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INNOVATIVE AUTOMATION: COPING WITH COVID-19

R. Chandrasekhar wrote this case under the supervision of Mary Weil solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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It was the first Monday of April 2020. Steve Loftus was driving the 11-kilometre commute from his home in Springwater to his office in Barrie, Ontario. Traffic was light and Loftus was reflecting on the way he had been coping with COVID-19 during the previous two weeks. He was also examining his options, going forward, for dealing with a situation that was unprecedented in terms of its fluidity and uncertainty.

As founder and president of Innovative Automation Inc. (Innovative), a custom machine builder, Loftus was facing a singular dilemma: How should he ensure that the internal channels of communication at Innovative remained open as its employees⎯like everyone else in the rest of the province and indeed the rest of the world⎯dealt with an unknown virus? He was also facing a related predicament: How should Innovative enforce social distancing, which had been mandated by the provincial government in its bid to contain the spread of the virus, at its manufacturing facility in Barrie?

COVID-19

In December 2019, a cluster of cases of an acute respiratory illness, known at the time as Novel Coronavirus-Infected Pneumonia (NCIP), had surfaced among residents of Wuhan in the province of Hubei in central China. Evidence suggested that the virus had spread to humans via transmission from wild animals being illegally sold in the Huanan Seafood Wholesale Market in the City of Wuhan.[[1]](#footnote-1) In mid-February 2020, the World Health Organization (WHO) named the illness “coronavirus disease” (COVID-19).[[2]](#footnote-2) On March 11, WHO declared COVID-19⎯which had by then spread to more than 200 countries and whose cases numbered more than 5.9 million worldwide⎯a pandemic, due to its global nature.[[3]](#footnote-3)

A survey of the first 425 cases in Wuhan found that the median age of the patients was 59 years, 56 per cent of the patients were male, the elderly and those with coexisting conditions showed higher rates of mortality, and there were no cases in children less than 15 years of age.[[4]](#footnote-4)

On March 17, the Government of Ontario announced that it was declaring a state of emergency in the province under section 7.0.1 (1) of the *Emergency Management and Civil Protection Act* and was using “every power possible to continue to protect the health and safety of all individuals and families.”[[5]](#footnote-5) The order banned public events of more than 50 people. In a related order on April 3, the provincial government designated 44 businesses as “essential businesses” that would be allowed to stay open. Manufacturing was one of these.[[6]](#footnote-6) Innovative could thus keep its facilities open.

**INNOVATIVE AUTOMATION BACKGROUND**

Innovative was founded in 1989 by Loftus and two others. The company manufactured machinery that was tailored to the specific needs of firms in the automotive sector. Having built up skills over the years in designing, building, and installing customized machinery⎯ranging from a CA$50,000[[7]](#footnote-7) retrofit to a $5-million high-tech automation system⎯the company had expanded its services to move from the development of vehicle sensing systems to the application of energy efficient systems. It had also moved beyond the auto industry toward other end markets, such as medical device manufacturing.

The company had grown by building lasting relationships with customers and being flexible in responding to customers’ needs, as well as on its singular value proposition of focusing on the total cost of ownership for each customer as opposed to the purchase price. A lower cost over the lifetime of the machine, improved uptime, and reduced repair expenses together compensated for the slightly larger initial investment for a customer. The custom machinery that Innovative built was hand-made and artisanal.

Innovative’s customers were primarily within the *North American Free Trade Agreement* region⎯Canada, the United States, and Mexico. The company’s principal geographic market was Mexico, which, on the strength of the high standards and competitiveness of its labour force, had become the world’s fourth-largest producer of luxury vehicles. In 2017, Innovative worked with the Business Development Bank of Canada to create an international business development plan centred on expansion to Europe and consolidation in Mexico.

In February 2018, Innovative relocated to a new 63,000-square-foot (6,000-square-metre) state-of-the-art facility in Barrie. By then, Barrie had become one of the fastest-growing business and manufacturing hubs in Ontario. With its residents’ median age at 37, the city was a hot spot for young, educated entrepreneurs who enjoyed its big-city convenience, picturesque landscape, recreational activities, focus on family, and, above all, short commute times. With provisions nearby for hiking and camping during weekends, the lifestyle offered by Barrie was a mix of city and country, which many of its residents preferred.

