comply with such a request, given the challenges in finding all related documents and communications.

> It was challenging for staff to get a full picture of a student's history with AS, because information was in various places.

New Information Systems Project Becomes a Priority

Prior to the reorganization in 2016 there were many discussions regarding the implementation of a new system to help resolve the many challenges faced by the department; however, these discussions did not lead to any meaningful results.

Once Saber was made aware of the challenges in AS, she made it a priority for the department to implement a new solution. She reassigned Lisa Carlson, Student Relations and Operations Coordinator in the SEO to work out of AS to help on the information systems project as well as to support other changes in the department, such as relocating the office. A project team was formed with a project manager (PM), John Grable, assigned from the Information Systems and Technology (IST) department (See **Exhibit 2 – AS Project Team**).

Academy policy stated that procurements of $10,000 to $99,999 required three written quotes to be obtained. This policy was meant to ensure a competitive process was followed. The project team obtained the required three quotes and planned to purchase the solution SystemWorks based primarily on the knowledge that most Canadian higher education institutions used this product. The team also had a demonstration of SystemWorks and thought the product seemed like a good fit for their needs. In April 2017 a business case was created for the project that highlighted SystemWorks as the preferred solution.

Change in Direction

Before the team finalized this decision, Saber attended a conference where she received feedback from peers regarding SystemWorks that suggested that the software package was not a great solution. As a result, she advised the project team to take a step back and look more closely at the available options before making a decision. The project team went to visit a customer site to see how they utilize the SystemWorks solution and came to realize that it may not be the solution they were hoping for. They then reached out to other institutions to find out what their disability service departments were using, which is how they learned about Elevate Information Management (EIM). The project team viewed a demonstration of EIM's software package.

The team also considered using a custom-developed solution built in-house by a member of the AS team, the Intake and Office Administrator, who had a background as a computer engineer. The Intake and Office Administrator felt so strongly about building an effective system for AS that she began building a custom solution on her own to provide a demo to the project team. Saber, having had some experience implementing systems on campus, was weary of a custom solution and steered the team away from that option. A meeting was held where the project team discussed their options, and they decided that EIM provided the best product for their needs. This decision to select EIM as the AS solution was made in October of 2016, approximately nine months into the process. The project team decided to aim for a launch of the new system on May 9, 2017, as the spring term generally had fewer students and therefore was expected to be more manageable.

Elevate Information Management (EIM)

The EIM software was developed by employees in a disability services department at a college in the United Sates. They built the solution because of frustration with the lack of solutions for management of academic accommodations needed for students with disabilities in higher education. In 2008, they began selling the program to other institutions. By the time AS decided to purchase the program, EIM had been a niche company for eight years and still maintained a small team (under 10 people) with specific experience providing service to students with disabilities.

The EIM system had potential to facilitate operations for the entire AS team. EIM was designed to be used for student application collection and review, appointment scheduling, case management, academic accommodations, and correspondence with faculty regarding accommodations. The system also included a student portal that allowed students to request accommodations, schedule exams, review messages, download class notes, and submit required documentation to support their requests. A nightly data feed was run to populate student demographic and course information from the institution's student information system into EIM. This enabled students to request

accommodations for each course that they were enrolled in, and for staff to send communications to the instructors regarding academic accommodations.

Procurement and Implementation

A lawyer in the IBTA Procurement Office managed the contract negotiation process, which took a few months to complete and required signoff by Procurement, AS, and IST. The contract was finalized in February 2017 and the cloud-hosted system was made available to the project team shortly after. The vendor also provided some written documentation regarding configuration options for the software. Concurrently, the PM initiated a privacy security impact assessment (PSIA) by submitting the PSIA form to the Director of Security and the Privacy Officer. Technical information was collected from the vendor in order to assess security; however, the full review could not be completed until IBTA actually obtained access to the EIM software to perform security testing within the system. Some stipulations were added to the software contract indicating that if the software could not meet IBTA's security standards, then the issues would be corrected by the vendor, or IBTA would receive a refund. Also during this time, the PM initiated the work required for integration, including the student data feed, central authentication, and emailing.

The vendor was willing to provide the technical specifications for the data feed before the contract was finalized, which enabled the PM to begin working on this in November 2016.

System Implementation Delays

There were multiple delays due to confusion and lack of clarity regarding procedures. Eventually, it was determined that the data integration could not be completed until the stewards of the data had consented to its use and the PSIA process was complete. However, the required development work could begin, on the assumption that the required approvals would fall into place. The PSIA review and confirmation from data stewards were completed in March 2017. Sample files with test data for the integration were made available in April 2017.

Project Staffing

There was significant staff turnover within the project team during the contract negotiation and PSIA review. All staff in the AS department reported directly to Saber until Jones was appointed to oversee AS in January 2017. The AS Intake and Office Administrator played a central role as a subject matter expert during the system selection process but left the university in late 2016. In March 2017, Michelle Leeds, a business systems analyst from IST who was new to the academy also joined the team as an observer to prepare for a more active role in the future. After the launch, it was expected that Leeds would take over management of releasing any additional modules, as well as ongoing support for the new system. There was also a plan for a system administrator to be hired within the AS team, but the process had been significantly delayed, as the job description took a long time to process with HR and have a salary grade assigned. See **Exhibit 2 – AS Project Team** for a summary of the project team members and roles in March 2017.

