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AVIRON INTERACTIVE INC.: BOOTSTRAPPING A GAMIFICATION Fitness STARTUP

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In January 2016, Toronto entrepreneur Andy Hoang had a compelling business idea and the capital to make it happen. He wanted to create a software company with an interactive rowing machine as a core piece of its product offering—Aviron Interactive Inc. (Aviron). The interactive rowing machine would allow users to work out with others, as their machines would be virtually connected. It would also feature a patented magnetic resistance adjustor that could be activated remotely. He saw that his competitors were offering interactive rowing—where participants could race against others through an online interface—but all of these other solutions required users to log in to an additional device such as a laptop to run the software that would provide the connection. The challenge, as Hoang saw it, was that a traditional product development approach would require about two years of work for a prototype and would cost CA$1 million–CA$2 million,[[1]](#footnote-1) and these were two major constraints to overcome, as he did not have that amount of time or money. However, even if he were successful, he estimated he would have only six to 12 months within which to capitalize on his first-mover advantage before others in the fitness industry would copy his idea. He wondered if there was a way to bring the Aviron concept to market on an accelerated timeline and at a fraction of the cost.

Hoang’s thoughts turned to how he could harness his 10 years of experience in surveillance equipment design and software. As chief operating officer (COO) of i3 International Inc. (i3), a digital video solutions firm, he had devised a way to shorten the time and reduce the cost to develop in-house digital video products and software. Based in Toronto, i3 had grown over 30 years from a family-run operation to an international firm with 50 employees in Toronto and 95 employees in Vietnam and China; it also had a pool of contractors who worked on projects. The company worked with manufacturers and distributors to offer digital video surveillance equipment and software to customers such as restaurant chains. Typically, this involved providing and installing a closed-circuit television (CCTV) network that provided security footage and allowed managers to monitor customer flows in the stores. For example, managers could use the CCTV network to see a surge in customers in the store and assign employees to provide service to them.

The approach favoured by i3 involved re-engineering the latest surveillance devices without infringing on the intellectual property contained within them. The company worked with manufacturers to design less costly versions that retained the majority of the features from the top brands. Supporting this effort was a team of contractors, primarily based in Vietnam, which i3 relied on to lead key parts of the business plan rollout, including management, sales, and operations. Software development, manufacturing, and quality assurance for the manufactured products took place in Vietnam and China. Sales and marketing functions were run out of i3’s North American offices. The company applied a lean and agile approach that could result in a product costing $250,000 to develop in about six months, instead of $1 million–$2 million over two years.

Hoang recognized that there were two approaches he could take to develop and launch Aviron. “The traditional approach seems a proven one,” he said, explaining:

I would start with my investment capital, conduct some basic research and put together a prototype, the MVP, or minimally viable product version. Then I would raise cash from investors and put together a team to run, in parallel, efforts to understand consumer needs, develop the machine and software, and then a sales team to sell it to customers—individuals at home and fitness centres.

The alternative would be “to look at the entire sequence of work required to design, develop, and launch Aviron successfully, then figure out a way to do it faster and to work within the budget I have brought to the table,” he stated. Hoang recognized that the second approach was very enticing: who would not want to develop a product more quickly and spend less money? He thought about the advantages and risks of both approaches. “In the next two weeks, I’d like to make a decision on how to proceed,” he said. “Is it the traditional method, the second method, or a combination of the two?”

The Fitness Industry

The global fitness and health club industry generated more than $80 billion in revenue per year in membership fees and equipment sales.The North American market had an estimated size of more than $28 billion in 2015, and more than 90 per cent of this market was in the United States.[[2]](#footnote-2) Global revenue was generated from 186,000 fitness and health clubs worldwide, including about 42,696 health clubs in North America.[[3]](#footnote-3) With respect to members, 62.87 million individuals chose to have gym memberships between 2009 and 2016.[[4]](#footnote-4)

Aviron Interactive Inc.

Aviron, based out of Toronto, Ontario, aimed to develop an interactive rowing machine and software that would link exercise participants together in virtual races. The name *Aviron* (pronounced AH-vee-ron) came from the French word meaning “to row.” As an avid and committed fitness enthusiast, Hoang was always looking for opportunities to enhance his personal workout experience. Hoang preferred to work out with friends rather than on his own, and was constantly seeking out experiences where he could do so. When Hoang was not able to retain a workout partner in a traditional gym setting, he sought out social workouts via boutique gyms that emphasized group training, such as cross-fit and spin classes. Hoang often thought about ways to enhance the social aspect of a workout that would still maintain the integrity of the workout itself. He soon realized he was not in the majority: research indicated that 77 per cent of individuals who worked out preferred individual workouts rather than group workouts. However, participants’ performance could improve by 107 per cent when they exercised with others. As Hoang thought about this philosophical contradiction, the idea of the Aviron rower was born.