Innovative had a total of129 full-time employees in 2019, up from 106 in 2017. The core operations team comprised three categories⎯mechanical teams, which were developing and assembling automation systems from the first bolt forward; electrical teams, which were building wire systems; and programmer teams, which were building control systems. In addition to full-time employees, the company had between 10−25 engineering or business students on a regular basis as apprentices. Over 40 per cent of the company’s staff was under the age of 30.

Innovative had established an ongoing a partnership with a local college in Barrie⎯Georgian College⎯for hiring and training its students. The partnership gave the company first pick of talented graduates from the school’s engineering program and, in turn, provided students with valuable industry experience through co-operative (co-op) work placements. Rather than hire experienced people from competitor firms or make lateral recruitments, Innovative believed in home-grown employees: choosing them directly from college, supporting them through co-op programs, and giving them hands-on training. Of late, the company had also started hiring at the high-school level and financing these students’ education through the college. This was Innovative’s way of building an educated and motivated cadre of employees.

In February 2016, Innovative undertook an employee satisfaction survey to get a sense of what working at Innovative meant for each of its employees. The survey results were used by the company’s senior management to develop a vision statement: “Be the first choice provider of automation solutions to global leaders in manufacturing.” It was followed by a mission statement declaring that Innovators “Lead globally: providing our customers with quality automation solutions”; “Lead the industry: providing our employees with a safe, challenging and rewarding work experience”; and “Lead locally: enabling our team to enrich our community.” A similar employee satisfaction survey conducted a year later reinforced employees’ commitment to both the vision and mission statements.

The management group at Innovative tracked various performance metrics in a bid to get a sense of the organization. These included sales forecasting, shop loading, project profitability, cost overruns, process changes in a project, and employee scheduling. Floor space scheduling was an important metric, as it was unique to the company’s business of custom manufacturing. Once a machine built on the company’s premises was shipped out after 12−15 weeks, the large floor space would be idle, and it was important to ensure that it was quickly filled with a new, custom sales order. This was unlike the typical assembly line operations of most standard manufacturing facilities.

As part of an effort to diversify beyond custom manufacturing, in 2019 the company developed a product called RoboTape. It was the company’s first attempt at making products for off-the-shelf sale. Standard products would have lower margins, but they also involved far less engineering. RoboTape was scheduled for launch in March 2020 at a tradeshow in Detroit, but this was delayed due to COVID-19.

RoboTape automated tape application, which was a predominantly manual process and could be strenuous and inconsistent. The product also made tape application speedier by enabling the tape⎯whether foam, double-sided, or felt⎯to be fed robotically. The product consisted of two main components: a bulk spool feeding system known as a “payout” and a tape apply head.

Innovative’s long-term plan, post-launch, was to set up an assembly line for the manufacture of RoboTape, for which Innovative owned the intellectual property and had applied for a patent. The plan was also to set up RoboTape’s manufacture as an independent business and monetize it through spin-off or outright sale. Innovative was also developing a new platform to launch a slew of standard products from its premises.

The company had sales revenue of $53 million in 2019 (see Exhibit 1), when its export sales exceeded domestic revenues for the first time in a number of years. The company was aiming for revenue of $80 million with about 200 employees at its current location before setting up a new set of operations, focused likely on standard products, at new premises. The transformation would require financial, engineering, and marketing resources. While the company could mobilize the first two easily, it would have to sharpen its marketing skills, as marketing had been limited for a long time to high-value, custom sales.

**SARS PROTOCOLS**

Innovative had put protocols in place in early 2003 when the severe acute respiratory syndrome (SARS) was affecting Canada. Like COVID-19, SARS involved an unknown virus⎯there was no prior knowledge of how it was being transmitted, how long patients would be infected, or how best to treat it. But SARS was only moderately contagious and did not turn into a full-blown pandemic. Surfacing in China in November 2002, SARS had spread across the globe within weeks. About 8,500 persons worldwide were diagnosed with probable SARS, leading to over 900 deaths.[[8]](#footnote-8) The Canadian outbreak in February 2003 was largely centred in Toronto; all three deaths in Canada due to SARS had also occurred in Toronto.

