ESCP BUSINESS SCHOOL

Scaling Up: The Making of Unicorns

Edited by Prof. Davide Sola, Federica Gabrieli, Alexia Marion, Oliviero Vurro

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Foreword

From artificial intelligence finding applications in more and more fields of everyday private and business life to major shifts in the way food is produced and consumed, new horizons seem to be opening up at great speed. This represents not only a challenge to consolidated economic frameworks and business models, but most of all an opportunity to experiment new ways of doing business and launch novel ventures.

In such a fast-changing world, it is important that our students understand how to move from generating a business idea to making that business successfully reach unicorn status and ultimately long-lasting success. While the literature on scaling is vast, I have had the pleasure to introduce my students to the concept of *extrapolation*, a business development stage which I have defined in a recent HBR article as an often overlooked but critical phase between exploring several opportunities and exploiting one of them. In the following section I provide an overview of the extrapolation phase. This concept has guided my students in their analysis of fifteen companies from a variety of sectors, including biotech, agtech, SaaS, robotics, and e-commerce.

It has been an honour to supervise their work and make them see how to look at existing businesses through the lenses of cutting-edge theoretical frameworks. I am confident that they are now better equipped in taking on the opportunities and the challenges that they will face over the course of their professional careers.

Prof. Davide Sola

Read the article: [HBR Link]

Extrapolation

Scaling is defined by most practitioners and scholars as the phase of exponential growth kicking off when product/market fit is established.

Paul Graham, the most influential figure in the field, followed Airbnb, Uber, Dropbox, Stripe, and many other companies during their most critical periods.

The table below shows how a weekly growth rate affects the yearly growth rate for a start-up.

WEEKLY	YEARLY
1%	1.7x
2%	2.8x
5%	12.6x
7%	33.7x
10%	142.0x

It goes without saying that only a few outliers' businesses can sustain these growth rates for a long period of time. The weekly revenue growth rate of Facebook, for instance, was 21.5% for the first six months and close to 5% per week for the next two years before it slowed down to roughly 1% per week.

There are **4 key challenges** that companies typically face while scaling up:

1. **Scaling before validating product-market fit**
    a. Many companies make the mistake of scaling their products too early. Some founders try to **scale when their products still have flaws**, believing that these **defects will work themselves out over time**.
    b. Other **founders start to increase growth and production without being clear who their customers are** (here's a hint: it's not always your users!) or without knowing if the market has sustainable demand.

2. **Focusing on sales and marketing instead of building long-term demand**
    a. When scaling, many founders focus on **ramping up their sales and marketing activities**, but **these are only short-term, tactical initiatives.**
    b. Creating a **strong buyer market** and building **long-term demand** is **just as important** to the company's overall success—if not more so.

3. **Competing on price**
    a. It can be **tempting to compete on price.** Some may **think** that **by ramping up production**, **prices can be cut** and still remain profitable. While this works occasionally, **competing on price more often results in a "race to the bottom," both in terms of profit and quality.**
    b. It's **far better to compete on quality**, **ingenuity,** and **customer service** than to position the company as the industry's low-cost provider. If the company manages to **sell to its customers based on the value** it provides, it can keep prices reasonable without having to stress about eventual competition.

4. **Forgetting that trimming fat is part of scaling**
    a. Some **founders think that scaling only involves growing upward and outward.** However, **as production grows**, the company may **find that some elements no longer work**. An idea that once seemed so promising might require changes.
    b. Changing those items that aren't working is an **important part of building towards things that are**. As they scale their business, managers **shouldn't be afraid to trim fat so that the company can grow effectively.**

Scalability depends on internal and external factors as well:

- <u>**Internal scalability**</u> describes how capable the operations of the **business model** are to expand the customer base and increase sales in a short time and at low cost;
- <u>**External scalability**</u> describes how beneficial the **business environment** is to expand the customer base and increase sales.

What Is Extrapolation?

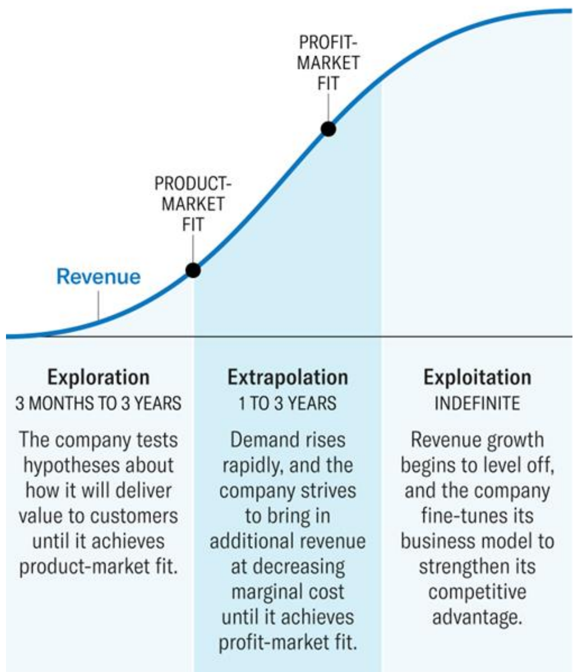
My research shows that the definition of scaling should be expanded into what we call "extrapolation". *Extrapolation* is a complex phase that starts once the company has achieved Product-Market Fit and ends with Profit-Market Fit at Scale.

- ***Exploration*** is the phase where the company tests the Value Hypothesis, namely that there is a problem worth solving (in other words, there are customers that need that problem solved) and the company has identified a solution that works. This phase lasts until the company has achieved *product*-market fit: in other words, the company has validated that the addressable market exists, and it can grab it by growing exponentially its customer base and its revenues.
- ***Extrapolation*** is the phase where demand increases rapidly, and the company strives to bring in additional revenues at decreasing marginal cost. This phase lasts until the company has achieved

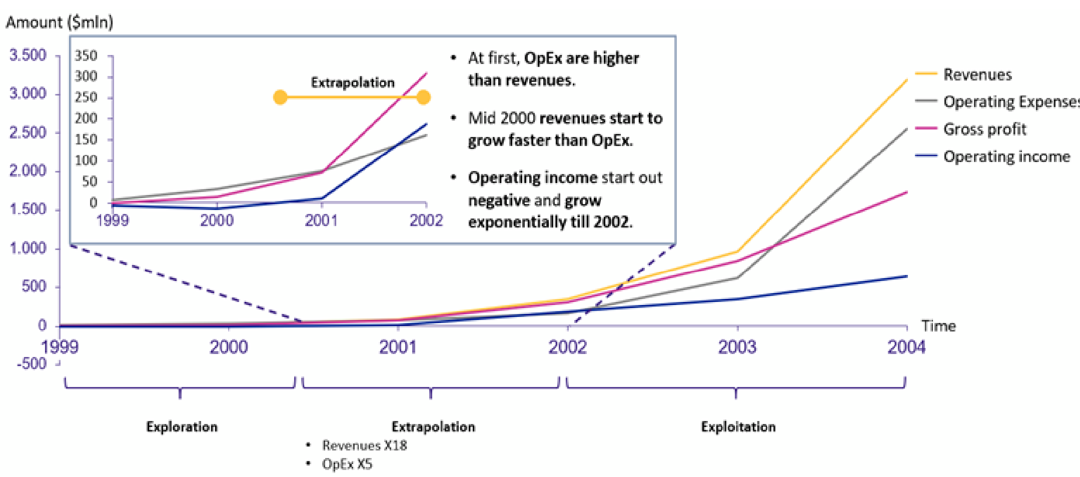
profit-market fit. In other words, it has validated that its business model can turn profit out of the growth at scale.

- ***Exploitation*** is the phase where the company, once revenue growth has begun to level off, starts to continuously fine-tune its business model to achieve incremental growth in both revenue and profits and strengthen its competitive advantage.

It is important to note that during the Extrapolation phase, we typically observe a **growth of 10X in magnitude** that **happens over several months and** often **repeatedly** (i.e., several X10 cycles).



Google experienced an extrapolation period between 2000 and 2002, with gross profits jumping from $20 million to $300 million.



The Extrapolation phase requires the interplay of three key elements:

- A **clear understanding** of what the **necessary conditions** for such phase to take place are (often companies start too early or too late) **as well as** a deep knowledge of the **factors/levers that will make it happen** (sufficient factors);
- A disciplined **application of the extrapolation *strategic* process**. This is different from a normal strategic process and seeks to achieve exponential growth by seeking out business model constraints and resolve them sequentially (Theory of Constraints - TOC);
- An **ambidextrous leadership with autonomous teams** that manage the extrapolation process seeking creativity and disciplined execution at the same time.

The Scalability Assessment

Understanding Necessary and Sufficient factors

Definitions

- **A necessary condition is a condition that must be present** for an event to occur.
  - Size of Serviceable and Addressable Market
  - Solution Repeatability and Distinctiveness

- **A sufficient condition is a condition** or set of conditions that **will produce the event.**
  - Proven Monetization Approach
  - Effective Route to Market
  - Network and Density Effects
  - Throughput effectiveness & Unit Economics
  - Available Funding

All this is condensed in the scalability assessment framework developed by 3HORIZONS and used by the students during the semester to evaluate several companies or products that were analysed during the course. See the following page for an overview of the framework.

NECESSARY FACTORS: Please rate the followings on a scale 1-5

1.Serviceable Addressable Market Size

The size and accessibility of the market, made of customers with similar needs, which could be fulfilled with the current (existing) product or solution

Sub Factor	Score	Rationale
Number of Potential Customers	**4**	

Score 1:

The total number of customers is limited, forcing the company to expand it's addressable market in order to scale successfully. For example, the total number of customers is 80% of the number required to achieve the Level of Ambition

Lotus is a luxury car company who produced the most iconic cars in the 60s/70s. The majority of Lotus' potential customers consist of ultra wealthy car enthusiasts and collectors, specifically interested in heritage racing brands. Consequently, the potential market for Lotus is small.

Score 5:

The number of potential customers addressed by the product or solution (i.e which could potentially become clients today) is more than sufficient to achieve exponential growth. For example the total customers is 100 times the number required to achieve the Level of Ambition

Airbnb offers short-term lets all over the world. The company's potential customers include anyone who needs to rent properties on a short-term basis. The commercial real estate industry ranks 3rd in the world with $9.6tn MV making Airbnb's number of potential customers huge.

Editorial team

Prof. Davide Sola, Phd.

Davide Sola is the Entrepreneurship Chair of the Jean-Baptiste Say Institute for Entrepreneurship in London as well as the CEO of 3HORIZONS, the leading Strategy as a Service solution provider. Davide is full Professor at ESCP Business School and Visiting in other leading business Schools such as Judge Business School in Cambridge, AALTO Business School in Helsinki and Cotrugli Business School in Zagreb. An Italian national, he graduated from ESCP Business School (formerly ESCP-EAP) and the University of Turin, where he also earned a Phd in enterprise economics.

Davide has more than 20 years of experience in strategy consulting at McKinsey & Company and in 3H Partners covering a wide range of industries, from Food and Beverage to Healthcare to Energy to Technology and Financial Services.

He is the author of numerous articles, policy papers, book chapters, case studies and presents regularly at international research conferences. His book *How to think Strategically. Your roadmap to Innovation and results* (co-authored with J. Couturier) published by the *Financial Times* was nominated for the prestigious Management book of the Year award by the CMI and British Library.

Davide speaks fluently four languages, namely French, English, German and Italian. He lives in London with his wife Stella and his three children Lorenzo Alexander, Edoardo Maximillian and Allegra Grace Sophia.

Federica Gabrieli

Federica Gabrieli is Head of Content & Advisor at 3HORIZONS. Prior to her current position, she worked as Research Associate at Harvard Business School for six years, conducting research and developing case studies on European companies. She thus got exposure to a variety of industries, including MedTech, Food and Beverage, Banking, Video Game, and Retail, as well as business management topics, from how to scale a growing information technology venture to how to transition to a more sustainable business model while meeting short-term financial targets. Before joining Harvard Business School, Federica had gained professional experience working as an intern in a consulting company active in the sector of EU State Aid and Structural Funds and as a Blue Book Trainee at the European Commission Representation in Malta. Besides participating in several EU-funded projects, she has also been the curator of a field-research book published by an Italian NGO active in the domain of the green economy. Federica holds a Bachelor's Degree in International Studies and a Master's Degree in Economics from the University of Bologna. Federica was born and grew up in Italy. In addition to her native language, she speaks English, French, Croatian, and some Spanish.

Alexia Marion

Born in France, growing up in Hong Kong and performing her undergraduate studies in Montreal, Alexia Marion cherishes diversity and wishes to foster her international experiences.

While pursuing her undergraduate Honours degree in Psychology and Neuroscience at McGill University, her interest in human behaviour blossomed into a broader passion for innovation and technology. Later, her interest in startup development arose during her internship at Hello Tomorrow, an international organization that identifies and supports startups developing deep tech innovations cutting across significant environmental and societal challenges. As such, Alexia wants to help entrepreneurs develop by sourcing creative and suitable sources of investment and strategic advice.

Alexia is currently in her first year of ESCP Business School's Master in Management Program in London, specializing in entrepreneurship and next semester in consulting and strategy, with the goal to become a Venture Capitalist in the Deep Tech industry.

Oliviero Vurro

Born and raised in Italy with a multicultural background, Oliviero Vurro studied engineering for a year and then switched to economics and management at Università Cattolica del Sacro Cuore in Milan. During his bachelor's degree, he had the opportunity to live academic experiences at Warwick University and University of California Los Angeles. For his master's Oliviero enrolled at ESCP where he had the opportunity to study and work in five different countries in the last two years.

Oliviero is passionate about cultural exchange, history, sociology, technology, and innovative startups.

His father passed on to him a passion for entrepreneurship and this pushed him to select two different courses about entrepreneurship ("scale up" and "tech & digital") during his Master's.

Oliviero decided to take part to this project because he and his colleagues put into these essays all they learned during the course, and he wants to help make all this knowledge about these unicorns as accessible and structured as possible for future references.

Case Studies

BOLT THREADS	Bolt Threads is a Deep Tech unicorn inventing cutting-edge materials for the fashion and beauty industries to put us on a path toward a more sustainable future. Namely their scalable product is a patented leather like-material, called Mylo, inspired by nature, and made from mycelium.	Biotech USA, 2009 $417.1M
caffeine	Caffeine is a live streaming platform offering interactive content for gaming, music, and entertainment; launched with the idea of moving beyond traditional video game content. Caffeine opens to new areas of entertainment such as sports, music events and rap battles.	Live Streaming USA, 2016 $294M
EXOTEC	Exotec is the first French industrial unicorn. It was founded in 2015 by Romain Moulin and Renaud Heitz that had the ambition to build a picking order preparation system using a fleet of robots able to move in a three-dimensional space.	Robotics France, 2015 $449.6M
harness	Harness is a fast-growing company in the software delivery industry. They created an intelligent software delivery platform that will allow developers to provide software more quickly, with greater quality, and with less effort formed out of BIG Labs.	Software USA, 2016 $425M
IMPULSE DYNAMICS	Impulse Dynamics is a US and Germany based private company dedicated to improving the lives of people suffering from heart failure (HF) conditions through CCM (Cardiac Contractility Modulation) and developed an innovative device to deliver such therapy.	Health Tech Israel, 1996 $246.3M
JOKR	JOKR is a grocery and delivery platform that provides hyper-local product delivery services.	Retail USA, 2021 $430M
ManoMano	ManoMano is an online marketplace for DIY, home improvement, and gardening products. It also provides tutorials and 24h live expert advice to its community.	E-commerce France, 2013 $725M
MIRAKL	Mirakl is an enterprise marketplace solution helping brands and retailers to launch and grow an enterprise marketplace at scale.	Saas France, 2012 $948M

ornikar	Ornikar is an online driving school, based on the idea of making driving licenses easily accessible, at an affordable price and based on technology.	E-learning	France, 2014	$174M
Outdoorsy	Outdoorsy is a P2P marketplace that connects RV owners and renters. The goal of the company is to maximize the usage of 17million RVs in the US, which usually sit unused for 350 days of the year.	RV rental	USA, 2015	$195.1M
popmenu	Popmenu is a SaaS company that helps restaurants optimize their menu to attract more guests through search, website redesign and implementing automated marketing tools that keep restaurants connected with guests and ensure their menu is top-of-mind at mealtime.	SaaS	USA, 2016	$87.1M
RapidSOS	In partnership with public safety, RapidSOS created the world's first emergency response data platform that securely links life-saving data to 9-1-1 and first responders. It connects more than 350 million devices directly to 5,000+ local public safety agencies, covering over 94% of the U.S. and protecting more than 300 million people.	Public Safety	USA, 2012	$205.7M
SQUIRE	Squire is a management platform for barbershops created in 2015 by Songe Laron and Dave Salvant.	Consumer	USA, 2015	$163M
uniphore	Uniphore is a B2B2C company, a true trailblazer of conversational AI. This SaaS platform analyses customer service conversations through a technology called natural language processing to gather insights into customer's issues, opinions, and emotions.	SaaS	India-USA, 2008	$600M
Ynsect	Ynsect provides products and services that operate in the agro-food and environmental biotech industries. It uses the potential of insect nutrients and behaviors to develop novel products and services in collaboration with their clients.	AgTech	France, 2011	$425M

Bolt Threads

Author: Alexia MARION

"One way we should be evaluating biomaterials is in their potential and actual progress to scale and becoming competitive alternatives to all the unsustainable materials that exist in the market today."