An Aviron rower would provide users with the opportunity to work out individually in a physical setting while collaborating with other individuals in a “gamified” virtual setting. Via interactive software, touchscreen hardware, and a cloud-based approach to managing the experience, individuals could be transported to virtual surroundings; for example, they could be chased by zombies or tidal waves, or they could compete against friends or others around the world in a virtual rowing regatta. The Aviron rower was a collaborative, connected, and fully immersive workout solution that allowed users to work out individually in a gamified setting or as part of a collective virtual group (see Exhibit 1).

The Aviron Rower as envisioned by hoang

There would be two versions of the Aviron rower—the Tough and Impact series—and Hoang envisioned the rowers being equipped with large, high-definition touchscreens that would allow users to interact with the machines and with other users in a number of ways. Users could watch video tutorials that would help them improve their exercise technique, share performances on social media, participate in time challenges, personalize their workouts, challenge friends, and follow a leader board—all while being linked to metric sensors that would adjust tension either remotely or directly.[[5]](#footnote-5)

A key part of the gamification strategy was the remote tension adjustment feature, which would ensure that resistance levels could be adjusted uniformly across all users. This feature would prevent users from inadvertently under- or over-tightening the resistance levels during a competitive race, for example. “I’d like to engineer in the ability to adjust tension remotely and patent it,” said Hoang. “Remote tension adjustment could be, perhaps, the most differentiating feature of the Aviron rower when compared to other rowers on the market. Aviron wishes to tap into millennials as a segment and target the North American market.”

Aviron would be the first exercise technology to apply for a patent that enabled resistance to be applied remotely through a communication network to a physical exercise machine. The ability to remotely control resistance would provide for the following: group competition, whereby the leader could set the resistance level for the entire group; personal training, where the trainer could set the resistance for the individual or the group; and athletic performance, where elite athletes could record and share their performance with teammates or followers to achieve similar results given the same set parameter(s).

Hoang outlined the features of the Aviron hardware and software offering as follows:

Tough Series

This premium robust rower was designed for use in a commercial space. Its anodized aluminum rail would deliver high strength and stability. The ergonomic seat, with additional rear support, delivered a more comfortable workout. The machine stood only 49.5 centimetres from the ground, making it easy to mount safely.

Impact Series

Developed for the residential space, this robust rower could be collapsed and stored easily. It combined futuristic design with the reliability and quality of Aviron craftsmanship.

Subscriptions

Once users had purchased their Aviron rowers, they would have the option to sign on to the suggested subscription model. Subscriptions would be offered in two forms: standard (light consistent use) and commercial (consistent heavy use).

Gamification

While the term “gamification” was coined in 2008, the concept had been used in software as far back as 1979, when Rob Trubshaw created the multi-user virtual game MUD1. Elements of gamification could be found in other industries more than a century earlier. For example, U.S. marketing executives sold a loyalty program called S&H Green Stamps to U.S. retailers, who gave out these stamps to loyal customers.[[6]](#footnote-6)

The term gamification became more widely known as developers started to build into their software game elements that rewarded users. Gamification was the application of game elements and digital-game design techniques to non-game problems, such as business and social impact challenges.[[7]](#footnote-7) The use of gamification spread, and was currently being used by firms such as SAP SE, Microsoft Corporation, IBM, and Deloitte Touche Tohmatsu Limited to “make tasks such as management training, data entry and brainstorming seem less like work.” A *Wall Street Journal* article explained how such corporations used the technique: “Employees receive points or badges for completing jobs or meeting time limits for assignments, for example. Companies also may use leader boards, which let players view one another’s scores, to encourage friendly competition and motivate performance.”[[8]](#footnote-8)

To create a gamified environment that was appealing to users, Aviron would have to understand users’ behaviours and create modules—activity loops—that could attract and hold their attention. It would need to build in fun experiences within the gamified environment and define the entire gamified system, outlining where the system was to be experienced (for example, on the rowing machine), allowing users to download data onto laptops, and determining what rewards and feedback would be given. It would also need to determine how the entire system would work to achieve Aviron’s business objectives.[[9]](#footnote-9)