There were two types of protocols Innovative developed at the time: (1) communication protocols (which set in motion bulletin boards and emails as the principal sources of employee communications) and (2) cleaning protocols (which prioritized several processes pertaining to workplace hygiene). As part of the latter, the company had not only identified “common touch surfaces” requiring cleaning but had also made it mandatory for these surfaces to be cleaned three times every day. The surfaces included all tables and chairs; all countertops; all hand railings; all door handles; all phones; and all company vehicles including the steering wheel, gear shifter, radio, dashboard, doors, and door handles.

The protocols were updated in 2009 during H1N1, a novel influenza A virus that had been first detected in Mexico in mid-April that year, spread quickly to the United States, and was first identified in Canada in late April. There were several thousand cases of H1N1 in Ontario with 120 fatalities.[[9]](#footnote-9) H1N1 was declared a pandemic by the World Health Organization (WHO) on June 11, 2009.[[10]](#footnote-10)

**FIRST RESPONSES TO COVID-19**

During the last week of February 2020—three weeks before the provincial and federal governments in Canada issued emergency orders—Innovative took a fresh look at its long-standing SARS playbook. The company had been executing its protocols rigorously on a daily basis. The cleaning of all common touch surfaces three times a day had also continued. A quick decision was made to keep all common doors open to ensure walk throughs and to pre-empt people from touching doorknobs or handling doors. Innovative also decided to launch a special COVID bulletin board to be managed by a senior executive. The company’s manufacturing manager took personal responsibility for the daily bulletin, which was to relay facts and updates on COVID-19 as sourced from credible authorities including Health Canada; Centers for Disease Control and Prevention, a US federal agency; and WHO.

The company also proposed to employees, early on, that anyone who did not want to work could take voluntary layoff. Four people took advantage of the offer, based on age and pre-existing conditions as well as on anxiety over the situation in general. The last reason seemed common; several employees were frightened by the situation as it was unfolding and wanted to shelter at home. But they also wanted their paycheques.

The management team decided to meet regularly at 3:30 every afternoon to deal with issues of common concern regarding COVID-19. The team set up a group of five employees to brainstorm about the health risks the company would need to plan for and to recommend proactive measures that management could take. These employees were to serve as the resource base on COVID-19 and were the designated “go-to” group for validation of a point of view.

The company had invoked travel restrictions by early March. No employee would travel outside Canada without permission, and those already out of the country either for work or for vacation would be allowed re-entry onto the company premises only if certified by their family doctor. The company created a sign-in sheet for all outstation employees; they had to review and confirm that they understood their share of the responsibility in ensuring the health and safety of company employees already in the building. Innovative also restricted the number of visitors to its premises. No salespeople would be allowed into the building unless the visit involved something critical. The result of these restrictions was that Innovative had only four visitors in the first two weeks of March. The exceptions were drivers from courier and transportation firms who were required to interact with employees in the company’s shipping and receiving department. Wearing personal protection equipment, such as gloves and face masks, during all working hours became compulsory for those employees.

The company began preparing a list of employees who were not required to be physically present at their workstations, and in late March it notified each of them that they could work from home. The notification had been preceded by groundwork undertaken by the company’s information technology (IT) department, which had to ensure that the transition would be seamless. By early April, Innovative had over 50 per cent of its employees working from their homes.

The arrangement still left the other half of the workforce, numbering a little over 60, stationed in the building every day. Many of these employees were in manufacturing and were required to work with their hands. One of the early decisions that Innovative had made was to stagger lunch breaks into three separate streams so that no more than 20 people at a time came into the lunchroom, which normally held 160 people. People found the sight amusing⎯the lunchroom spread out, tables rearranged 10 or 12 feet apart, and only one person at a table⎯until it was no longer funny.

The half-hour management meeting soon moved online. This meeting was meant to give every manager and team leader a sense of what was happening, the progress being made that day, and any issues that needed to be addressed. In the early days, the meetings sometimes stretched for an hour. But within weeks of half the workforce working from home, they were finishing 5−10 minutes ahead of schedule. There were fewer actionable items on the agenda. The meetings came to be more about communicating and staying in touch rather than making decisions.

STABILIZING RESPONSES

One of the early problems that surfaced as employees started working from home was that Internet connectivity and Internet speed in the area around Barrie were not as fast as in a metropolitan area such as Toronto and its suburbs, or even in Barrie itself. Many employees lived in the surrounding rural areas, which had poor Internet service. While Innovative, as a company, could not do much about the situation, it had to come up with options other than email as a reliable form of communication with employees.