One Month Prior to Launch

In a project meeting one month before launch, Grable announced that the PSIA review was successfully completed and the team was cleared to launch the new system. He advised Jones and Carlson that AS would be responsible for conducting testing, as they were the subject matter experts, and Carlson was tasked with the responsibility. Grable

indicated that this testing period should be fairly short, since it was not a custom developed software and significant testing would therefore not be required. However, Carlson left the meeting still unsure of what to do, as she had no experience with software testing.

The Discovery

Leeds approached Grable after the meeting to offer assistance with creating a systems implementation test plan, including help with conducting the tests. Both Grable and Carlson were thrilled to accept Leeds's offer. Leeds and Carlson met the next day with the intention of creating a test plan. Leeds had come from a case management software company similar to what AS would be implementing and had experience implementing case management solutions. During the meeting, Leeds indicated it would be reasonable to develop the test plans based upon what Carlson understood to be the functionality of the software, and the intended future processes of the AS team. It quickly became apparent to Leeds that a number of activities that she assumed were completed had not yet even been started, such as configuration of the software and training on its features. Leeds knew that these activities were critical components of the system implementation and had to be completed for the AS launch to be successful.

As Carlson and Leeds uncovered the various incomplete system implementation activities, the objective of their meeting transitioned from creating test plans to working together to come up with a list of items to complete before launch (See **Exhibit 3 – List of Tasks Yet to Be Completed as of April 1, 2017**). Carlson and Leeds were in agreement that they should recommend postponing the launch, as they were seriously concerned that there was not sufficient time and resources to complete these items within the less than one-month time period before the go-live date. They distributed the list of outstanding items to the team, expressing their concerns, and requested a team meeting to discuss this shocking discovery.

Jones' Quandary

During the team meeting, it became evident that Grable and the team members were not in agreement regarding the best approach going forward for the AS implementation. As Jones reflected on the series of events that occurred during the team meeting, she was still not sure about the best strategy going forward for the AS implementation.

When Leeds described the amount of work to be completed for the items on the list during the meeting, Grable countered each item claiming that Leeds was being overly thorough and creating extra, unnecessary work. Grable kept stating that the AS was not a big system implementation and explained that since it was not custom software, the team should not really be worried about testing. He added that as a small unit, the team was already familiar with most of the processes involved and would be able to figure it out pretty quickly after launch if problems were encountered. Grable explained that launches never go perfectly and that he had seen this cycle many times before, where teams kept postponing the launch of a new system and never end up going live.

Carlson and Leeds had presented a long list of system implementation items that needed to be completed within just a few weeks before the May 9, 2017 go-live date, and Jones knew her team was already overworked. As she looked over the list, she thought the number of activities to complete seemed overwhelming and impossible to accomplish in just a few weeks. Therefore, Leeds and Carlson's argument to delay the go-live date made sense. However, Grable was the project manager for the new system and he strongly disagreed with their recommendation. Grable indicated that the most difficult work for the implementation was the software integration with other systems used by the academy, most of which was already completed.

Jones knew that Leeds had a lot of experience with this type of system implementation, and she realized that Leeds believed the missed activities were critical to a successful implementation. Carlson was also a trusted member of the team and Jones knew that Carlson and Leeds would be the team members responsible for completing the unfinished components of the project, as they had a good idea of the tasks involved. Jones was confident that Carlson would have put a lot of thought into the recommendation to delay the go-live date, and she did not want the launch of the new system to be a failure or cause negative media attention.

AS Implementation Challenges – So Dire So Fast

Jones wondered how the situation became so dire so fast. No one on the project team had expressed concern regarding the AS implementation at the previous week's project meeting. Now all of a sudden, the team was faced with the decision to cancel the go-live date. The AS project had started years ago, and Saber was expecting a successful launch in less than a month. Would postponing the go-live date seem like a failure? Grable seemed confident that the team could launch the project successfully on time. Furthermore, Grable was the PM and had been working on the project and in the institution for a long time. Therefore, Jones thought that it may not be wise to overrule his decision.

However, Jones was aware that Leeds had a lot of information systems experience and that she would be the team member who continued to work for the long term on the AS team after the system launch. Therefore, Leeds's opinion was important to consider, and it was critical to be on good terms with her going forward. Whatever happened after launch, Leeds and the new system administrator would be the team members responsible for fixing any issues and supporting the system.