- Dan Widmaier founder & CEO.

With this mission, Bolt Threads evolved from 3 scientists studying spiders in a lab to a venture-backed unicorn that secured over $400M of funding.

Company Overview

Dan Widmaier, founder, and CEO of Bolt Threads was a chemical biology PhD student at UC San Francisco experimenting on spider silk when he met David Breslauer, who was studying the same subject for his Bioengineering PhD at UC Berkeley. Sharing the same passion, they founded Bolt Threads in 2009, with the ambition to "develop better materials for a better world" by tackling the fashion apparel industry.

Spider silk presents unmatched properties: it's thinner than human hair, stronger than steel, more flexible than nylon and biodegradable. Many before having attempted to raise an army of spiders and harvest their silk, but they don't make produce a lot of it. In addition, spiders are cannibal and territorial, so farming attempts could end in mutual elimination way before harvest enough silk can be harvested.

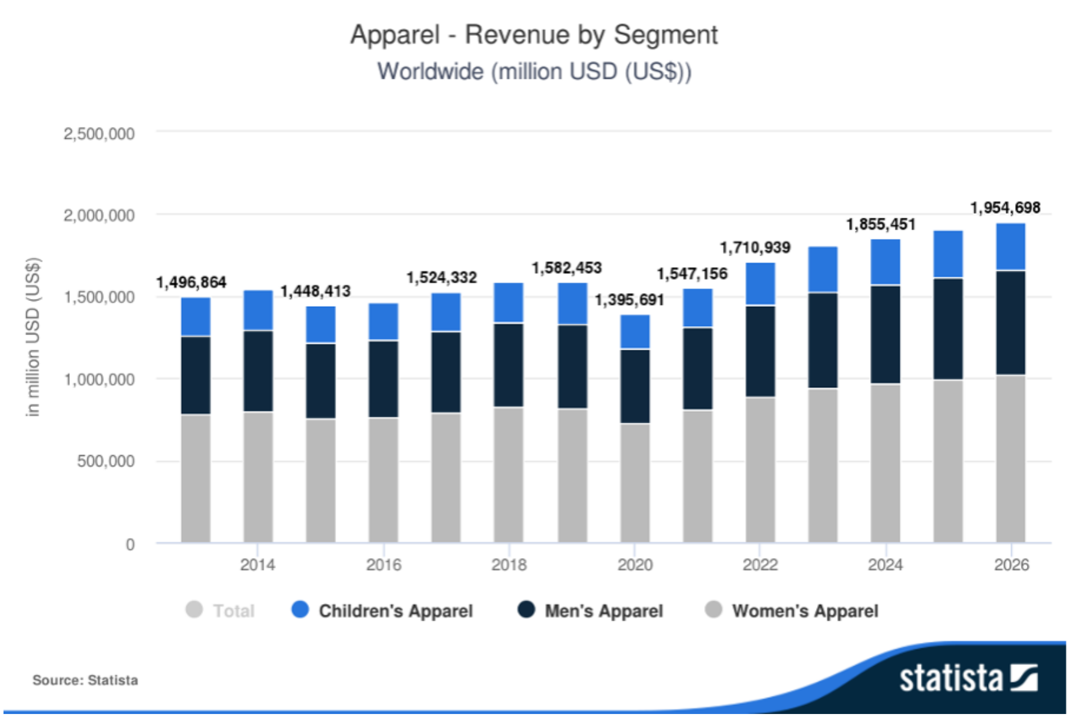
In 2012, after 5 years of studying 1000 different breeds of spiders to understand their silk proteins properties and $1M in grants to fund their project, they sequenced the first full-length spider silk gene and used yeast to transform it into a working spider-silk thread.

To commercialize their technology, they sought VCs to fund their startup. After 3 successful investment rounds mounting to $90M between 2013 and 2016 and assembling a dedicated and strong leadership team to redefine their product and study consumer apparel to reproduce spider silk in a way that is industrially scalable.

Deal Type	Date	Amount Raised	Lead Investors	Number of investors	Pre-money valuation	Post-money valuation
Series E	01/09/21	$253M	N.A	N.A	$897M	$1.15bn
Series D	23/01/18	$123M	Baillie Gifford	7	$577M	[$700M]()
Series C	12/05/16	$50M	Nan Fung, Innovation Endeavors, Formation 8	8	N.A	N.A
Series B	20/06/15	$32.3M	Founders Fund, Foundation Capital	7	N.A	N.A
Series A	23/01/13	$7.7M	N.A	4	N.A	N.A
Angel	N.A	$5M	N.A	N.A	N.A	N.A
Grant	01/03/12	$1M	America's Seed Fund	N.A	N.A	N.A

In 2017, they finally launched their scalable proprietary solution, Microsilk fibre. The process consists in feeding the spider-silk derived genes into yeast and fermenting it with sugar and water, generating a silk protein that is then spun into a fiber ready to be knitted.

Through their sustainable material, Bolt Threads is addressing the fashion apparel market, currently estimated to be worth $1.5 trillion worldwide and the spider silk market is valued at $1.26 billion and is expected to reach $6.05 billion by 2030.



To test product-market fit and avoid a common pitfall in the scaling process, in 2017, Bolt threads sold limited-edition silk ties ($314) and hats ($198) that were all sold out within minutes of the commercialization. These Minimum Viable Products (MVPs) represent key elements in lean startup methodology as a proof of concept: by making the technology readily available it can better be understood by the market. MVPs are also key to de-risking the technology and therefore increasing the chances of raising funds.

With their MVPs, Bolt Threads attracted a lot of attention, so much so that later this year they were approached by Stella McCartney. She designed a Microsilk yellow dress for a MoMA exhibition. This collaboration represented an unprecedented opportunity to tap into the luxury market while exposing their technology to a greater audience. Later in 2019, Stella McCartney partnered with Adidas to create a "Biofabric Tennis Dress", taking it to a next level as a performant product.

Is the Company Ready to Extrapolate?

Although Microsilk was receiving a lot of attention, feedback from brands was that their main priority was sustainable alternatives to leather rather than textile. "At the end of the day, the consumers are the ones driving the bus, if you can identify where they're going, we're all going there," Dan said. Bolt Thread understood that it had to adapt to consumers' needs to become a scalable business, so it raised $50M in Series D to expand beyond spider silk and develop a leather-like material in 2018. Ultimately, through experimentation, they stumbled upon mycelium, mushrooms with leather-like properties.

Later this year, they developed their proprietary leather-like material, Mylo. This technology proved to be more efficient and scalable than Microsilk. It was the closest biomaterial that could genuinely replicate the luxurious feel and even the smell of leather.

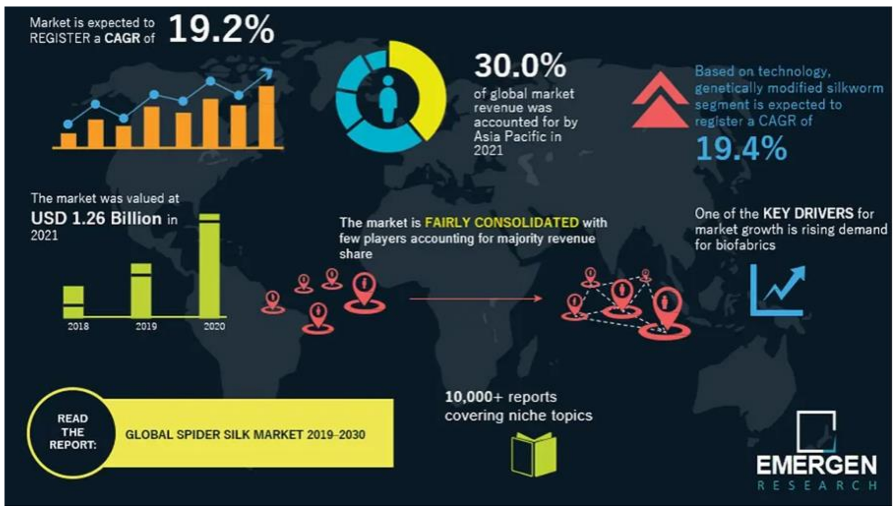
Mylo is created through a simple and repeatable process. The mycelium mushrooms are grown in the dark in giant bags of sawdust (waste from the wood industry used as feed) and grown to their full size in around a week. They are then transformed into sheets using green chemistry principles. A large number of mushroom farms already exist, and using already available infrastructure can be a major obstacle for deep tech ventures, but transitioning from Microsilk to Mylo facilitates Bolt Thread's path to scale, thus driving its costs down and leveraging well-established and automated processes.

The mycelium is grown in a controlled environment that allows the company to alter its properties and select the best strains for greater performance and differentiation. Another layer of differentiation comes from its sustainability, which represents an augmented benefit for brands who are urged by consumers and governments to replace their leather with sustainable alternatives. Indeed, Mylo involves low-energy manufacturing simply using air, water and sawdust in facilities that are 100% powered by renewable energy.

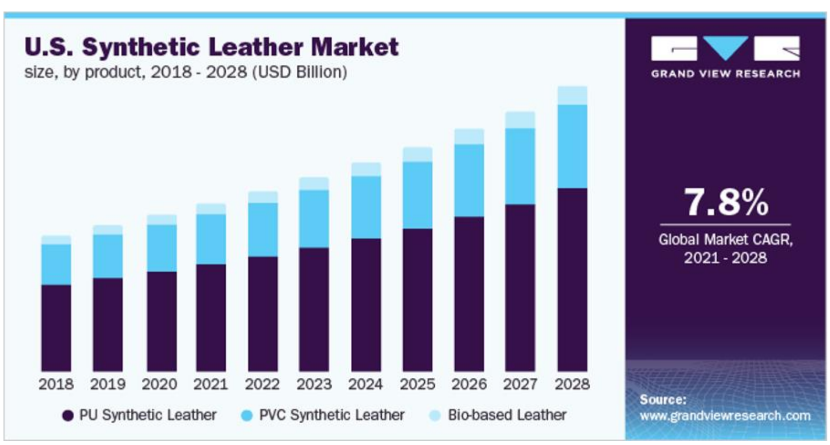
Mylo is far more sustainable than vegan leather, commonly called "pleather", which is petroleum-derived and feels more like real leather in terms of texture and quality than its cheap counterpart.

Real leather involves a 2–3-year process from end to end. Beyond animal cruelty and the greenhouse gases emissions due to the employment of livestock, processing animal hides involves lots of pollutants. Mylo proposes a cruelty-free and sustainable alternative, with a 4–8-week end-to-end process, which could make it cheaper and more accessible to leather if scaled properly.

To scale globally, Bolt Threads wants to produce a material that people desire beyond its sustainable benefits. The company has produced more than 5000 iterations of the material to create a truly desirable product, surpassing other fabrics, not just in its category of vegan leather. In their path to extrapolation, it is crucial to run several tests, selecting the best samples to achieve higher quality and reduce costs.



With its highly demanded and differentiated product, Bolt Threads decided to focus 90% of its effort on scaling Mylo. Thanks to a product that could replace both real leather with a market of $271 bn and current vegan leather with a market of $41.54 bn, expected to reach between $60.66 and $85 bn by 2025, Mylo taps into an exceptionally large serviceable addressable market, compared to the predicted $6bn spider-silk market in 2030.



Reusing their strategy to make their MVP available early on, in 2018, Bolt Threads launched a Kickstarter featuring a bag made with Mylo. In the meanwhile, the collaboration with Stella McCartney continued and this prolonged brand endorsement helped Bolt Threads build credibility and enhanced the perceived value of its product, thus appealing to investors and brands for future B2B partnerships. "Corporates are acceleration platforms for ventures' go-to-market" – Hello Tomorrow. This is especially relevant to deep tech startups that tap into a new market rather than an existing one and therefore need to be warier of avoiding product-market fit pitfalls. Launching prototypes and working with fashion brands allowed Bolt Threads to understand and define its target market needs and better address them.

What Are They Doing to Extrapolate?

In 2020, Bolt Thread announced its consortium of 4 renowned brands, made of 2 luxury brands; Stella McCartney and Kering and 2 sports brands; Adidas and Lululemon.

As the company achieves targeted customer activation, these solid partnerships represent undeniable assets: they help the company build recognition, trust, and desire, which are key elements to scale. Indeed, this mentorship opportunity from industry leaders helps subsidize the tremendous costs associated with developing such a disruptive technology to help Mylo reach commercial scale.

The fact that they partnered with both luxury and sports brands emphasizes Mylo's versatility, as a material on the path to becoming performant and of high quality, suitable for high-end while being accessible and increasing the similarity of their customer's job to be done.

By 2020, 100% of Mylo materials were being used exclusively by their partners for testing and prototyping. Doing this at larger scales than before allows for more accurate end-products that become greater indicators of the product's readiness to scale. Later in 2021, Bolt Threads raised $253M in series E with a valuation of $1.15bn, officially making the company a unicorn.

Thanks to this last funding round, Mylo's technology has tremendously accelerated, and the material is now available for purchase through Lululemon's yoga mats. In addition, Stella McCartney products will also be available this year with their RTW Spring 2022 collection. Finally, Adidas will soon commercialize a Mylo-made version of their emblematic Stan Smith sneakers and plans to integrate the fabric in other Adidas products and franchises. These first products on the market represent small steps in the grand scheme of scaling Mylo, but this demonstrates greater readiness to extrapolate, and product-to-market fit. As customers are willing to buy their products, Bolt Thread has established a proven monetization approach.

These long-term partnerships mean that currently, Bolt Thread can benefit from a predictable revenue, even more so as the CFO, Randy has confided that they are exclusively signing on long-term partnerships with their clients and supply chain partners.

Bolt Threads scoured the world to find the expertise needed to bring Mylo to the market. By installing capacities to produce 1 million square feet per year of Mylo, they redeveloped the production process to make it globally scalable to the tens of millions of square feet per year using quasi-fully automated processes.

Bolt Threads has partnered with MME, a biobased materials producer based in the Netherlands. The latter represents a strategic location on their path to scale, as MME is the global leader in mushroom farming, bringing over 30 years of expertise in the sector with a strong commitment to sustainability.