Aviron could potentially “gamify” the workout in a number of ways, including by awarding points to users and displaying top users—local, regional, or global—on a leader board; by providing a progress chart to encourage users to return to subsequent workouts; and by offering users participating in certain challenges the option to earn virtual currency that they could then spend in the game—for example, to upgrade the appearance of their avatar—or redeem for merchandise such as shirts. By tapping into users’ natural desire for competition, mastery, and a sense of accomplishment, the gamification of Aviron’s product could set it apart from the products of its competitors. Hoang explained:

Part of the Aviron experience revolves around the gamification of fitness. The use of audio and video encourages rowers. Users can row on the machine and instead of focusing on calories and metres, they can be transported to settings where they are chased by zombies, flying through the air on a winged chariot or giving chase to a rowing leader in a futuristic setting. This can all be done individually or as part of a group. Finally, once a rower has completed their workout, they have the option to upload their results to social media—a public commitment that encourages users to return to this exercise platform.

Competition

There were direct competitors in the video-based, experiential rower market, including Digital Rowing Inc. (RowPro), Web Racing Inc., and Holodia SAS. These competitors had simulators that worked with a Concept2 Model D rowing machine. The Concept2 Model D was the best-selling indoor rowing machine in the world and was recognized as the standard for indoor rowing machines.[[10]](#footnote-10) The machine, first introduced in 2003, was a gym-quality commercial rower that had been designed by two rowers, Dick and Pete Dreissigacker, who started their rowing machine company, Concept2, in 1976.[[11]](#footnote-11) The RowPro, for example, allowed users to compete against virtual rowers or live rowers online. To set up a contest against another live rower, users had to set up an event on a browser, and the two competitors could join each other on the RowPro program.

Aviron would also be in competition with indoor rowing applications (apps). Some apps were coaching-based—that is, users received training from an audio coach and could adjust their workouts accordingly. Other apps forced users to follow a curve while rowing, which forced them to make stroke adjustments.

DEVELOPING AVIRON

There were several steps that Hoang could take if he wished to follow a traditional path to develop Aviron.

Idea Development and Consumer Research

First, Hoang could attract a team to conduct research on the features an interactive rower could contain. The team would conduct consumer research as part of its fact-finding work. This could entail holding focus groups and running surveys and analyzing the results. A clearer picture of a typical user would emerge after this exercise. Aviron could then use this picture to draw up the core features for the product and develop a set of specifications for the machine and software. In general, this step could take two months and could cost about $100,000 in time and contractor fees. For starters, it would involve creating and administering a survey (or hiring a firm to do so) and either developing a process to run focus groups or paying a firm to conduct these on Aviron’s behalf. A team of two or three Aviron managers could be tasked with carrying out the research and managing the interaction between the contractors and potential customers.

Product Development

With the core idea and feature set sketched out, the team could design a rower using engineering expertise from within the team or from a consultant. The rower’s components and feature set would be designed to meet consumers’ needs. The rower design would likely be based on a current model, and the interactive screen set-up would be proprietary to Aviron. The engineering firm or consultant could develop the product using a software package such as SolidWorks—a Microsoft Windows–based solid-modelling computer-aided design (CAD) and computer-aided engineering (CAE) program[[12]](#footnote-12)—and could share several iterations with the Aviron design team. This process could take three to six months and could cost about $250,000 in total.

Software Development

At the same time, Aviron could begin development of the rower’s software application, creating the interactive software and the Android and iPhone apps. This process would involve a team of about four software application developers; it could take three to six months and could cost about $250,000. The application developers would likely be hired and managed in Toronto.

Manufacturing

Once the engineering design was completed, a manufacturer for the rower would be sourced. As the design neared completion, the team could visit potential manufacturers, likely in China or another Asian country, and sign a deal with a firm to develop a prototype. The process to create the first prototype could take three months and cost $200,000.

Refining the Prototype to Create a Market-Ready Product

Once the first prototype was created, several additional versions could be developed as the product was tested and refined. The team could plan for up to 10 iterations before a market-ready product would be ready. This could take eight months and involve several trips to China to oversee production and work with the manufacturer.

Operations

As the prototypes were being refined, Hoang’s team could package the various programs and information together to form the basis of a business that could sell a product. For example, they could design marketing materials, register brand names, and undertake legal work to patent the intellectual property Hoang had developed. This step could take six months and would cost $300,000 in legal fees, patent fees, and payments to advertising agencies that developed materials.