Going Forward

Decisions grounded in human resources management and working with teams and processes needed to support people with disabilities were second nature to Jones. However, managing an information systems implementation was an entirely different playing field that had been added to her growing portfolio with the AS project. Jones took a couple of days to reflect upon all the information, opinions, and explanations that she received during the last team meeting to consider the pros and cons of delaying the AS go-live date. As she parked her car and walked into her office, she knew what she had to do.
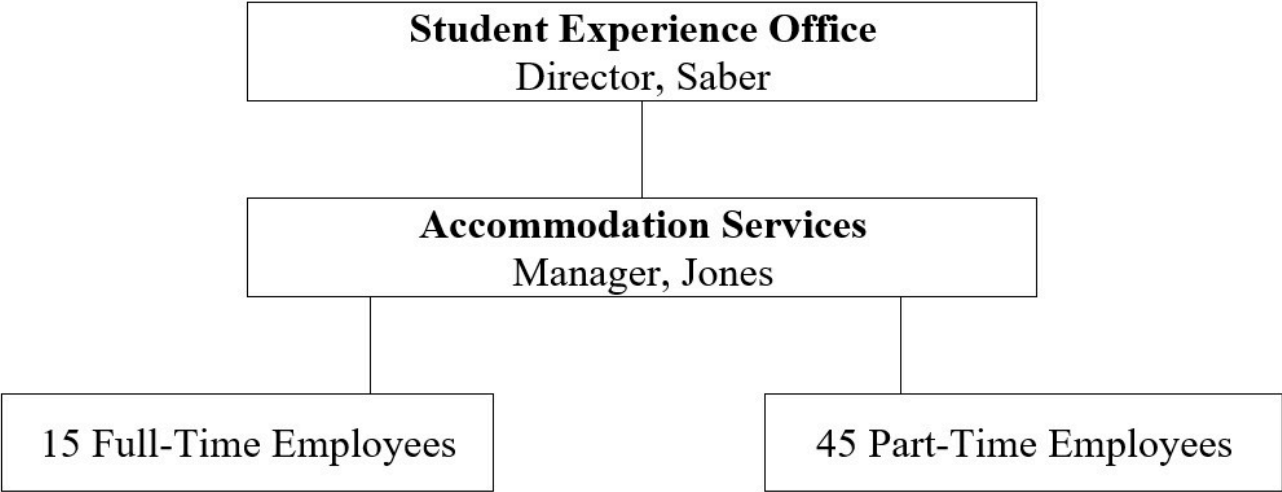
Exhibits

Exhibit 1 – Organization Chart

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┌─────────────────────────────────┐
│     Student Experience Office    │
│         Director, Saber          │
└─────────────────────────────────┘
                 │
┌─────────────────────────────────┐
│      Accommodation Services      │
│          Manager, Jones          │
└─────────────────────────────────┘
          │               │
┌──────────────────┐  ┌──────────────────────┐
│ 15 Full-Time     │  │ 45 Part-Time         │
│ Employees        │  │ Employees            │
└──────────────────┘  └──────────────────────┘
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Exhibit 1 – Organization Chart. [See image description].

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Exhibit 2 – AS Project Team

Staff person	Project role	Project responsibilities
Julie Jones	Sponsor/business owner	Receives project updates, can use political capital, if necessary, ultimate decision maker.
John Grable	Project manager	All project management activities, ultimately striving to balance resources, timeline, and quality. Role to end once system is launched with any remaining project management shifting to Michelle Leeds.
Lisa Carlson	Business analyst & subject matter expert	Liaison between staff and project team, system administrator responsibilities until the role is filled. Role to end once system administrator is hired as this was meant to be a short-term secondment.
Michelle Leeds	Business systems analyst	Observer collecting information that will aid in future support and managing rollout of future modules of the software.

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Exhibit 3 – List of Tasks Yet to Be Completed as of April 1, 2017

Task	Status	Description
Software administration training	Not started	Training on how to configure and administer the software. This is necessary to understand the capabilities of the solution and the various options for how to use them. This training would be delivered by the vendor to the system administrator(s).
Software configuration	Not started	Determining various settings within the system that will control the way information flows through and is stored in the system, as well as labelling fields and providing text for email templates.
Process review and future state process design	Not started	Reviewing the current state processes to ensure a good enough understanding of key inputs and outputs required to deliver service. Creating a future state design that improves efficiency and quality utilizing the system while still handling the key inputs/outputs.
Testing	Not started	User acceptance testing based on the configuration to ensure it is aligned with the planned future state and there are no bugs.
Integration of student data	In progress	Nightly data feed from the student information system to AOS that provides student demographic and class data.
Data migration	Not started	Transfer of historic student records into AOS.
Communication strategy	Not started	Push communications such as emails and presentations to staff, students, and faculty. Content development and redesign of the AS website.
Staff training	Not started	End user training for staff in the AS department.
Student training	Not started	Drop-in training sessions for students.
User manual and job aids	Not started	Written instructional materials to support staff and students using the system.
Hiring of system administrator	In progress	System administrator to configure software and provide training to staff and students.

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Image Descriptions

Exhibit 1

An organizational chart outlining the Accommodation Services department read from top to bottom. It begins with Student Experience Office Director, Faber at the top. Below the director is the Accommodation Services Manager, Jones. Below Accommodation Services Manager are two branches: at left, 15 full-time employees and at right, 45 part-time employees.

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Read the Instructor's Manual Abstract for this case.

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