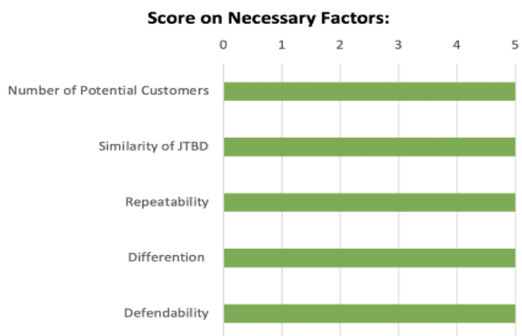
This is especially relevant in Bolt Thread's pursuit to extrapolate as they use their proprietary "Dutch Self System" to optimize capacity and conditions in which mycelium is grown, to produce at the highest quality with highest yields in record-breaking time. This patent-pending system allows the production of mushroom trays 500 times larger than any other technology, growing millions of square feet of mycelium at competitive cost and quality.

A key strategic element is the focus on optimizing facilities rather than increasing their size. Indeed, as explained in BCG's and Hello Tomorrow's "Nature Co-design: A Revolution in the Making" report on deep tech, when it comes to biomaterials organic feedback loops may be tricky to master, and they may not scale by increasing quantity like other technologies. Here, the Opex is more valuable than the size of traditional Capex infrastructure and leveraging this becomes a key strategy: this model requires a decrease in Capex and an increase in Opex (sawdust, energy, etc.), which is far cheaper than expanding physical infrastructures.

To further scale their entire supply chain, Bolt Thread stipulated an exclusive partnership with Heller Leather in Germany. This partner is a gold standard tannery, with 95 years of experience in the industry as well as a blue angel certified environmentally responsible facility focused on improving the tanning process from an environmental standpoint. In order to extrapolate properly, Bolt Thread focuses on building long-term partnerships and chooses people who are mission-aligned. This partnership helps automate Mylo's supply chain while drastically improving its quality.

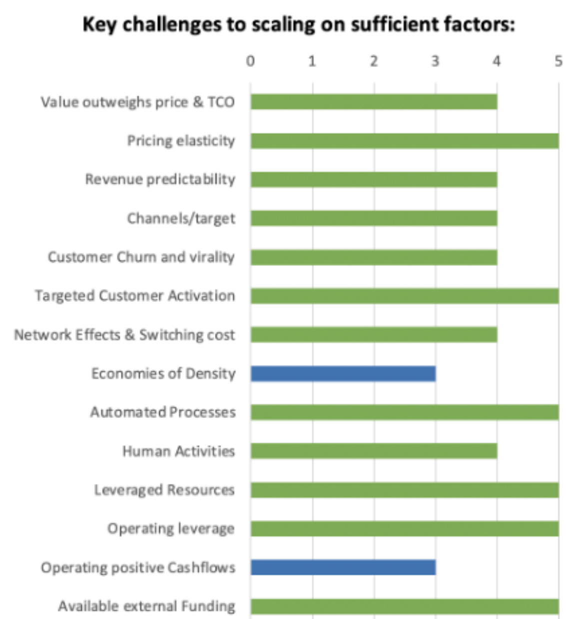
A constraint to expanding the product is to achieve price competitiveness. with a material selling at $30 per square foot, Mylo cannot compete with actual leather or pleather on price but remains more affordable than its direct competitors. The CFO, Randy, stated that with their new facilities and partnerships they are on track to decrease their selling price to $5 per square foot per year.

What Can Be Learned from This Unicorn?



When considering Bolt Thread's ability to scale, it's important to put things in perspective and acknowledge the complexity of this deep tech startup. Bolt Thread is creating a technology that is disruptive and has never been commercialized before, that requires decades of R&D and has the potential to create an entirely new market within its industry.

Although Bolt Threads fills the typical "ready to scale" checklist without a blink, its journey has been no bed of roses and the real essence of whether it is scalable relies upon the complexity of its technology. Biomaterials in general take a long time to go from lab to global scale, and extrapolation is not everything as it takes the right timing, with the right product. Currently, Mylo is fit to work with specific products, but there are still improvements to be made for the firm to take over the leather and pleather industry. The company is focusing on one product to become price competitive and will have to wait a while to become profitable. Nonetheless, as we have seen, Bolt Threads is on the right track to scale Mylo and is more ready than ever.



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Caffeine

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Company Overview

Caffeine is a live streaming platform offering interactive content for gaming, music, and entertainment. It was launched in 2016 by Ben Keighran, an Australian technology entrepreneur, with the idea of moving beyond traditional videogame content, largely associated to platforms like Twitch. Instead, Caffeine opens to new areas of entertainment such as sports, music events and rap battles. On the platform, anyone – athlete, singer, amateur – can stream to the fans who can interact with the speaker and among themselves. Before Caffeine, Keighran had founded two startups: Bluepulse, a mobile social-messaging app, and Chomp, a search and discovery platform. Chomp was later acquired by Apple, where Keighran served for five years overseeing software design on Apple TV.

Keighran's vision on the future of live streaming gained interest from investors. After an initial Series A investment from SV Angel, in 2017 Caffeine received a $35 million Series B investment from venture capital firms MaC Venture Capital and Thirty-Five Venture. In 2018, it got a $46 million Series C round from Greylock and Andreessen Horowitz.

A crucial point for Caffeine history came in September 2018, when mass media corporation 21st Century Fox (today's Fox Corporation after Disney acquisition in 2019) invested $100 million in the startup. The deal brought to the creation of a joint venture, Caffeine Studios, which has produced live sport, gaming and entertainment shows streamed on Caffeine. As part of the agreement, 21st Century Fox CEO Lachlan Murdoch became a board member of Caffeine.

In 2020, Caffeine finalized a $113 million Series D investment from newly formed Fox Corporation, media company Cox Enterprises and the Saudi Arabian investment firm Sanabil Investments. The round brought Caffeine value to a post-money valuation of $600 million. According to Caffeine declarations, the funding has been used to accelerate growth and acquire new talents for the platform.

Is the Company Ready to Extrapolate?

Caffeine targets a young audience of viewers who have experienced videogame streaming with platforms like Twitch but have been missing a live TV where they can find all the shows they like (Stephen, 2019). The number of these potential users is huge. The global live streaming industry has reached an estimated $70.5 billion in 2021 (PR Newswire, 2016). It is expected to be worth $184.3 billion by 2027 (Grand View Research, 2021). Among consumers, millennials represent the largest share, with 63% of them watching live streaming content (Santora, 2022).

Caffeine potential customers have a similar use case: watching a live entertainment show and interacting with the creator and other viewers. The show categories (gaming, sport and music) are closely interrelated as components of a single experience for the user. For example, Offset – one of Caffeine leading creators - broadcasts shows where he plays videogames, does rap performance and sport activities. By offering this experience, Caffeine is managing to reach young people with 62% of its users being below 34 years of age (Statista, 2022).

An advantage of Caffeine solution is its repeatability. To monetize, the company has its own currency, the Caffeine Gold. Users can buy and exchange it for virtual goods named Props. Then, they can send Props to broadcasters to show their support or to influence the outcome of the show. Props make broadcasters earn credits which, after a certain threshold, can be converted for real money. As source of monetization, the Caffeine Gold stays the same in every event and there are no additional costs to generate an extra gold.

There are two differentiation points from competitors. First, Caffeine does not offer premium subscriptions or paid ads like Twitch and other platforms. Instead, shows are free from ads and can be watched even without creating an account. Users can decide to buy the Gold or not to support the channel and interact with it. Therefore, the Gold is the only source of monetization.

Second, Caffeine offers exclusive sport content whose rights are owned by Fox, its major investor. This attracts more viewers who cannot find this content on other platforms. It also draws more creators since they can stream a more various content of entertainment.

However, Caffeine technology can be easily copied as more expertise on live streaming has been built through the years and the development costs are not particularly high (approximately $90,000). More challenging is to offer the same exclusive content of Caffeine. To do that, competitors would have to reach agreements with companies like Fox. These agreements need financial resources and negotiation time to be finalized. However, Twitch has responded to this challenge, allowing its subscribers to stream and comment any movie or TV show available on Amazon Prime Video. Even if Twitch main target is still gaming, this could be interpreted as a first sign that Caffeine advantage is eroding.

This first analysis shows that Caffeine can be scaled at the current stage, but it needs to make some adjustments to make its solution more defendable.

What Are They Doing to Extrapolate?

Caffeine managed to automate its service and make it uniform for users. To stream, a broadcaster simply has to create a Caffeine account and, in few steps, can start a show. For a viewer, the process is even more straightforward as shows can be watched without a subscription.

Employment of human resources is limited to internal moderators. With a system of automated filtering, these agents check that the content being streamed is not offensive and conforms to the company's policy. In this way, Caffeine ensures a safe and healthy engagement for its community.

To attract a large number of users, Caffeine started exclusive partnerships with famous rappers like Drake and organizations like URL (Ultimate Rap League). URL broadcasted its events on the platform, bringing more than 230,000 followers (Shaw, 2020). As users joined, more content and interactions were on the platform. First, this resulted in a positive network effect for Caffeine, which saw its value increasing. Second, there was a density effect. The viewers, sharing the same passion for the broadcaster, have now more chances to connect to one another and to buy virtual items during a single event. If the event can attract a large number of people, the unit cost to acquire these new customers decreases, resulting in economies of scale for the service.

According to Keighran, acquiring new entertainers is a priority for Caffeine. However, the expenses incurred to pay these celebrities can be very high. The latter, indeed, have a higher compensation than amateurs and often earn a large share of earnings from a live show. As the platform expands, it will need more partnerships to keep the community engaged. The risk is that partnership costs will raise operating expenses at the same rate or even faster than revenues, thus compromising economies of scale and growth.

To monetize the platform, the team adopted the Caffeine Gold as the only source of revenue. For users, the price of the gold is lower ($0.09 for one Gold) compared to the possibility to interact with their favorite creator or to influence the outcome of a show. Moreover, the user does not have to put the same number of resources as with a premium subscription to benefit from the experience.

Revenues can be predicted by looking at the events being streamed. Past events suggest that users are particularly interested in battle rapping. Therefore, in these events users are likely to spend more on Gold and virtual items compared to other type of shows. With this information, Caffeine board can decide how many times to host a show (URL streams four times a week) in order to maximize revenues from it.

Caffeine keeps its number of channels to sell to three: the website, a mobile app and a desktop application for PC. Each of these complementary tools allow users to buy Gold, watch and broadcast shows and interact with other viewers. There are no differences in services across different countries. In this way, the company can hold a straightforward approach while reaching users and collecting revenues. Thanks to the channels' similarity and complementarity, Caffeine can send a consistent marketing message to the audience. As a result, most of the company's audience traffic is direct (68.99%).

Caffeine is benefiting from large investments by Fox Corporation. In Keighran's view, Fox wants to stay relevant with a younger generation of customers (Stephen, 2019). Specifically, it wants to avoid losing contracts with major sport events and giving them to players like Amazon or Facebook. In this sense, Caffeine is a distribution platform for them to reach these young customers and keep their power in the market. As long as Caffeine performs well and brings younger people to Fox, the latter will likely keep its investment and give more funding to make the platform grow.

What Are the Results So Far?

The following analysis covers a period from 2016 (Caffeine foundation year) to 2020 (last investment year). In this time, Caffeine customer base reached 2 million individuals (Shaw, 2020). An average customer spends around $312 each year (Shaw, 2020). By multiplying this price per the total number of acquired customers, we have a total revenue of $624 million.

In the analyzed period, $294 million were invested in the company. We assume that most of these funds (80%) have been used to acquire new customers, so $235.2 million. Dividing these costs by the 2 million acquired customers, we get a Customer Acquisition Cost per client (CAC) of approximately $118.

Next, we calculate the Customer Lifetime Value (CLV) of a client. We firstly estimate the yearly cost to serve a customer, which is $168. Then, we take the $312 customer revenue per year and Caffeine's bounce rate of 51.74%. With these data, we have a CLV of $144. Dividing the CLV by the CAC, we have a ratio of 2.4.

The facts presented demonstrate that Caffeine has grown its customer base and revenues. However, the company may face high costs to acquire new users and maintain a high quality of content shows, particularly when it comes to pay the celebrities. For these reasons, the CAC stays high, and the CLV/CAC is low. If these costs are not reduced, Caffeine may struggle to extrapolate its business, particularly in the phase of profit-market fit.

What Can Be Learned from This Unicorn?

First, Keighran identified a large customer segment whose needs were unserved by existing players. He recognized their desire to connect among each other and to watch a more various entertainment content just on one platform. Then, he built Caffeine in a way to meet these customer needs and to a reach a large number of customers. For this to happen, establishing partnerships with entertainers popular among the young was fundamental. It was also important to automate the solution to simplify the process of customer acquisition and offer an improved experience for the customer.

Finally, Caffeine stayed independent from major companies unlike Twitch with Amazon. Thanks to that, Keighran and its team could maintain their target to young audience looking for more entertainment shows. Twitch, instead, is keeping its focus on the gaming sector which remains very competitive and possibly saturated. As a result, Caffeine managed to reach 2 million users in four years while for Twitch it took eight years (Iqbal, 2022). It also became attractive for broadcast companies like Fox, which offered an advantage both in financial resources and exclusive content, reinforcing its path to growth.

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Exotec

Author: Matteo ARMSTRONG

"*Exotec builds scalable solutions that are an accelerant for change and supports business growth despite market disruptions.*"

- Christian Resch, Managing Director in the Growth Equity business within Goldman Sachs Asset Management

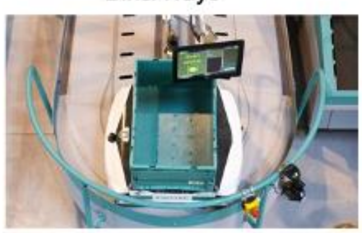
Company Overview

The story of Exotec began in 2014 while Romain Moulin and Renaud Heitz, the future co-founders, were commuting by bus to go to the General Electric Healthcare Robotics division where they were employed as engineers. Both were passionate about robotics and observed the growing needs for warehouse robotization to prepare retail orders. As Amazon kept the Kiva technology exclusively for themselves, they had the ambition to launch a better solution: a picking order preparation system using a fleet of robots able to move in a three- dimensional space. In 2015, Exotec was born with the mission to design revolutionary robotic systems for the supply chain.

The product at the core value proposition of Exotec is the Skypod System. It connects in a revolutionary way mathematics, robots and humans. Skypod functions as a fleet of robots which are programmed to prioritize the most urgent task and prepare orders faster. It is the retail order picking solution with the best performance on the market while remaining flexible and adaptable to the customer's needs. In 2017, Exotec signed its first contract with Cdiscount. Since then, 25 clients spanning e-commerce, grocery, retail and manufacturing leverage the Skypod System to improve their operational efficiency and profitability and easily adapt to shifting demands and exponential growth.

Racks

Bins/Trays

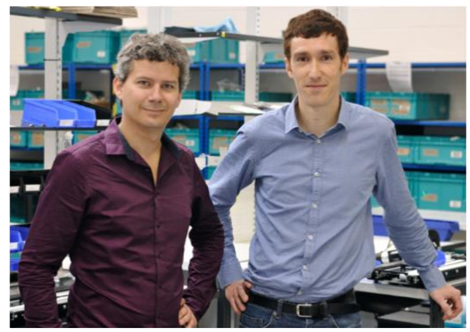


The Skypod Robot

The Skypicker

ASTAR

Stations



Romain Moulin and Renaud Heitz, cofounders, are respectively CEO and CTO and graduated from Supaero and Les Mines Paristech. They are two former robotics architects and technical engineers at General Electric. They headquartered Exotec in Croix, north of France. Since its creation, they embarked on this adventure 317 employees with a corporate culture based on excellence. Their motto is: "almost pass is failed".

Since 2015, Exotec has raised a total of 449.6 million USD through five funding rounds and is now valued at 2 billion USD. They convinced a total of 7 investors among which 360 Capital Partners. I seize this opportunity to warmly thank Alexandre Mordacq, General Partner at 360 Capital Partners and Exotec Board Member for his contribution to this case study.