Alerts

Delays in email communications were also caused by the fact that not everybody was on the company’s email roll call all the time and less so when they were outside of their workspaces. Innovative created a mobile application (app) that would generate an alert system, akin to the amber alert system. The app was based on satellite communications and was linked to each employee’s smart phone. The company sought permission from all employees to have their cell phone numbers. An alert provided the most up-to-date information in near real-time.

Biases

The COVID-19 crisis had hit home at Innovative when the best friend of an employee’s uncle died due to the virus in its early days in Canada. The employee was shaken. A colleague working in the same room with this employee believed that COVID-19 was stage-managed and part of a conspiracy. She was becoming vocal in sharing her belief with others in the office. It was necessary for management to intervene and clarify that while individuals had a right to their personal beliefs, they would have to be careful in articulating these with others, however close the individual may have been with other employees. The task was delicate because management had also been noticing some biases suddenly arising at Innovative. People were taking positions, both implicit and explicit. An employee biased against China, for example, was uncomfortable with media narratives that highlighted the Chinese origins of the virus. An employee biased against the United States for whatever reason would well believe social media accounts suggesting that the virus was developed by the United States and planted in Wuhan, China.

Misinformation

What was being referred to as an “Infodemic” in medical journals by then had also hit home at Innovative. It was a term used as early as February 15 by Dr. Tedros Adhanom, director general at WHO, when he said, “We’re not just fighting an epidemic; we’re fighting an infodemic.”[[11]](#footnote-11)

Clearly, there was a great deal of COVID-19-related misinformation in social media content. It was also clear to the management at Innovative that if employees were not receiving regular updates, they would fill the information vacuum with whatever they had picked up elsewhere, whether it was accurate or not. The company’s bulletin board, which displayed authoritative information from credible sources, was part of the arsenal to fight misinformation.

But Innovative had to step up. A study entitled “Trust and the Coronavirus,” conducted in 2020 between March 6 and March 10 by Edelman, a US public relations and marketing consultancy firm headquartered in New York, had shown that businesses had to be sources of reliable and timely information on the coronavirus for their employees. Based on responses from 10,000 participants across 10 countries (Brazil, Canada, France, Germany, Italy, Japan, South Africa, South Korea, the United Kingdom, and the United States), the survey found that 63 per cent of employees trusted their employer more than they trusted the government or news sources for information about COVID-19; 74 per cent worried that there was a great deal of fake news and false information being spread about the virus; 45 per cent said it was difficult for them to find reliable and trustworthy information about the virus and its effects; and 85 per cent said they needed to hear more from scientists and less from politicians.[[12]](#footnote-12)

However, steering employees away from misinformation coming at them from several sources—including some mainstream media outlets that largely delivered what Loftus believed to be “opinion-based information”—was not easy.

**OPPORTUNITIES IN A CRISIS**

One of the ways of blunting the edge of misinformation was to promote positive feelings amid the vast negative imagery prevalent around COVID-19. An engineer at Innovative’s plant knew someone who was involved with delivering materials to first responders and paramedics. This person told the engineer there was a shortage of face shields at the local hospital and suggested it would be great if Innovative could dedicate a line at its plant to making face shields for the hospital. This was on a Thursday afternoon. The engineer got approval from the company and by Friday had put together a supply chain. He and two colleagues stayed overnight to design the workflow. They ordered the raw materials on Saturday, received the raw materials the following Tuesday afternoon, and had the prototype ready that night for quality inspection at the local Royal Victoria Regional Health Centre. The hospital released a purchase order on Thursday. Innovative produced 100,000 shields over the next two weeks. The goal from then on was to produce 80,000 shields per week. A team of 12 was formed to work full-time on the dedicated line.

Manufacturing face shields presented an opportunity for the family members of company employees to get involved, and many family members volunteered to join the team of 12 and work on the assembly line full-time. It was important, from a safety standpoint, that these volunteers were either adult children, siblings, or spouses of people already coming into the production facility and staying together as a family so that they would not pose a risk to other people in the plant.

Children of employees were invited to create works of art displaying their appreciation for the commitment and dedication of frontline workers, who were already being seen as heroes. Each face shield was accompanied by a unique piece of art done by a child of an Innovative employee (see Exhibit 2).