Sales and Marketing

Launching the product would require a team headed by a sales director to survey the market for interactive rowers. Meetings could be held to brainstorm ideas for business development. Sales leads—for example, key influencers and fitness chains—could be set up and aggregated. A list of trade shows could be made, and an Aviron team tasked with showing the concept off at these trade shows. The cost for this stage was primarily for allocating work to full-time employees, but also included travel costs and any remaining legal or printing costs. This step could take six months and cost $450,000.

There were many advantages to pursuing the traditional approach. First, it would likely result in a unique rower that could stand out from the competition. One of Hoang’s challenges was that Aviron had no prior experience in the rowing machine market. By eliciting feedback from users of current rowing machines on the market, Aviron could take the time to refine and build a market-leading product. Along the way, it could file for various patents to protect its intellectual property. Second, the traditional approach was a largely proven model for bringing products to market. Since Hoang was risking his own capital, it was important to know that the final product would be refined carefully over two years, as this could mean that many potential mistakes would be uncovered and corrected.

From a software development approach, a traditional waterfall development model typically saw developers within the team agree on what would be delivered, making planning and designing the software a more straightforward process. Given that the goals of the Aviron software project would be known in advance, they could measure progress, and other members of the team—in sales and marketing, for example—could review progress that had been made at any point and use that information in their own areas of expertise. Finally, if the entire project were sketched out in advance, it would be possible to carefully design each of the software components, limiting the risk that various pieces of code would not fit well with each other—a situation known as the piecemeal effect.[[13]](#footnote-13)

The Lean, Agile Approach

Hoang thought about using his product development experience at i3 for the Aviron project. The term “lean, agile” combined attributes from two models: the lean concept from the Toyota Production System model, where the goal was value creation and zero waste;[[14]](#footnote-14) and the term “agile,” which was first used in 2001 to describe software development methodologies that “emphasized close collaboration between the development team and business stakeholders; frequent delivery of business value[;] tight, self-organizing teams; and smart ways to craft, confirm, and deliver code.”[[15]](#footnote-15)

For Hoang, combining the two concepts suggested that he would try to bring a product to market as efficiently as possible—looking to keep labour costs low and the quality of work high—and rely on a collaborative development model for the manufacturing, software, and business start-up components.

At i3, Hoang had developed a unique method of sourcing and managing top talent that involved breaking projects down into their various components. Doing a lot of work on the product development side shortened the process and made it significantly less expensive. Hoang’s team began by going to trade shows in Asia to learn about the latest innovative technologies. For example, they discovered a Korean start-up that was working on technology that would allow them to track patients in retirement homes as they moved through the properties. Hoang and his team repurposed this technology for customer service management at retailers. They also kept a list of manufacturers that made machines for North American brands. These manufacturers often had their own line of competing machines for sale at the same time. Hoang would approach these manufacturers to develop proprietary machines for i3. He noted that

the original equipment manufacturer or OEM commissioning a security camera, for example, would have spent $2 million developing it. A lot of this money would have been spent with their Chinese manufacturing partner, for example, to design a prototype, manufacture it, make changes to the physical prototype, build the moulds to manufacture the various components, develop a manufacturing process to enable batches of product to be made, and put in place a quality assurance program to check for defects. The Chinese manufacturer would have tried to use as much of the expertise learned from developing this camera to develop their own in-house camera. We then employ this manufacturer to develop a proprietary product for us, and we ensure that no IP [intellectual property] is being infringed upon. In this way, we can develop our own camera for a fraction of the price, often just $60,000.

Equally, on the talent side, Hoang carefully selected employees and tasked them with working on specific modules. Hoang was able to entice master’s or doctoral students to base their theses on projects at i3, which allowed the company to rely on each student’s time and knowledge for two to four years. As these students worked on i3’s projects, Hoang and his team assessed them and selected those who would be great candidates to join i3. They were looking for individuals who were interested in working on important projects, who would want to have a large impact on a firm’s future, and who did not mind working for a smaller firm. Once they found these individuals, they could have employees who could work at i3 for years. It would cost about $1,700 a month to employ a typical employee in a Tier 2 city; it would cost about $7,000 a month to employ an individual with a similar skill set and experience in North America. Hoang explained:

We hire great engineers and PhD graduates in Asia, primarily in Vietnam and China. We have offices there and we coordinate the work done by our Asian offices with the work done in our North American office. We know that we have to overcome several issues as a smaller firm. First, we don’t have the brand name that an IBM or Accenture would have. Second, there are too many employers competing for top talent in the big cities. If we were to look for talent in China, we’d start by targeting Tier 2 cities . . . , staying away from the large cities like Beijing and Shanghai. We need to conserve our resources and reduce our risk of getting people who do not fit with our culture or who cannot perform to our expectations.