Deal Type	Date	Amount Raised	Investors
Series D	17/01/22	$335M	Goldman Sachs Asset Management, Iris Capital, Dell Technologies Capital, Breega Capital, BPI France, 83 North, 360 Capital Partners
Series C	29/09/20	$90M	83 North, Iris Capital, Dell Technologies Capital and Breega Capital
Series B	12/06/18	$17.7M	Iris Capital,360 Capital Partners and Breega Capital
Series A	01/12/16	$3.3M	360 Capital Partners and Breega Capital
Seed	15/08/15	$1.6M	360 Capital Partners

Is the Company Ready to Extrapolate?

We are in 2018 and assess Exotec's scalability. In this section we will demonstrate how Exotec's Skypod System meets the two necessary conditions to scale. It fulfills the heterogeneous customer needs of a growing worldwide addressable market with a perfect product-fit and a unique selling proposition. Exotec product driven approach ensures repeatability and distinctiveness.

Necessary Factors

1. Serviceable Addressable Market Size

Number of Potential Customers

Score
5

Exotec targets all leading companies and SMEs with existing warehouses and new warehouses to be equipped. In 2021, the total worldwide addressable market of warehouse robotics was estimated at 230 billion EUR by Autostore, a leading competitor, at the occasion of its IPO. Alexandre Mordacq bases his analysis on the conservative assumption of 100 billion EUR for the year of 2025. Exotec has clients such as Carrefour, Cdiscount, Uniqlo, GAP but also smaller companies such as the French SME Patatam.

Similarity of Customers' Jobs to be Done (problems/needs)

Score
4

Exotec has a very agile system that allows them to address heterogeneous needs with the same product: i) the high growth rate and strong seasonality in e-commerce, ii) the expanding number of items combined with the acceleration of collection renewals in the retail, iii) small but frequent orders in a multi-location organization in the industry, iv) the curbside pick-up in the grocery sector. They have an approach product-driven which allows them to have a certain similarity of Customers' Jobs to be Done.

2. Solution Repeatability and Distinctiveness

Repeatability

Score
4

While its competitors have a tailored project driven approach, Exotec has a product driven approach that ensures a strong repeatability. The Skypod System is revolutionary because it is a combination of hardware devices made flexible with minimal software adaptation. This allows extreme adaptability to clients' specifications and enables subsequent phasing as customer needs evolve. The Skypod ASTAR Software is delivered to companies with minimal adaptation and the effort required to meet customer specifications is low.

Differentiation

Score
5

Comparing Exotec to its competitors leads to the conclusion that Exotec offers the best of both worlds: the speed of historical competitors and the agility of the new players. The patented Skypod System is perceived as highly differentiating. Daifuku, Schäfer and Vanderlande have a strong competitive advantage in mechanics but do not master software. Autostore, the second type of competitor, offers a cubical form system to stock in a very agile and dense manner but its performance is much lower. As Richard Tremblay, logistics manager of Decathlon Canada said: "Exotec solution is a unique combination of speed, performance, and flexibility that allows us to provide leading service to our customers."

Defendability & Switching costs

Score
5

Warehouse robotics are indisputably investments with high switching costs once the system is installed. With its very complex technologies, the warehouse robotics sector has very high barriers to entry. Exotec has several patents, among which a patent for its climbing technology that is unique in the industry.

Logistics has clearly become a major challenge and a powerful competitive differentiator. Exotec targets all leading companies and SMEs with existing warehouses and new warehouses to be equipped. In 2021, the total worldwide addressable market of warehouse robotics was estimated at 230 billion EUR by Autostore, a leading competitor, at the occasion of its IPO. Alexandre Mordacq bases his analysis on the conservative assumption of 100 billion EUR for the year of 2025.

The Skypod System has demonstrated its unique selling proposition as it can address heterogeneous needs: i) the high growth rate and strong seasonality in e-commerce, ii) the expanding number of items combined with the acceleration of collection renewals in the retail, iii) small but frequent orders in a multi-location organization in the industry, iv) the curbside pick-up in the grocery sector. Exotec reached the forecasted turnover of 105 million euros in 2021 compared to 47million euros in 2020 and 20 million euros in 2019. To achieve the 2025 level of ambition of 1 billion revenues, which represents a 1 % market share based on the conservative assumption mentioned before, Exotec must multiply by about 11 times the number of clients.

AutoStore Robots

While its competitors have a tailored project driven approach, Exotec has a product driven approach that ensures a strong repeatability. The Skypod System is revolutionary because it is a combination of hardware devices made flexible with minimal software adaptation. This allows extreme adaptability to clients' specifications and enables subsequent phasing as customer needs evolve. The Skypod ASTAR Software is delivered to companies with minimal adaptation and the effort required to meet customer specifications is low.

Daifuku Robot

Vanderlande Robots

Warehouse robotics are indisputably investments with high switching costs once the system is installed. The patented Skypod System is perceived as highly differentiating. Daifuku, Schäfer and Vanderlande have a strong competitive advantage in mechanics but do not master software. Autostore, the second type of competitor, offers a cubical form system to stock in a very agile and dense manner but its performance is much lower. Comparing Exotec to its competitors leads to the conclusion that Exotec offers the best of both worlds: the speed of historical competitors and the agility of the new players. As Richard Tremblay, logistics manager of Decathlon Canada said: "Exotec solution is a unique combination of speed, performance, and flexibility that allows us to provide leading service to our customers."

Shäfer Robot

What Are They Doing to Extrapolate?

Through a deep analysis of the necessary factors we can affirm that Skypod Solution is highly scalable and Exotec was ready to extrapolate by the end of 2018. Exotec extrapolation period started in 2019 when two catalyst events for exponential growth happened. In 2019, Exotec won the “Best Product” award in Stuttgart and signed a partnership with AHS, a full-service provider of integrated robotic solutions, to sell the Skypod System in the United States and Canada. Exotec extrapolates by focusing on its strengths. In 2019, Exotec relied on the inelastic demand for its products with a perception that value delivered outweighed price and cost of ownership. Exotec’s solution offered a strong competitive advantage. To ensure a successful period of extrapolation Exotec faced several constraints that we identified through a deep analysis of the sufficient factors. Exotec owes its success to the way the leadership team used scaling tactics to overcome those constraints.

Sufficient Factors

3. Proven Monetisation Approach

Perception that value delivered outweighs price and cost of ownership

Score: 5

Exotec offers products that offer a clear competitive advantage to their clients, they therefore have the perception that value delivered by Exotec's robots outweighs price and cost of ownership.

Price elasticity of demand

Score: 5

The demand for Exotec products is inelastic. Clients leverage the Skypod System to improve their operational efficiency, profitability and easily adapt to shifting demands and exponential growth. Clients are not sensitive to the price Exotec sets. This is why Exotec managed to to margins slightly above 50%.

Revenue predictability

Score: 4

Warehouse robotics investments are scheduled in advance. The management has thus a strong visibility on the target turnover. 70% of the coming year revenues are already guaranteed. Moreover to secure recurring revenues, Exotec added to its price list a 5% annual maintenance fee of the total cost. Moreover, the predominance of software in Exotec's offer enabled it to rent additional robots during the peak seasons.

4.Effective Route to Market (distribution, marketing and sales process)

Channels/target

Score: 4

Exotec found the right marketing and sales approach. To reach out to new customers, Exotec built its awareness among prescribers such as consulting companies and logistics players. To reach out to new customers, Exotec built its awareness among prescribers such as consulting companies and logistics players. Since 2019, to multiply their salesforce, Exotec implemented a specific go-to-market scaling tactic by expanding internationally through partnerships with local system integrators such as Fives Intralogistics K.K. in Japan and Advanced Handling System in the United States.

Customer Churn and virality

Score: 5

The customer churn is equal to 0. In 2021, 60% of Exotec's revenue came from returning customers that ask Exotec to equip new warehouses or upgrade existing ones.

Targeted Customer Activation

Score: 5

The marketing and sales process focus solely on target customer personas, Exotec exactly knows who they should target and they actively discourage any other marketing and sales activity.

5.Network & Density effects

Network Effects

Score
4

There are certain benefits from network effects: Feedbacks from clients enable to update the roadmap and to improve the software. Collaboration with clients enriches the Skypod System algorithms. Additional customers increase the value of the solution for other customers and relatively achieve economies of scale.

Economies of Density

Score
4

There are some important shipping costs with the robots delivery and staff for maintenance that can be lowered. There is an interest for Exotec to seek for a certain density.

6.Throughput effectiveness & Unit Economics

Automated Processes

Score
5

Exotec's products are fully engineered. Automatization is at the heart of Exotec's value proposition.

Human Activities

Score
4

Exotec's offer is a product-driven approach. However it is true that maintenance and software updates are relevant.

Leveraged Resources

Score
2

Exotec requires a very high amount of investment while scaling. Romain Moulin said during an interview with Bpi France: "hardware is very cash burn, as an example the first prototypes at the beginning cost 3 million EUR."

Operating Leverage

Score
2

Six years later, the business is not able yet to achieve increasing leverage by having Opex expenditures growing at a lower rate than revenues.

7.Funding

Positive Float (Operating positive Cashflows)

Score
2

The cash flows from operation is not sufficient to cover the investments associated with scaling. Exotec today does not have a positive float.

Available External Funding

Score
5

To face those financial constraints Exotec takes advantage of external funding. Since 2015, Exotec has raised a total of 449.6 million USD through five funding rounds and is now valued at 2 billion USD. It easily raised 335 million USD in series D on January 17th 2022 welcoming Goldman Sachs and Bpi France as new investors.

A first constraint is to achieve revenue predictability and proven monetization. Warehouse robotics investments are scheduled in advance. The management has thus a strong visibility on the target turnover. 70% of the coming year revenues are already guaranteed. The Skypod System price is a combination of hardware and software sold by the unit that amounts to an average total investment of 3,5 million EUR (in 2019). To secure recurring revenues, Exotec added to its price list a 5% annual maintenance fee of the total cost. Moreover, the predominance of software in Exotec's offer enabled it to rent additional robots during the peak seasons. Competitors such as Daifuku cannot use this recurring revenue tactic since their robots have a hardware predominance. In other words, if they rent robots, they will not be able to take them back for other clients.

Another constraint for the company is their go-to-market strategy. To reach out to new customers, Exotec built its awareness among prescribers such as consulting companies and logistics players. Since 2019, to multiply their salesforce, Exotec implemented a specific go-to-market scaling tactic by expanding internationally through partnerships with local system integrators such as Fives Intralogistics K.K. in Japan and Advanced Handling System in the United States. This scaling tactic has been very successful. Hence, for example Uniqlo (2019), Gap (2021) and Ariat (2021) chose Exotec to optimize their warehouse picking process. As a result, 75% of Exotec's revenue is generated today outside of France, in 10 countries. Furthermore, Exotec continues to deploy the Skypod System for existing clients as new warehouses open or existing warehouses extend their order capacity. Exotec also obtains positive network effects. Collaboration with clients enriches the Skypod System algorithms. Additional customers increase the value of the solution for other customers and relatively achieve economies of scale.

Their final constraint lies within their ability to achieve positive float and operational leverage. Exotec requires a very high amount of investment while scaling. Romain Moulin said during an interview with Bpi France: "hardware is very cash burn, as an example the first prototypes at the beginning cost 3 million EUR." Six years later, the business is not able yet to achieve increasing leverage by having Opex expenditures growing at a lower rate than revenues. The cash flows from operation are not sufficient to cover the investments associated with scaling. Exotec today does not have a positive float. Its goal is to grow and not to be profitable yet. To face those financial constraints Exotec took advantage of external funding. It easily raised 335 million USD on January 14th 2022 welcoming Goldman Sachs and Bpi France as new investors. It should be the last funding round before reaching profitability.

What Are the Results So Far?

Extrapolation is happening. In this section, we will detail the key outcomes of the scaling tactics previously analysed. Since Exotec is not a public company, I gathered numbers through press releases and during my interview with Alexandre Mordacq. Exotec contracted with the leading French e-commerce and retail players: Cdiscount (2017), Carrefour (2019), Leclerc (2020), Monoprix (2021) and Decathlon (2021). The Go-to-market strategy with local system integrators also accelerated Exotec development in countries such as Italy, Spain, USA, UK, Germany, and Japan and lowered the cost of acquisition abroad. In 2019, Exotec contracted with Uniqlo in Japan. In 2021 Exotec definitely ramped up its operations in the United States and signed contracts with the leading retailers Gap and Ariat. As a tribute, Exotec is awarded "Champion of growth" in February 2022 by Les Echos with an outstanding 300% increase in sales revenue from 2017 to 2020.

Exotec marketing and sales approach based on collaborative processes triggered a very high customer returning rate and increased the lifetime value. As a result, 60% of Exotec 2021 revenues came from existing clients. Cdiscount, Exotec first historical client is a relevant example. Since 2017, Exotec has continuously developed and improved the performance of its Skypod System in Cdiscount 60,000 m2 warehouse located in Réau. It is currently made up of 273 robots and each robot multiplies productivity by 5. To honor their fruitful cooperation, Exotec and Cdiscount were both awarded the "David with Goliath" prize by Bain & Company in 2018 which created an indisputable virality to gain new customers.

The scaling tactics based on brand awareness and virality significantly lowered the client cost of acquisition. The Lifetime Value is estimated at above 10 years. The Lifetime Value / cost of acquisition ratio is not a metric followed by Exotec since the churn rate is currently zero. Exotec has lost so far none of his clients.

Exotec business model will lead to profitability with a targeted EBITDA of 2% in 2025. On average a Skypod robot is sold at 50 thousand EUR with a unit cost of 25 thousand resulting in a unit margin of 50%. "The more we sell, the more we manage to lower costs, control the behavior of robots over time, which allows (1) to increase the gross margin of robots (economies of scale), and (2) improve the profitability of our maintenance services", said Alexandre Mordacq.

What Can Be Learned from This Unicorn?

From Exotec's successful story we can extract many important learnings. Exotec seized in 2015 a market opportunity in goods-to-person logistics and disrupted the warehouse robotics industry with a major innovation: the Skypod System. The unique selling proposition still relies on a perfect product-fit with a combination of hardware and software, a strong differentiation, repeatability and defendability with very high switching costs. Exotec started its extrapolation period at the right time, in 2019, when the necessary conditions were met and implemented the relevant key scaling tactics to satisfy their level of ambition. Finally, they convinced investors to finance their growth until Exotec is profitable. Alexandre Mordacq said that it was very rare to have such a growth without any difficulties. The main issue Exotec faced was recruitment. It took longer than expected to find the team that fitted Exotec's culture of Excellence. To broaden our case study to a European political concern, Exotec's success story participates to the major challenge of industrial know-how rehabilitation. As the first French industrial unicorn, it will inspire future entrepreneurs.

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Harness

Author: Anshita BANSAL

Company Overview

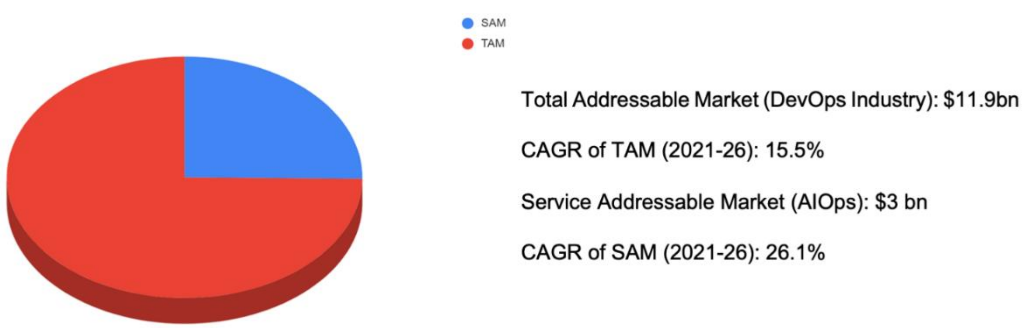
Harness is a fast-growing business that is shaking up the software delivery industry. They created an intelligent software delivery platform that will allow developers to provide software more quickly, with greater quality, and with lesser effort. It was formed out of BIG Labs, a startup firm that focuses on solving difficult technical issues and building long-term businesses. Spread all across the world from Bengaluru to Belfast, Harness has now raised $195 million in venture capital funding from top-tier investors and has also acquired relevant companies in the space to help push its vision of ease for developers.