Ecosystem

COVID-19 was also an occasion to look outward at the ecosystem of which Innovative was part. Although the current contracts were stretched in terms of deadlines, the plant was running at capacity. The machine shop was in fact running at 110 per cent capacity, with 44.2 hours per employee per week, leading to an overtime situation. A suggestion was put forward at the management meeting for Innovative to subcontract those overtime hours to one of the company’s small vendors struggling with a lack of orders. The suggestion was readily accepted. It would not only help the vendor stay in business during COVID-19 but also ensure that Innovative’s supply chain would emerge intact once normalcy was restored. It also allowed employees to look beyond themselves for opportunities to help others in need. Further, it offered a new sense of the workspace, one that everyone would take responsibility for guarding, conveying the idea that a person’s workspace was more than their own; it encompassed the idea of everyone working together.

The approach gained ground when Innovative supported a sandwich shop across the street by placing about 60 lunch orders on two different days each month. The owner of the sandwich shop had been forced to close because of official mandates but could at least pay her rent with the earnings from Innovative’s lunch orders, and thus stay afloat. It was possible that the shop would be able to reopen when Innovative resumed its normal operations, sooner or later, and when the ecosystem it was part of returned to its original form.

The success with the face shields production fuelled the company’s initiatives in manufacturing standard products, which had been put on hold. There were fresh orders for face shields from four hospitals in the province. It seemed easy for Innovative, as a machine builder, to set up a line to build one-off products. There had already been calls from both the federal and provincial government for businesses in the private sector to become involved in fighting COVID-19.

For example, on March 31, the federal government committed $2 billion to finance businesses that were retooling their factories to produce urgently needed diagnostic testing kits, ventilators, and personal protective gear.[[13]](#footnote-13) On April 2, the Government of Ontario pledged $50 million for businesses to retool their manufacturing operations for COVID-19 equipment as part of the Ontario Together Fund.[[14]](#footnote-14) Businesses were asked to submit their proposals for review by the provincial government. Simultaneously, Next Generation Manufacturing Canada, an industry-focused not-for-profit organization dedicated to positioning Canada as a world leader in advanced manufacturing capabilities, pledged an investment of $50 million in what it called Supercluster funding to support companies in their response to the COVID-19 pandemic by building a Canadian supply of essential equipment, products, and therapeutics.[[15]](#footnote-15)

Ventilators were in short supply worldwide. A ventilator pumped oxygen into the lungs of a patient who was having trouble breathing. It did not cure COVID-19, but it helped the patient survive until the lungs resumed functioning on their own. Innovative started working on a prototype for a ventilator. In contrast to a face shield, a ventilator was a Class II medical device under the regulations of Health Canada,[[16]](#footnote-16) meaning that Health Canada’s approval of the device’s manufacture and marketing was more stringent. Innovative was planning a basic ventilator that could work in emergency rooms, where demand was high.

**CHALLENGES**

Loftus had to ensure that the essential work of tracking ongoing projects and running the organization was combined with the equally essential task of preventing the spread of COVID-19. But he had to balance those two priorities.

Managing Employee Communications

Loftus had recognized the importance of communication as new protocols were being stabilized. There had been a gap in communication for a day or two early on due to issues with email connectivity. As it turned out, the gap was serious. Loftus sensed that this gap in communication had elevated stress levels for employees who were feeling isolated and looking for signals of stability and leadership. A corrective tool had been quickly installed in the form of an alert, as described earlier. This had addressed the situation.

A more important area of concern was the polarization being created by misinformation. This was elevating stress levels in the organization in its own way. Establishing a single source of truth at Innovative would serve as a bulwark against misinformation. The bulletin board and the alert were both helpful and effective, but were they adequate? There was no way that Innovative could ask employees to switch off news channels at home and rely only on Health Canada’s online bulletins for information.

Loftus faced three specific dilemmas around managing internal communications:

*Over-communicate or over-edit?*This dilemma was typical of all leaders even in ordinary times; it took on a unique dimension in the extraordinary times that COVID-19 represented. Leaders had to determine the extent to which they could be open and honest versus the extent they needed to be guarded and follow a script.

*Is the chain of command working?*It helped in this dilemma that Loftus’ personal operating style**—**informal, friendly, and laid back**—**was in alignment with the demands of the time. However, the same could not be said of team managers at the lower rungs of leadership, with whom shop-floor employees were in regular contact, and it was well known that employees relied on their immediate supervisors in making sense of the personal implications of any major change.