We approach the faculty at these universities, offering them real-world projects for their master’s and doctoral students to work on. As we collaborate with them, we get engineering and other students on co-op programs working on discrete parts of our software work. We take care not to expose the complete project to any one centre, and in this way, ensure that we protect our intellectual property. One centre can be working on optimizing the software for facial recognition, for example, while another centre works on the mechanical components of a camera.

A team in North America was in charge of coordinating these pieces of work and assembling the final product, software, and hardware, for sale. “Our approach is radically more efficient,” Hoang noted. “It’s more than just an agile approach to development. To me, an agile approach is great, but it does not capture the added emphasis we place on ensuring that costs are cut out of the system at every point.”

With Aviron, Hoang could find a Chinese manufacturer that was already producing a rower for another brand name. He could rely on his Vietnam- or China-based engineering team to design a rower with a screen interface. At the same time, a separate software team could work on the application, including the magnetic resistance controls and the gamification features. In North America, a small team could look for opportunities to partner with prominent influencers in the rowing market and/or at fitness centres. Hoang explained how he could re-engineer the process to bring Aviron to market:

The core includes the key business insight, key differentiating product and technology features, and the leadership of a founding team. All the other elements required of a start-up—engineering, product design, product development, software coding, testing, quality assurance, marketing, sales, etc.—are outsourced to various niche suppliers. The role of the central core is to oversee the governance of the supplier portfolio, with the objective of achieving the successful development and launch of Aviron.

“The entire process could take just six months and cost $250,000,” said Hoang. “Should we do this?” Hoang had reached a critical point. He was not a stranger to technology-based business, and it had taken a great deal of drive and dedication to bring the Aviron idea to this point while also managing his day-to-day responsibilities as COO at i3.

THE challenge for aviron

What type of business model should Hoang consider? Hoang needed to decide whether he should pursue a traditional model or a lean, agile model. Ultimately, the goal was to launch a new product and achieve the highest valuation for his company within the next three to five years. Hoang knew he only had one chance to get this right and get his product to market before his competitors did the same.

Exhibit 1: Concept Photographs for the Aviron Rower

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| Slide 1 | Slide 2 |
| Slide 4 | Slide 3 |

Source: Company files.

1. All currency amounts in Canadian dollars unless specified otherwise. [↑](#footnote-ref-1)
2. “A Brief History of Gamification Infographic,” E-Learning Infographics, August 19, 2014, accessed February 5, 2018, https://elearninginfographics.com/brief-history-of-gamification-infographic/. [↑](#footnote-ref-2)
3. University of Pennsylvania, “Gamification,” Coursera, accessed February 5, 2018, www.coursera.org/learn/gamification. [↑](#footnote-ref-3)
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5. “About Concept2,” Concept2, accessed February 5, 2018, www.concept2.com/company/about-concept2. [↑](#footnote-ref-5)
6. “A Brief History of Gamification Infographic,” op. cit. [↑](#footnote-ref-6)
7. University of Pennsylvania, op. cit. [↑](#footnote-ref-7)
8. Rachel Emma Silverman, op. cit. [↑](#footnote-ref-8)
9. Victor Manrique, “Gamification Design Framework: The SMA Model,” Gamasutra, June 18, 2013, accessed February 5, 2018, www.gamasutra.com/blogs/VictorManrique/20130618/194563/Gamification\_Design\_Framework\_The\_SMA\_Model.php. [↑](#footnote-ref-9)
10. “Model D,” Concept 2, accessed February 5, 2018, www.concept2.com/indoor-rowers/model-d. [↑](#footnote-ref-10)
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12. SolidWorks website, accessed February 5, 2018, www.solidworks.com/. [↑](#footnote-ref-12)
13. Mary Lotz, “Waterfall vs. Agile: Which is the Right Development Methodology for Your Project?,” Segue Technologies, July 5, 2013, accessed February 5, 2018, www.seguetech.com/waterfall-vs-agile-methodology/. [↑](#footnote-ref-13)
14. “What Is Lean?,” Lean Enterprise Institute, accessed February 5, 2018, www.lean.org/WhatsLean/. [↑](#footnote-ref-14)
15. “Agile 101,” Agile Alliance, accessed February 5, 2018, www.agilealliance.org/agile101/. [↑](#footnote-ref-15)