On January 14, 2021, it attained unicorn status by an $85 million investment round to increase the number of people who use its software delivery platform and the number of features it offers. The firm got valued at $1.7 billion as a result of the investment.

As for the unique selling proposition, Harness has developed a quick onboarding model for developers where they harness the power of Artificial Intelligence and Machine Learning for verifying deployments, identifying test optimization opportunities, and even providing visual pipelines for developers in various modules. It optimizes the process of coding and development of software, saving developers hours of valuable time while automating the manual processes and making tracking of multiple projects extremely easy. It has created an ecosystem for developers to provide a seamless, end-to-end tool for all kinds of software development projects.

The team is composed by its Founder and CEO, Jyoti Bansal, a serial entrepreneur who created and scaled his previous company in the data automation sphere to Cisco for $1.3 billion. The CRO and CMO have also worked in the same industry for decades at top management positions in organizations such as AWS and Twilio. The entire leadership team consists of people who have extensive experience in the industry and in scaling startups.

Is the Company Ready to Extrapolate?



The TAM of the company is growing at a significant rate of 15.5%. However, Harness specializes in using AI & ML to optimize its service delivery solutions. Therefore, it falls in the AIOps industry, which is growing at a much higher rate of 26.1%. Therefore, it meets the necessary condition that the *size of total and addressable market is significant enough to qualify for extrapolation.*

In terms of repeatability, Harness offers both CI and CD in its portfolio of services, which expands its portfolio immensely, putting it ahead of the competition by its large sum of services. Moreover, it has its own AI & ML integrations that they have perfected over years to provide the best software delivery solutions to its clients, which makes it very hard to repeat or copy.

In terms of differentiation, platform teams can use a pipeline template to develop common deployment pipelines. This allows development teams to input variables to the pipeline template without having to write or manage the pipeline themselves. Setting up effective, repeatable deployment pipelines is made easier with the ability to express deployment ideas via workflows. Connectors eliminate the requirement for yaml files to be scripted or rewritten for common deployment targets. Pipeline Governance allows central teams to quickly assess compliance throughout the whole company. To understand the condition of environments, apps, and deployments, centralised out-of-the-box and custom dashboards are used. Continuous Verification interfaces with a variety of monitoring technologies and uses machine learning to detect abnormalities and automate deployment reversal. Configuration as Code - For Git-style collaboration, all CI/CD configuration is kept in a YAML file. Multiple source code (GitLab, GitHub, etc.) management, ticketing (ServiceNow, JIRA), and monitoring (DataDog, New Relic) tools are all supported.

Moreover, the ability to not be easily replicable puts it ahead of the competition, granting Harness a technology differentiator that is expensive to replicate and time-consuming for anyone who tries, increasing its defendability. Furthermore, the technical know-how of the top management team, as well as the optimization of processes facilitated by artificial intelligence and machine learning has made it further difficult to gain by any competitors. Lastly, Harness has 11 patents registered, out of which 3 are active (for example, reporting continuous system service status based on real-time short-term and long-term analysis techniques, and the others are pending (for example, test cycle time reduction and optimization).

In conclusion, Harness qualifies for the extrapolation phase since it meets the necessary conditions.

What Are They Doing to Extrapolate?

In terms of monetization approach, the revenue of Harness has steadily been growing through the years. It currently has an annual turnover of $107.4M per year. Its employee growth has been 65% compared to last year, and its current estimated revenue per employee is $177,800. Harness became indispensable for resource-strapped DevOps and engineering teams, resulting in a 400% increase in ARR and a 150% increase in Net Revenue Retention from current clients.

Regarding the route to market, Harness started advertising on LinkedIn from December 2017, and began utilizing LinkedIn Lead Gen Forms in January 2020 to minimize friction and enhance lead flow. This led to a large influx of leads from legitimate channels which had a huge potential in conversion to final customers. Harness drew a partnership with the LinkedIn Marketing Partner, Zapier, to automate account provisioning and alleviate bottlenecks caused by the manual procedure, as well as to send their trial link to leads in a more seamless and timely manner. Due to this, Harness was able to significantly boost its speed-to-lead rate while also streamlining a complicated procedure. They initiated a free trial system with speedy onboarding for developers so that they could get acquainted with the value proposition of the software delivery platform as quickly as possible. Its primary route to market is the platform on which Harness is built. A unique delivery solution providing an end-to-end tool for development operations, Harness provides all its services on its own platform. Harness reached 675% global partner growth to enable businesses to take advantage of continuous delivery solutions. They were named AWS Global Start-Up Partner and AWS Advanced Partner, further diversifying the routes to market. Lastly, Harness.io opened an online educational platform called Harness University where customers can choose from 50+ online courses that role-based, product-based or various other paths to enhance their software delivery expertise.

Their AI/ML technology runs various algorithms to automatically detect cloud cost anomalies, verify deployments, and test various other opportunities. The efficiency and accuracy of these algorithms increases the more data it is fed. Therefore, with more clients that sign up to the platform, it automatically optimizes the processes even more. Moreover, It enables faster installation of new features, making configuration management and continuous delivery even more efficient.

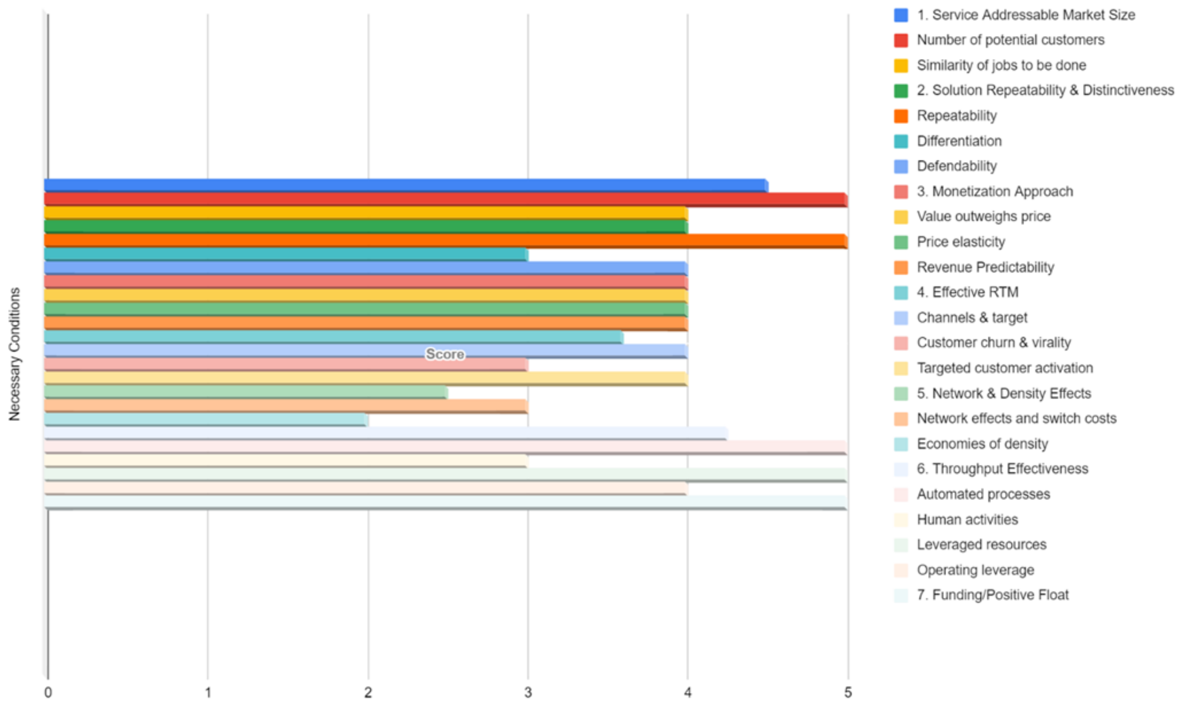
Harness has a high throughput effectiveness because there is no extra effort or cost required to onboard new clients. The sign-up process is quick and immediate, and the time between the purchase and use of service is minimal due to availability of free trial and on-demand support. Therefore, Harness can provide unlimited service to clients at any given time, making its throughput highly effective.

Furthermore, they leverage their infrastructure and operational efficiency to improve their unit economics. Cost elasticity is a part of the architectural cloud; therefore, the operational costs stay minimal while the average revenue per customer increases.

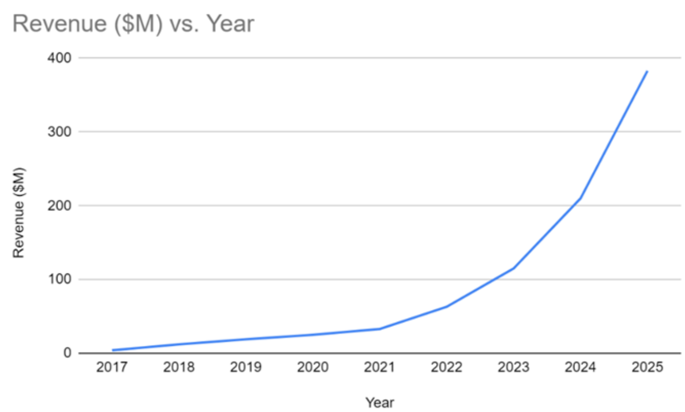
Harness uses AI and ML to simplify development operational processes such as CI, CD, Feature Flags, Cloud Costs, etc. Developers and DevOps teams can use their intelligent software delivery platform to automate code deployment, testing, and rollback in production.

Finally, Harness keeps expanding its portfolio to provide end-to-end software delivery solutions for needs of every kind. It has also partnered with various tools used by companies across the globe so that integration of every need is smooth and quick. One of its USP, in fact, is its vertical growth into both the CI & CD services, a portfolio offered by very few in the market.

What Are the Results So Far?



According to the scalability assessment, Harness ranks quite how for most factors, making it ready for extrapolation. Looking at the growth history of the company, its revenue has doubled almost every year. Moreover, with the growing team of highly accomplished individuals, the incremental value brought on by every employee also keeps rising, contributing to the growth of the company at exponential levels.



The extrapolation phase for the company has already started from 2021 when it gained unicorn status after acquiring a funding of $115M, raising its valuation to $1.7B. Harness has raised a total of $195 million to date, which it will utilize to expand its world-class engineering staff, support worldwide development aspirations, and expand its intelligent software delivery platform vision.

Not only does it have strong financing and a unique portfolio offering a wide range of services, it also has a strong client base that are loyal customers who are gaining a huge amount of value from the company.

"Harness claims that one client, LogMeIn Inc., saved a million dollars in engineering productivity by adopting its platform. Another user, British software maker Advanced Computer Software Group Ltd., reported it completed an internal CI/CD initiative in three months instead of the three years it was expecting"

In 2021, the startup's yearly recurring revenues more than doubled from an unknown starting point, following a 249% increase in the number of organizations utilizing its platform.

From technical expertise to customer experience and value proposition, Harness' scaling tactics have been extremely efficient, as is obvious by its unicorn status.

What Can Be Learned from This Unicorn?

There is much to learn on how to grow and scale a startup from the journey of Harness. Some of the best practices learned from the case are as follows:

Experienced Management Team: Harness' whole top management team came from extremely relevant backgrounds. They are not only highly accomplished in their fields with worldwide recognition, but all of them have also had experience in scaling a startup. It is advantageous for top leadership to have that experience since it already makes them experienced with the challenges and limitations of the sphere.

Recognizing Profitable Gaps in the Market: There are many small industries within major industries that have a gap in the market which no one has completely saturated yet, and those sub-industries can have a larger growth rate than the macro industry, as was seen in the case of Harness. To be able to find a significant enough addressable market is a huge challenge.

USP: The value proposition proposed by the company must be unique and differentiated enough that it fills a niche need and fulfills customer expectations. It not enough to just give the customers a better version of what they want; companies can set themselves apart by offerings beyond their imagination.

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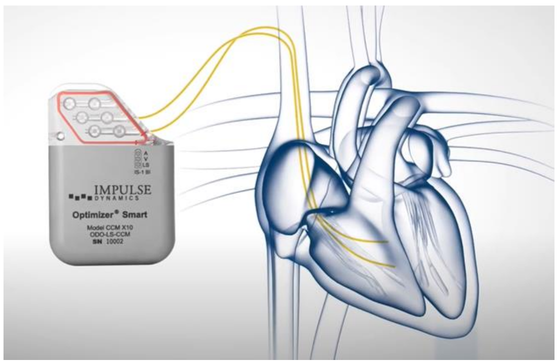
Impulse Dynamics

Author: Oliviero VURRO

Company Overview

Impulse Dynamics is a US and Germany based private company dedicated to improving the lives of people with heart failure (HF) conditions through CCM (Cardiac Contractility Modulation) and developed an innovative solution to deliver such therapy currently marketed as the "Optimizer® Smart[1]".[1]



CCM Therapy is delivered by the implantable Optimizer® system which sends unique electrical pulses from the generator to the heart through two *leads* during a special period of the heart cycle: the absolute refractory period, just after the heart excitation.

This device therapy is addressed to the treatment of moderate to severe heart failure (chronic progressive condition affects 26M people worldwide). In a minimally invasive procedure, the CE approved Optimizer® is implanted in the subclavian area where it generates the CCM signals.

This unique device and technique grant better results than any other solution present on the market. *CVRx* developed and sells a device with a similar outcome but with worse clinical results, and a totally different hardware which is harder to implement. For these reasons, there are today no direct competitors for the numerous patients that impulse dynamics is helping.

Impulse Dynamics was founded in 1996 by Shlomo Ben-Haim MD together with Lewis Pell and Simos Kedikoglou MD (current CEO) thanks to an idea based on some promising results from extensive research carried out in the 1960's and 70's on heart failure. Technology was later deemed advanced enough to test and design a device effective in improving patients' quality of life.

The management team, composed of 10 people, includes 3 MDs, 3 PhDs and 1 Engineer MSc. Most of them had experience in the healthcare sector either as practitioners or in health-tech ventures with a broad spectrum of specialities, from sales to product development.

Since 1996, *Impulse Dynamics* raised $246.3M from private investors and VCs in a total of 5 rounds. It's unknown how much equity has been sold in the years during the investments rounds and this makes the valuation confidential and hard to estimate. Between 1996 and the first investment in 2016 the founders focused on research, testing and designing a prototype.

Announced date	Transaction	# of investors	Amount raised	Lead investor(s)
May 13, 2016	Venture round	1	$30M	Lee Ka Kit
May 11, 2017	Venture round	1	$45M	GoldStone Investment
Dec 3, 2019	Series D	7	$80.3M	Amzak Health Investors
Jan 12, 2021	Series D	3	$60M	CR – CRT Industry Pilot Fund
Feb 24, 2022	Venture round	NA	$31M	NA

Is the Company Ready to Extrapolate?

Over 64M adults worldwide suffer from heart failure while chronic progressive condition affects around 26M. Currently, 5.7 million people in the US suffer from HF, and by 2030 more than 8 million people will. Early stages are treated with lifestyle modification and medication but over time these are no longer effective leaving 8M people with device therapy as their only option. A unique dilemma faces patients with NYHA[1] class 2[1a] or above heart failure with normal QRS[2] duration. Their medication usually has minimum effect on their symptoms and they are not eligible for CRT[3] (Cardiac Resynchronisation Therapy) such as pacemakers and defibrillators due to the normal QRS rate.

These numbers are expected to grow due to the ageing population in the targeted countries, the growing obesity rate and sedentary lifestyle. For this growing group of patients, CCM therapy closes the treatment gap.

Every patient requires a certain level of adaptation to implement the device, some are subject to CRT, others use the device preventively before the heart deteriorates while others are left with CCM as their only option to improve their quality of life while not eligible for more advanced care.

This could make operations more complicated for the company but fortunately, all these customizations have to be addressed by the physicians and the facilities implanting the device. Sales for Impulse Dynamics are extremely simplified, their device is sold as-is for every single procedure, making sales and operations highly repeatable.