*Stay calm or display confidence?*There was no rule book for this situation. In the face of a difficult situation, if a leader displayed excessive confidence or appeared overly calm amidst difficult conditions, he or she could lose credibility.

*Manage social distancing in manufacturing operations.*Custom building a machine was a simultaneous rather than sequential process. Tradespeople from multiple disciplines worked at the same time on a machine: machinists did the fabrication, welders joined metal parts, electricians did the wiring and lighting, plumbers fixed the pipes, and so on. Those operations at Innovative now had to be turned sequential. A linear progression would lead to staggered hours and slow down the goal. The contracts would have to be stretched, carrying the potential risk of loss of orders.

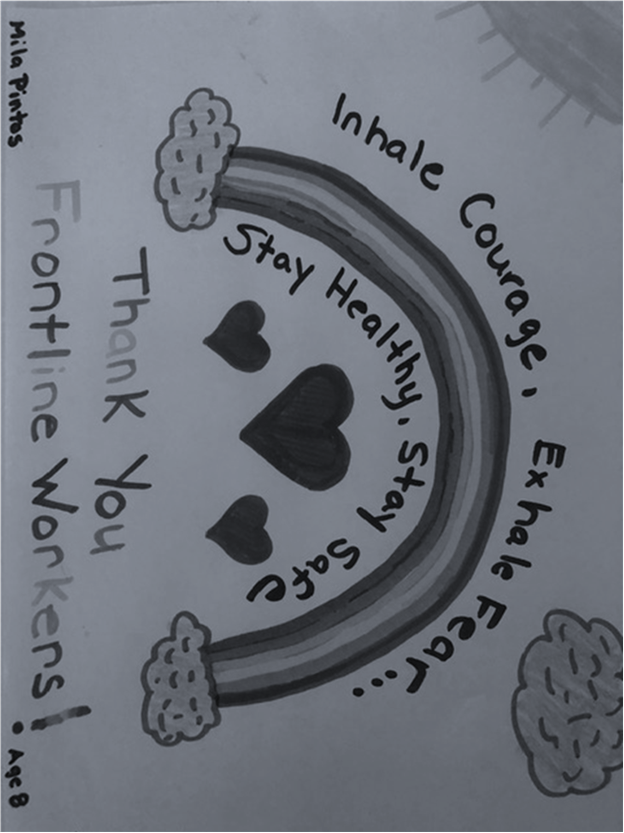
An important task, from a health and safety point of view, was to ensure that whoever was working on the machine wore personal protective equipment and maintained the stipulated physical distance of two metres from another person. (Typically, employees often stood between one and two metres apart.) Loftus thought of a lighter way of enforcing the discipline: One of the founding partners of the company was short, but had long hair. He was asked to stand with his hair straight up, which extended the length of him to two metres, and was photographed in that posture. The photograph was displayed on the shop floor as a gentle reminder of the two-metre distance that everyone had to maintain. Loftus himself walked around the plant with a fibreglass light-reflector stick⎯normally placed at his driveway in winter to show snowplough drivers the edge of the driveway⎯that was two metres long. Everybody chuckled on seeing Loftus wave at them with the stick but were also reminded of the distance they had to maintain for safety. In addition, workplace entrances and exits were limited to unidirectional flow. Common walking paths, if less than two metres in width, were signed as one-way passages. Washrooms had “occupied” and “vacant” signs. However, even with these measures, committing people in a manufacturing environment to social distancing would remain an area of concern until self-regulation became the new normal.

**EXHIBIT 1: INNOVATIVE AUTOMATION⎯REVENUE STATEMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Domestic sales | International sales | Total sales |
| (CA$ ‘000s) | | |
| 2019  2018  2017  2016  2015  2014 | 21,349  19,636  23,208  14,471  15,011  13,337 | 31,492  11,724  17,405  13,150  3,844  4,292 | 52,841  31,360  40,613  27,621  18,855  17,629 |

Source: Company documents.

**EXHIBIT 2: ARTWORK BY AN INNOVATIVE AUTOMATION EMPLOYEE’S CHILD**



Note: Each face shield given to health workers was accompanied by a work of art created by employees’ children.

Source: Company documents.

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   [↑](#footnote-ref-2)
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