CVRx – what could be considered the closest competitor – offers a completely different solution that acts on the blood flow instead of the heart itself. For this reason, they can improve their patients' quality of life but not substantially. The Optimizer® on the other hand increases the heart's contractility so it

1 **NYHA:** New York Heart Association

a. Class 2 Heart Failure: Mild symptoms (mild shortness of breath and/or angina) and slight limitation during ordinary activity.

2 **QRS Duration:** The QRS complex represents the electrical impulse as it spreads through the ventricles and indicates ventricular depolarization. As with the P wave, the QRS complex starts just before ventricular contraction. It is important to recognize that not every QRS complex will contain Q, R, and S waves.

a. **High QRS:** Increased QRS voltage is often taken to infer the presence of left ventricular hypertrophy.

3 **CRT:** (Cardiac Resynchronization Therapy) Life sustaining devices and therapies such as pacemakers, defibrillators…

becomes stronger and can move better even after the implant is taken out for a limited period before being affected once again by the underlying HF symptoms.

This substantial difference makes Impulse Dynamics' customers a well-defined niche with a precise need that is seeking assistance from a physician.

All of Impulse Dynamics' devices and its therapy are protected by a great deal of proprietary patents, a total of 55 since its inception to be precise and 19 currently standing in the US alone.

The registered intellectual property grants an extraordinary defendability of the product and therapy altogether.

Furthermore, if a patient decides not to use this device anymore, the cost for the removal will be taken care of by the healthcare provider or the patient itself. As said before there aren't better or similar options on the market and if CRT becomes necessary for a patient, CCM therapy can coexist with any other implantable module. This operation wouldn't be aimed at switching to another solution but just to halt device therapy altogether.

What Are They Doing to Extrapolate?

The first issue that comes to mind when dealing with medical devices and especially implants is regulation. Throughout the years and with the various versions developed a few obstacles had to be overcome.

Earlier versions of the Optimizer® needed 3 *leads* (3 metal heads implanted directly into the heart tissue wired to the device) to operate which turned out to be an issue for patients with previously implanted CRT modules or that would require one in the following years. In 2017 the FDA denied authorisation for use on such patients for this version but granted a complete "green light" for a later prototype that only required 2 leads. Today none of Impulse Dynamics' devices use the 3-lead system anymore and they are all certified by the main governmental institutions around the world such as the FDA, CE and EMA.

Product-wise the expansion has never stopped, with every round of investments Impulse Dynamics focused on R&D to fine-tune its products and come up with new solutions to improve patients' quality of life.

They are currently developing a new version called Smart Optimizer® MINI ("AIM HIGHer" clinical trial) but all specifications are confidential. We can only expect for sure that it will offer a very similar result to its predecessor.

As for geographical expansion the company doesn't have any particular boundaries for the time being. Business developers and territory managers are working to entrench the Optimizer® as a viable and recognised option in the US, China, Russia, South America, Italy, Germany and many other countries.

Every country has specific legislation, health systems and customer behaviour and tendency. This is surely the most arduous and delicate aspect for Impulse Dynamics.

Let's take the US as an example since it's their biggest market and most delicate system to approach.

Once received FDA approval, the company cannot simply sell the device nor implant it themselves. All patients have to follow a guideline (GDMT – Guideline Directed Medical Therapy) and be followed by a physician who is the one responsible to suggest and prescribe the procedure to implant a CCM device. The whole procedure – device included – is then charged to an insurance as is the norm in the US for most cases.

One of the biggest challenges is the approval by private insurance companies to pay for this procedure since it's a new solution in a fairly stiff system. Subsequently, some patients cannot use the device because healthcare plans don't cover it yet. Medicare turned out to be a big relief for Impulse Dynamics since their solution is approved under this scheme.

In brief, all procedures have to be carried out under physicians' guidelines and with contracted hospitals. The number of partner facilities is fairly low as of today and none of them are hospitals since higher barriers are present; this expansion falls in the hands of territory managers. Research universities represent a big opportunity for growth as well since they control affiliated hospitals in their systems.

Normally medical directors at insurance companies would have peer to peer discussions with physicians to decide if the procedure should be allowed on a case-to-case basis. Now a third-party company takes care of this procedure to advocate for the approval of the Optimizer® and to take off a burden from the organization and the physicians themselves.

The Optimizer® Smart has a battery that will deplete in 12-15 years, then the whole device has to be changed. Only the 2 metal heads are left in the heart and attached to the new module as part of the substitution procedure.

Patients are largely satisfied with Impulse Dynamics' solution as can be seen from the various testimonies displayed on their website and through third parties, clinical results are positive and encouraging and so the product is gaining reputation while churn rate is derisory.

Impulse Dynamics also has a positive float while their most direct competitor (CVRx) still wasn't profitable as of 2020 with a $6.1M revenues and $14.1M net loss. This will foster a further growth

What Are the Results So Far?

Unfortunately, most of the relevant figures are confidential or cannot be found in any third-party source and the company is split into various subsidiaries or branches. Bill Rodgers (Sr. Field Clinical Engineer at Impulse Dynamics) stated that "[…] the vast majority has been good and improving, since I started working at Impulse Dynamics we've been consistently growing in size and in revenues. The company has major potential to grow in the following years […]".

In the last 5 years, there has been an average YoY growth in revenues of ~25% meaning they more than tripled their turnover. Today there are roughly 215 employees with an estimated revenue per employee of $250'000, in the last year their workforce grew by 34% and in the last 2 by 84%.

The departments that went through the greatest growth are sales and R&D related health care professionals; in the last year also the number of engineers hired doubled compared to 2021.

Although the number of contracted facilities remains confidential, they have been growing quickly. Business development and sales are the areas of main focus currently. Contracting other facilities is much simpler than hospitals, their current strategy is to gain the trust of a sufficient number of physicians residing in various facilities to root the Optimizer® in the medical community and gain better and easier access to hospitals. Current patients and physician's familiar with this technology are advocating for its use and are expected do so more and more in the next years.

I expect this company to further extrapolate in the next 3-5 years.

What Can Be Learned from This Unicorn?

Impulse Dynamics is part of a highly complicated and research-intensive market. Founded in 1996, it took a lot of work, research, and product development to come up with a viable solution. This journey is far from over, now it's mostly a matter of growth and they have all it takes to extrapolate, current patients, a well-defined structure, an amazing product, and clear plans on how to reach the market.

Sometimes and in certain sectors it takes time and patience to build a profitable company. Almost all potential barriers are known and have been properly addressed. Something could have surely been done better but it's just a matter of fine-tuning and right timing. Perhaps starting to get the product on physicians' mouths earlier and gain better access to the market although given the huge regulatory barriers we're not even sure how much more could have been done.

Compared to CVRx which decided to go public in mid-2021, Impulse Dynamics is still a privately owned company that doesn't have to deal with the equity market and its downfalls. The Optimizer® is deemed efficient, reliable and trustworthy, in fact, the company went through a further round of investment in early 2022 showing the investors' faith in it. On the other hand, CVRx was extremely overvalued when it went public and the market apparently lost faith with a starting price of $18 during the IPO and an all-time high of $28, its stocks are now worth just over $6.

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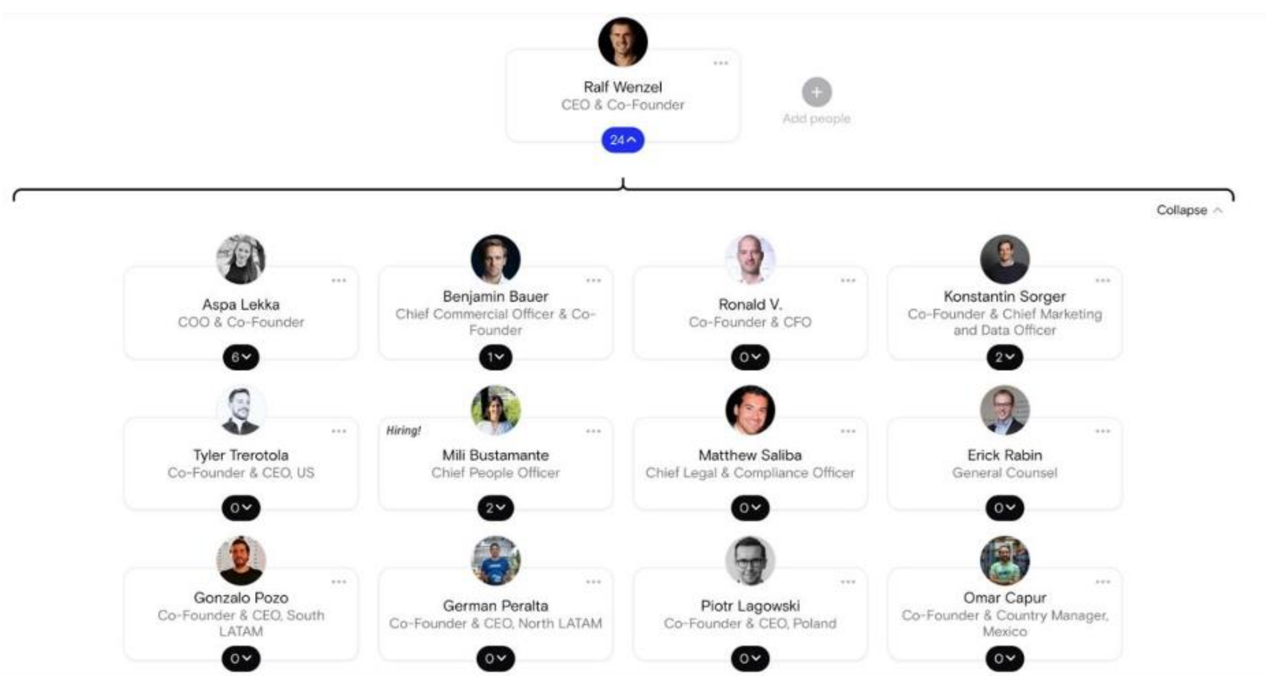
JOKR

Author: Niklas KLEMM

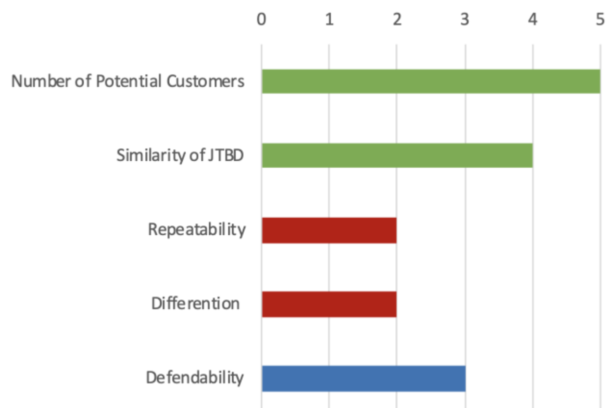
Company Overview

"The world needs a new Amazon" claims the founder and CEO of JOKR Ralf Wenzel. And he is certainly making a good effort to create a better, more sustainable version of the online giant. He envisions a replacement which appreciates local areas and their products, with the ability to deliver goods on a hyper-local scale at only 15- minutes waiting time. Together with a team of founders consisting of previous colleagues who helped him create foodpanda and Deliver Hero, Wenzel and his co-founders are described by Hans Tung, managing partner at GGV Capital and one of Series-B round investors, as "experienced in scaling high-growth businesses and their efficiency in execution set the company apart in its ability to simultaneously deliver a great consumer experience and rapid expansion "Ralf and his co-founders went all in with their own savings to start things off which might explain the large initial Series- A round of $170 million in June 2021 followed by the largest Series-B round in the sector of $260 million in November 2021. Talking to one of the founders you get the feeling that they have utmost trust in each other. Having worked on previous ventures for as long as 10 years together, always in the food and delivery industry, they gather great amounts of experience building high growth potential customer centered services.



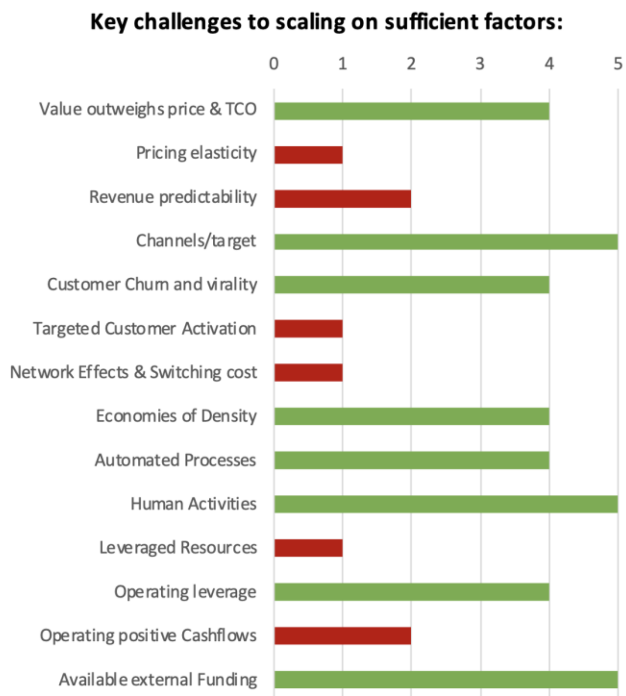
With its value proposition, Jokr aims to tackle the so called "last mile" in the supply chain of a product before it arrives at the customer. They currently do not have order minimums and offer a wide variety of groceries. Jokr also stocks locally sourced products and items you would normally only find at pharmacies or even a small selection of electrical appliances. They are able to deliver this value proposition (..within 15 minutes) to their customers by opening local warehouse hubs also known as "dark stores", where pickers await greedily for every order to come in so that they can instantly pace through the carefully arranged shelves to pick the goods for the order. Within just a few minutes the order is given to a delivery driver, who depending on the country of operation, uses an electric scooter or a bike to deliver within a small radius of the hub.

Is the Company Ready to Extrapolate?



Research suggests that there must be a distinction between scaling a business and its extrapolation, which is typically just a phase of growth of the business. Where scaling is seen as the "phase of exponential growth kicking off when product-market fit is established", extrapolation is a slightly more complex definition. To understand extrapolation, the phase between product-market fit and profit-market fit should be regarded. During this period, it can be especially noted how many companies fail to extrapolate correctly and are not able to cross the chasm between product-market fit and profit-market fit. These businesses were usually able to validate that an addressable market for their product exists and were further also able to grab a growing share of it. However they then come to understand that their model is not capable of turning revenues into profits at scale.

To better assess the scalability and ability to extrapolate, a framework has been developed by Davide Sola. The assessment helps understand the necessary and sufficient conditions for the extrapolation phase to take place. The two necessary conditions are comprised of two factors. Firstly the size of the serviceable addressable market which entails the "accessibility of the market, made of customers with similar needs, which could be fulfilled with the existing solution". The second necessary condition is made up of a factor on solution repeatability and distinctiveness, where the repeatability, distinctiveness and defendability of the solution are analyzed. More about the sufficient conditions can be seen in the next chapter of this work, where the scaling tactics of Jokr will be analyzed.



For Jokr's value proposition the number of potential customers is very high. As the service is basically supplying groceries and other household articles to the customers doorstep, it could be argued that its part of anybody's bare necessity. However due to the fact that the service has only been validated in dense populated/urban areas and that the delivery of such goods is not a necessity but a comfort for the customer, the number of potential customers is still very high yet not endless. As the CEO Ralf Wenzel himself states "the business still sees a 15% weekly growth and 50% of new customers are coming organically" so the model clearly does not face a demand issue. The similarity of customers' jobs to be done (JTBD) is also quite high, as the addressable market consists of basically just one job to be done: Grocery shopping. Yet Jokr expands its offering beyond groceries to household items, drug store articles and more. Further the needs of customers differ depending on their neighborhood, city or country they live in, leading to differences in the ways the hubs are stocked even as far as variances within different neighborhoods of the same city. To further leverage on this factor, Jokr would for example have to ask from its customers to shop for similar items at predictable times of the day with similar needs across the globe. Regarding the first two necessary factors, Jokr performs quite well and it gives the impression that there is opportunity to scale the business.

Looking at the second set of necessary factors, regarding the repeatability of the solution, Jokr performs rather low. With customer orders varying, each and every sale somehow requires a certain level of adaptation. However, Jokr is working on predicting customer demand so that they have now started working on a hub+warehouse basis. That means for each city they operate with multiple hyperlocal hubs which are fed by a large warehouse. With this method they are able to replenish their micro fulfillment centers in a very lean way, increasing inventory turnarounds and to adhere to customers' ordering habits, which vary wildly between the morning of a given day and the afternoon or evening. Due to the high amount of competition in the market and a very similar value proposition to the other players, it is hard for the customers to see differentiation between Jokr and its competitors. However, the user friendliness of the App and the selection of products in stock is somewhat different to its competition. As Jokr has is trying to adopt sustainability as one of the main pillars to their value proposition, they focus on trying to source local products such as fresh produce or local brands called "local heroes" in the App. In its more mature locations in LATAM they are now able to procure directly from local producers almost 40% of their products in stock. This is immensely important for their contribution margin but more about that later. Switching costs for customers is quite low as it is very simple to make an account with the competition and order there, especially in this fiercely competitive environment that is quick commerce, where incentives are given to new customers to start using the service eft and right. On the other hand, defendability is a point where Jokr is trying to fight off its competitors by choosing a very data-driven approach. By building a program in house which utilizes machine learning to better forecast demand in different regions, Jokr is starting to feel the positive effects of optimizing their sourcing, minimizing waste, and achieving optimal utilization rate of riders. So defendability is certainly an area where Jokr is able to achieve a positive advantage.

What Are They Doing to Extrapolate?

Even though Jokr is a very young company and like their competitors have had to race to grab a share of the market through aggressive expansion, they have still been able to use and leverage on some of the sufficient factors from the before mentioned scalability assessment. [4] The value of the service is immediately perceivable by the customers and value often outweighs the price as the delivery fee is only between 1-2 dollars depending on the region and there is no markup on the goods in comparison to supermarkets. Therefore, the cost of the service is negligible in comparison to an average order value (AOV in US is 50$ in comparison to AOV in LATAM of 15$). Jokr has also felt the benefit of economies of density. Once having established itself as a provider for delivered groceries in the neighborhood, it means people see the riders constantly roaming around. With an average of 3.5-3.7 drops/hour/rider the service becomes very visible and works very well as localized advertising. This also explains how 50% of new customers come to the service organically. Co-Founder and CCO also explained to me how the service is sticky, and they benefit from wonderful customer loyalty, actually stating that "customers love the service", they are able to showcase an NPS of 90.

	New York	Mexico City	Comment
Average Order Value ($)	$50.00	$15.00	Per CEO, target of 4-5x orders per month
Product Margin (%)	40%	40%	
Contribution Margin per Order ($)	$20.00	$6.00	
Fulfillment Costs (% of AOV)	15%	11%	Per CEO: 12-17% of AOV in US & 7-15% of AOV in MX
Fulfillment Cost per Order	$7.25	$1.65	Delivery and picking expense
Contribution less Fulfillment Cost	$12.75	$4.35	
Lease Cost per Month	$17,500	$4,000	Per CEO: $15-$20k/month in US & $3-$5k/month in MX
Monthly Orders to Cover Lease + Fulfillment	1,373	920	Excludes CAC, corporate overhead, and many other costs

As the service is labor intensive, Jokr has been doing everything to maximize their efficiencies in the hubs. The processes are as automated as possible, with one human for each process from picking the goods and packaging them to restocking the shelves and delivering the items. They have been constantly optimizing shelf allocation/hub architecture but also the discounting and in-App advertising of soon to expire goods is fully automated. Jokr is tackling this factor quite well however it can be argued that this is one of the key points which are limiting extrapolation for the business. Unfortunately, the model is also quite capital intensive, with a lot of investment renting and setting up the hubs and buying merchandise before concluding even a single sale (per neighborhood). However Jokr has shown that its operating expenditures do not grow at the same rate as the revenues at scale. The model allows for significant economies of scale to be achieved and even more so when trying to source goods directly from the producers as Jokr is doing. The main tactic Jokr has used during its scaling process is to focus on its operations in South America. Initially Jokr started its operations almost simultaneously in LATAM (Colombia, Mexico, Peru), US and Europe. Jokr was then quickly able to merge with competitor Daki to cover operations in Brazil. The European operations were meant to be focused only on Austria, Poland and Italy, as co-founder Benjamin Bauer said, "he would never start a delivery business in a country like Germany".

What Are the Results So Far?

After having launched Jokr in LATAM, US and Europa at the same time, they have recently shut down all operations in Europe and there is word of also stopping US On the one hand it is interesting to be able to test in parallel rather than sequentially when starting a business as 90% of what you try is wrong and you want to decrease this learning time But as the CEO explains when breaking down the unit economics, they have been able to achieve significantly higher margins in LATAM than in Europe where they apparently at once time where making a loss of €130 per order. Mature locations in LATAM are allowing to generate gross margins of around 40% which is down to different factors says the CEO. [7] This is mainly due to their procurement strategy and operational efficiency. By procuring locally and going straight to producers/manufacturers and knowing exactly when the customer will need what in which location, they are able to achieve good margins. With an NPS of 90 and 50% of new customers coming organically, these factors heavily impacting their customer churn and virality, Jokr certainly benefits from this in terms of being able to extrapolate. As the number of customers and revenue grow, it is vital for extrapolation to occur that LTV-CAC (Customer Lifetime Value - Customer Acquisition Cost) ratio is high enough. On a per order value Jokr has recently been able to reach profitability, meaning that LTV is positive. With so many new customers coming to the business organically the customer acquisition cost is favorable and therefore it can be assumed that LTV-CAC ratio is starting to converge in the right direction for extrapolation to occur.

What Can Be Learned From This Unicorn?

Especially in Europe the quick commerce sector is very crowded. The interesting thing about analyzing the scale up process of a q-commerce business is that contribution margins only come with volume. However, to reach those volumes growth is completely unsustainable. The fact that Jokr shows us they require constant testing and changing of their service is a hint they didn't take the time to do product market fit, however on the other hand you could argue that with fierce competition and an extensive burn rate (when not at scale) there is no time to optimize the offering its ready to be scaled. So, is it a winner takes it all scenario in this market? Or will there be locally different players as we know today's grocery chains.

Further the process of sourcing the goods and setting up of the hubs in new locations is very much individualized and risk/capital intensive. Especially with Jokr's value proposition within quick commerce, to create hyper localized hubs which are all stocked differently according to local demand. Even though they are on a path to build software which might be powerful enough to allow for intelligent stocking of the hubs, this is not yet proven. As the CEO of the company emphasizes multiple times, the key to this model is focusing on vertical expansion rather than horizontal. Building a more efficient procurement and supply chain infrastructure is path to a sustainable and profitable business.

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ManoMano

Author: Omar KILANI

Company Overview

In 2012, Christian Raisson and Philippe de Chanville, 2 friends working together as Venture Capital Investment Managers at Otium Capital, were coincidently renovating their apartments at the same time. By doing so, they noticed that they were wasting an awful amount of time during weekends driving, parking, and moving from one store to another looking for the right equipment. They understood that the market was archaic and not digitalized at all.

During a two hours online interview at Génération Do It Yourself, Philippe de Chanville explained the following: in 2012, the market share of e-commerce in the DIY industry represented only 1 to 3% of the total market in the countries they operate today. It was already far below several other industries. He explains it by the fact that the market is controlled by duo or triopolies. If those companies were to digitalize, they would i) spend money acquiring again their own customers, ii) while still incurring costs and decreasing profitability on the physical stores. Hence, they were not incentivized to do it.

The two friends thought that they could capitalize on this market opportunity to launch a DIY e-commerce company. Not having enough money for warehouses and inventory, they chose a marketplace business model.

In 2013, they co-created the French-only company MonEchelle.fr with a first 150k€ and then 300k€ fundraisings. MonEchelle.fr grew quickly, and as its international potential appeared, it was rebranded as ManoMano in 2015, in reference to "manual work" as well as a community "Main dans la Main" that we will discuss.

The Marketplace ManoMano connects DIY & Gardening brands or retailers to individuals. However, that platform has a unique feature. Indeed, Philippe de Chanville asked its interviewers: "how many times did you go to a DIY physical store, and took what you needed quickly without asking for any help? That rarely happens".

In fact, ManoMano is a very specialized marketplace. It gathers DIY enthusiasts, a DIY community, and provides them with tutorials and 24h live expert advice. At any moment, the customers can start a conversation with a "Manoadvisor", i.e. an actual human (and not chatbots) to ask for advice, hence totally recreating the in-store experience.

- The company started as a B2C marketplace, connecting individuals to retailers or new/established brands. Using its proprietary technology, ManoMano offers the following benefits. For the sellers' side, ManoMano first constitutes another sales channel, but most importantly. They provide them with Qualified traffic as customers are DIY enthusiasts amateurs (or professionals). They enable them to improve their visibility on the internet and provide great online marketing support. They provide them with valuable data on customer behavior. As a specialized marketplace, being listed at ManoMano is a good advertisement. ManoMano is the perfect sales channel to test new markets in Europe.

- For individuals, ManoMano's marketplace presents both the advantages of online and in-shop shopping, they have access to over 10 million references of 4000+ suppliers, for cheaper, can easily compare products and find what they are looking for, have the products delivered at their doorstep, while benefitting from best-in-class recommendations and guidance.

In 2019, ManoMano expanded its offer to a dedicated B2B marketplace. Even if it doesn't constitute the main channel, B2B revenues are much more recurring.

ManoMano has three revenue streams. The main one is their fee: Take-Rate of 15% to 25% on the Gross Merchandise Value (GMV). In 2020, another revenue stream became significant: sellers can pay ManoMano to be more referenced and listed first to capture more customers. Finally, sellers also need to pay a 100€ monthly subscription fee, creating additional recurring revenue.

Sellers also have two choices, to ensure themselves the shipping, or ManoMano offers to ensure shipping through their fulfillment service: they can consign the sellers' inventory in their warehouses. By regrouping orders, delivery time is significantly reduced for buyers.

In terms of funding history and valuation, ManoMano has raised 725m$ since its inception. In the last funding round (series F) in July 2021, the company became a Unicorn by raising 355m$, at a post-money valuation of 2.6b$.

Funding Stage	Date	Amount Raised
Series F	2021	€299M
Series E	2020	€125M
Series D	2019	€110M
Series C	2017	€60M
Series B	2016	€13M
Series A	2014	€2M
Seed	2014	€159K
Seed	2013	€300K
Pre-seed	2012	€150K

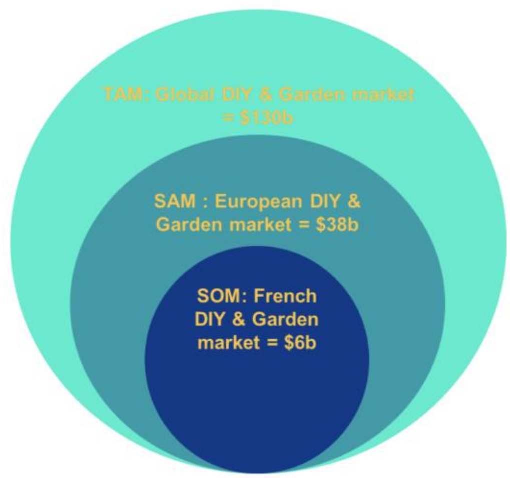
Is The Company Ready to Extrapolate?

Let's verify that ManoMano has established product-market fit: that there is an addressable market and that the company can grab it by growing its customer base and revenue exponentially. We need to validate that there is a market, which is constituted by the same customers, that have the same Job To Be Done, which is answered by the same product. Therefore, we will explore the Necessary conditions that any company absolutely needs to validate to scale.

ManoMano's serviceable market seems to be more than sufficient to extrapolate.

Precisely, in terms of potential customers, the European market is $38b, and ManoMano's share is only 3.7% as of 2020. There is plenty of room for expansion, without even considering the global market.

Furthermore, the Jobs to be done are very similar: DIY home improvement for hobbyists. As explained, ManoMano has built a community of DIY enthusiasts engaging in relatively important DIY projects. It found its customers. As for the supply side, as previously explained, the jobs to be done are similar and simple enough (additional sale channel, valuable data, advertising).



In terms of solution repeatability and distinctiveness, since ManoMano is a marketplace, there is no adaptation needed at all. The product, i.e., the respective website for sellers and buyers, is exactly the same for each user.

Moreover, ManoMano is the leading marketplace for DIY and gardening products in Europe. It therefore gives sellers access to thousands of potential customers to sellers with very qualitative customer support and data, enabling them to maximize their sales. For buyers, it is a very convenient platform, enabling them to easily find what they are looking for, for cheaper, compare prices, and have in-store-like recommendations. With over 4000 categories of products and 16 million references, ManoMano really targets DIY enthusiasts, offering them a thorough set of products for a detailed selection. For comparative purposes, generalist marketplaces such as Amazon offer only 350 DIY product categories, targeting the general population, not DIY experts engaging in larger projects. It's also reflected in the AOV: 100€ for ManoMano and 50€ for Amazon in the DIY segment. As for physical stores, their offer is also limited, they take higher margins due to their higher operating costs and are obviously far less convenient.

Furthermore, the product (the platform) cannot easily be replicated as most of the fundraising proceeds were used to develop the technology behind it. ManoMano is first and foremost a tech company with 50% of its employees (c. 400) being tech and data talents who build and maintain the platform.

Finally, ManoMano is specialized and established with experts offering advice to buyers, a strong reputation, an important yet selective sellers' base. Their products are heavy and bulky, they required a specialized supply chain, which ManoMano covers through its Logistics services offer.

The switching costs however are not so high, as ManoMano is usually "just" an additional sale channel for sellers and a convenient way of shopping for buyers.

The product/market fit is achieved. The company is ready to scale (as it is doing at the moment) and eventually extrapolate. It is easily justifiable by the spectacular growth they are achieving each year.

	2013	2014	2015	2016	2017	2018	2019	2020	2021
GMV (€ Millions)	1	15	40	90	250	424	600	1200	na
Growth		*1400%*	*167%*	*125%*	*178%*	*70%*	*42%*	*100%*	na

What Are They Doing to Extrapolate?

The extrapolation strategic process consists of solving the unvalidated sufficient factors, one by one, in a disciplined approach. Each constraint solved will accelerate the scaling and extrapolation phases. The goal is to achieve profit/market fit: when the company validates its business model and can turn a profit out of the growth. This is what defines extrapolation.

ManoMano really started to reach profitability in 2020 (in their main market, France). ManoMano's customer acquisition costs of buyers are particularly high (but confidential numbers), their focus was to grow their customer base to reach the necessary critical size to achieve profitability. Customer acquisition is fundamental to extrapolate. Considerable investments are made in SEA, but organic marketing represents most of the traffic (69% according to similarweb). An SEO technique used by ManoMano is for example to write articles on DIY practices.

Ultimately Extrapolation involves moving Up the Ceiling including moving into adjacent and new competitive spaces. Hence, considering their growth and fundraising timeline, it can be argued that expanding to Europe and raising the necessary funds to carry out a successful geographical expansion strategy marked the beginning of the extrapolation process. In September 2017, the start-up raised 60m€ to "accelerate growth by continuing to drive innovation and product development and reinforcing its presence across Europe". The extrapolation process consists of exponential revenue and customer acquisition growth and a gradual decrease of operational costs accordingly. Therefore, we define the extrapolation period as [September 2017, 2020]. 2020 GMV was 13.3 times 2016 GMV, representing a 91% CAGR.

By analyzing the sufficient factors, we can identify which constraints were problematic at that time and understand what action they took to solve them.

The first constraint would be price elasticity of the demand. If ManoMano were to increase their take rate too much, sellers will likely respond negatively. To solve this constraint, ManoMano created an additional source of revenue: in 2020, when they finally acquired enough clients, they created a new service for sellers; the possibility to pay to have their products referenced better.

The second constraint is revenue predictability. Revenues depend on large volumes, which are easily achievable given the size of the market. They are likely to respond positively to marketing and the number of references/sellers. Even though they don't depend on single big wins, ManoMano doesn't really have recurring revenue as the 100e subscription monthly fee is negligible. B2C revenues are not very recurring as customers have limited needs. To solve this, they have a B2B business, which is more recurring. ManoMano therefore solved this constraint by launching in 2019 ManoMano for professionals.

Another constraint is customer churn. Similarly, to what has been said in revenue predictability, buyers have limited needs. Once their projects are finished, they won't need ManoMano again. For example, only one driller will be bought. A solution could be product expansion: customers can come back for different products. For example, ManoMano expanded its offer to pet food, a product with very high recurrence, hence improving repeat business. Due to a lack of data for this factor, we can't deepen the analysis for this constraint.

Economies of density also represent a constraint. ManoMano would benefit from economies of density (hence its good grade in the scalability assessment). Having customers close to each other's would help reduce delivery time for the suppliers, thus increasing customer activation and the value of the product. However, customers are geographically spread within and across countries. In 2018, ManoMano created a fulfillment service that enables them to group the orders and shipments, therefore decreasing delivery time and reducing the negative effects of this geographical spreading. Additionally, as there are more sellers are similar to each other's on the platform, the competition between them will increase, which eventually leads to more advertising service revenues for ManoMano. ManoMano capitalized on its economies of density potential.

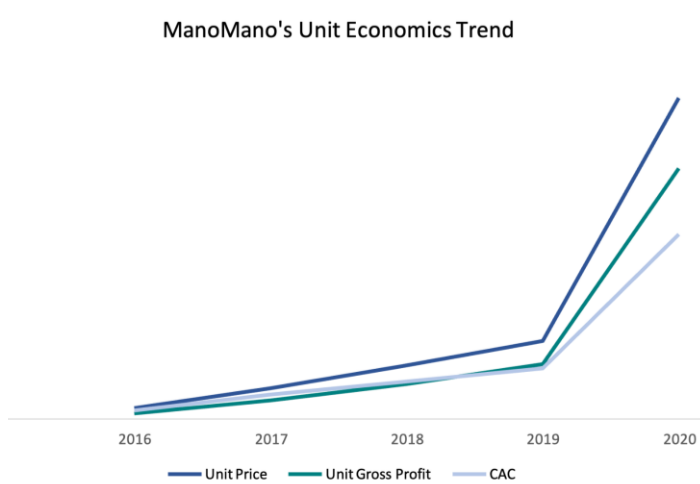
Moreover, they are limited by their operational leverage. Being a marketplace, apart from marketing, OpEx won't increase as fast as revenue. However, their CAC is important, and considering that they raised 725m$ in funding, CAC is, or was, superior to unit gross margin. As a marketplace, COGS are constituted mainly of maintenance of the platform, cloud hosting

fee… Gross margin will therefore increase as revenue increases through economies of scale. Fundamentally, ManoMano does have operating leverage, but a large volume is needed to benefit from it. This IS the constraint. As explained, ManoMano grew its customer base to increase unit gross margin, through more and more sophisticated customer acquisition techniques (SEO+SEA).

A final constraint is their positive float. Naturally, as CAC < Gross margin, their float is negative. Funding was needed and ManoMano raised a sum of 725m$

What Are the Results So Far?

In the previous point, we established that the main challenge of ManoMano is its high CAC of buyers. The company therefore must address the maximum of clients, and establish itself, to increase its unit gross margin. A higher unit gross margin will contribute to increasing the LTV, but It also needs to be increased by maximizing the lifetime of customers, hence by inciting repeat business.



ManoMano reached profitability in 2019 in France. Being their main market and representing over 60% of total sales, we can say that the extrapolation is happening. Through its scaling techniques, the company managed to pay back its CAC by its Unit Gross Margin.

Unit economics for ManoMano are highly confidential, therefore we can only make assumptions on the trends. In 2019 ManoMano reached break-even or turned a slight profit thanks to the increase of its gross profit margin. However, in 2020, thanks to the new revenue line (advertising), for which marketing expenses are probably less significant since it can be considered as a cross-sell for the already existing seller base, the profit should be more remarkable.

What Can Be Learned From This Unicorn?

ManoMano started on very strong foundations since its inception: they were the digital disruptor of an enormous market and rapidly checked almost all the necessary conditions. Their targeting was sophisticated and positioning well defined, so customers had very similar jobs to be done. The business model was innovative for this industry, particularly at that time. The Unicorn did well to specialize in DIY products and grow its offering, hence establishing itself as the go-to website for DIY enthusiasts. The only point that may have been done better, or rather faster, is their fulfillment service, as it is part of their specialization strategy, yet has been created in 2018, 5 years after inception. Several sufficient factors were also satisfied from start, but the Unicorn knew how to solve most of the constraints it encountered to drive its growth. However, one main point still seems fragile from an observer's point of view: the repeat business rate and LTV of B2C customers. Indeed, ManoMano managed to create more recurring revenue, but it was through other sources; the suppliers (advertising services), and professionals (B2B). Yet, maybe because of the size of the market, returning B2C customers doesn't seem to be a priority. Product expansion, as being conducted, may be a solution, but isn't it limited to the scope of their positioning? It seems that their specialization for enthusiasts, whose needs are limited, is not playing in their favor in that context.

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Mirakl

MIRAKL

Author: Paolo CRIPPA

"*We often get the question how we came up with the name Mirakl. Well, it was quite simple. We decided that day we would build the best platform ever built, making launching, and running a successful marketplace easier than ever. It could only be a miracle!*"

- Adrien Nussenbaum, co-founder and CEO of Mirakl

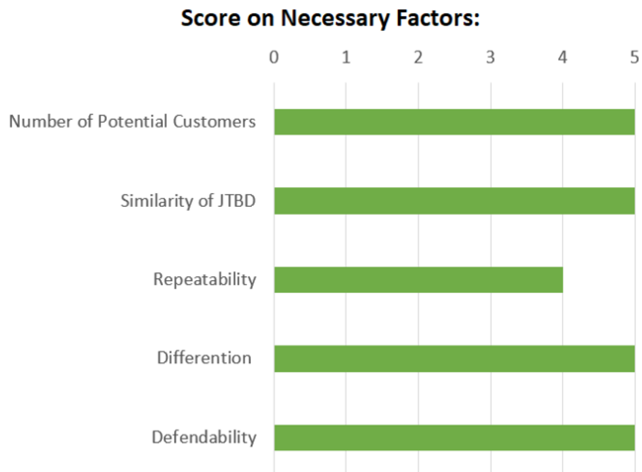
Company Overview

Philippe Corrot and Adrien Nussenbaum were in a Parisian Cafe discussing the learnings from their first venture together, SplitGames, a digital marketplace sold to Fnac in 2008. Reflecting on the ups and downs of the previous years, they concluded that building a marketplace from scratch was too costly and burdensome to maintain. Having experienced the benefits of digital marketplaces, they saw the opportunity to make them easily accessible and scalable, to give every business, the opportunity to launch and operate their own winning marketplace. In 2012, they left Fnac to found Mirakl.

Mirakl was designed to enable retailers, manufacturers, and merchandisers with a bespoke digital marketplace without the inconvenience of cost, deadlines and infrastructure through a Software as a Service platform supported by its flexible service-oriented architecture built for customizability and scalability. In a nutshell, today Mirakl provides the expertise, technology, and partner ecosystem for businesses to launch and run an online marketplace, allowing them to create their own "Amazon". They are offering a leading solution, striving to pioneer the platform economy through enabling major B2B and B2C businesses to ride the e-commerce trend and become "Platform Pioneers". Mirakl was founded in France and quickly expanded to the US, where it holds 50% of its business today. Today, Mirakl entails more than 300 live marketplaces and enables more than $4 billion worth of transactions. In support of its meteoric rise, Mirakl underwent 6 funding rounds, hitting the unicorn status with its Series D in 2020, and concluding in its Series E in 2021, worth $555 million, accruing to a total amount raised of $948 million led by major European and American VCs. Mirakl recently announced revenues in excess of $100 million in 2021, showing a ten-fold increase compared to 2018.

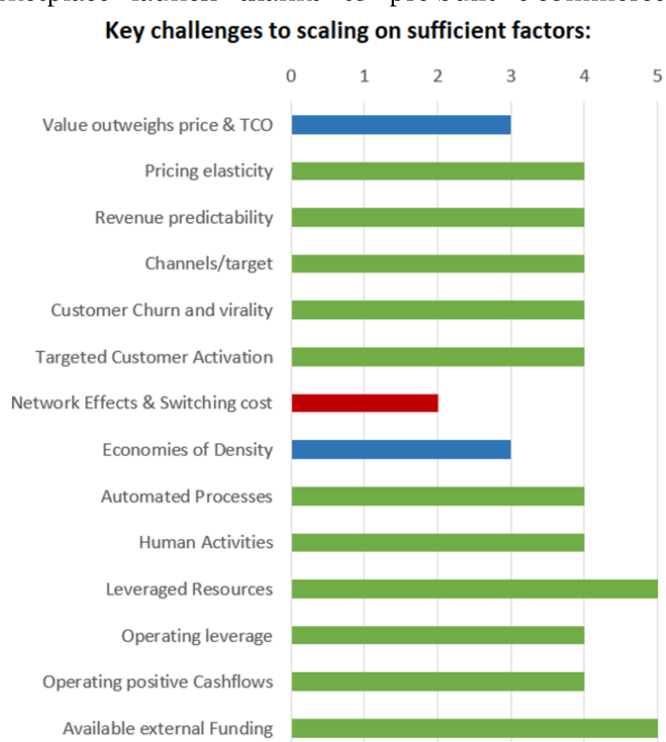
Was The Company Ready to Extrapolate?

In 2018, Mirakl was ripe for extrapolation.



The market was huge: only in the US, the e-commerce revenue in 2018 totaled to $468 billion in GMV (Global Powers of Retailing 2021, 2021). Considering that Mirakl would retain only a commission, the total addressable market in that area could be considered between $5 and $10 billion. The serviceable addressable market would represent a major piece of this pie, since the retail, manufacturing and distribution industries are the key contributors. The global obtainable market was estimated to be constituted by 30 to 40 thousand companies with "the size, brand, ambitions and ecosystem of partners that would allow them to create those marketplaces", as explained by Nussenbaum himself (Nussenbaum, 2020). The co-founders also identified that this massive market was becoming familiar with their solution: among American online sellers, over 60% of these expected to adopt marketplaces or include third-party sales in their e-commerce ecosystems by 2020 (Shen & Daigler, 2021). Regardless of the specific vertical, every targeted company had the same need to be fulfilled, that is to thrust their business through leveraging an online marketplace. The job to be done by Mirakl was therefore similar for each customer.

Mirakl offered a swift and streamlined marketplace launch thanks to pre-built e-commerce integrations, flexible APIs, straightforward onboarding, and pre-built seller connections. The integration and implementation of the marketplace required the input of Mirakl's consultants to help customers tweak it, upon assessing their needs, as well as to train them to market it better to their customers. They also provided technical guidance and support throughout the implementation process, implying that human activity was needed to get it up and running. On average, it takes around 4 months for companies' marketplaces to go live, which is substantially more than creating an Amazon account, for instance. The benefits, however, are unparalleled: Mirakl is the only enterprise marketplace Saas platform that empowers both B2B and B2C organizations to

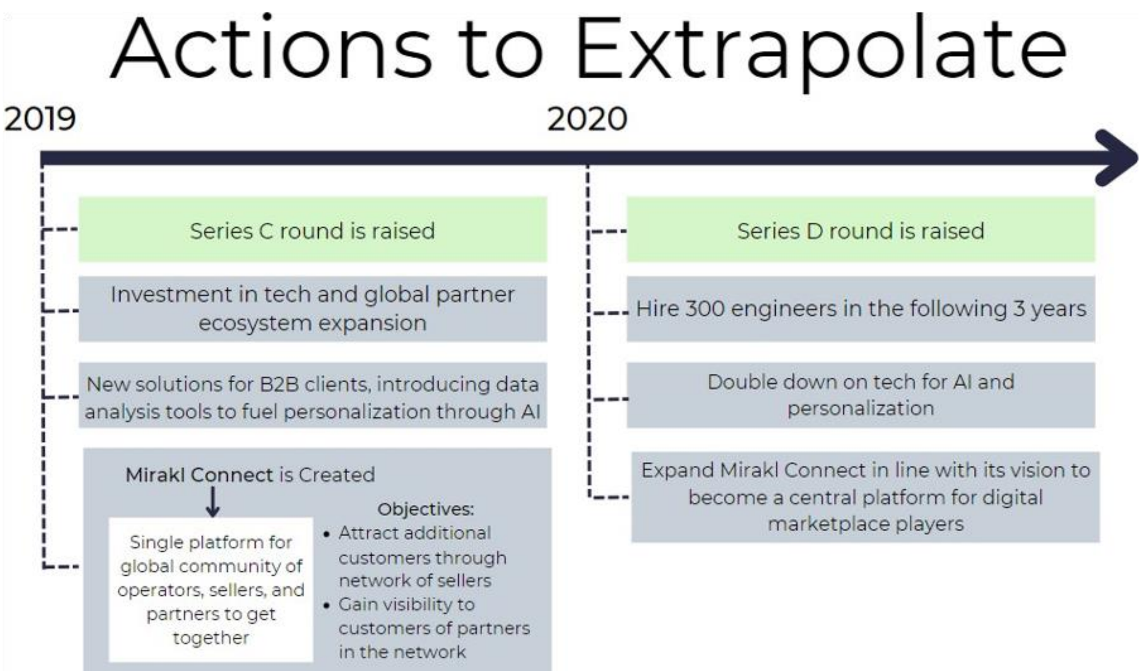


launch and grow their own marketplace at scale. In a nutshell, it allows companies to create their own "Amazon". (Mirakl, 2021).

Mirakl owns 4 registered trademarks in scientific and electric apparatus and instruments category, which in turn make it irreplaceable to customers. The solution is highly defendable because the marketplace software eventually becomes the single operating system of a merchant's business across marketing, finance, logistics and operations, making it nearly impossible for them to switch (Dias, 2021).

Mirakl had in place the necessary factors for it to achieve extrapolation. However, two factors could slow down its growth: the mixed customers' perception that value outweighs price and the difficulty to leverage network effects. Firstly, customers rated the value for money poorly, indicating that the product just wasn't worth the investment. Secondly, network effects weren't implementable in Mirakl's business model, as neither their B2C and B2B customers would benefit from additional companies implementing Mirakl-powered platforms. Moreover, competition between customers made it very unlikely for Mirakl to extract any sort of referral to accelerate its adoption.

What Did They Do to Extrapolate?



Nussenbaum and Corrot were prompt in raising their Series C round in early 2019, quadrupling their capital and achieving the unicorn status. The addition of fresh capital would enable them to advance its technology and global partner ecosystem. In particular, they aimed at creating new solutions from emerging B2B platform models, launching new data analytics capabilities to fuel AI and personalization solutions, ultimately increasing conversion and satisfaction, as well as improving the ease and speed of implementation of their solution.

On June 5th, 2019, the creation of Mirakl Connect was announced, consisting of a single platform that encapsulates a global marketplace community, created for "bridging the gap between operators, sellers and third-party partners, enabling the kind of partnerships that allow everyone to capitalize on the huge marketplace business opportunity", said Nussenbaum (New 'Mirakl Connect', The Global Marketplace Ecosystem, Accelerates Growth in Booming Platform Economy, 2019). Best Buy Canada, for instance, managed to add thousands of baby products to its website through selected third-party sellers, going from "insignificant" to major seller of baby products online, thanks to Mirakl Connect (D'Ambrosio, 2019).

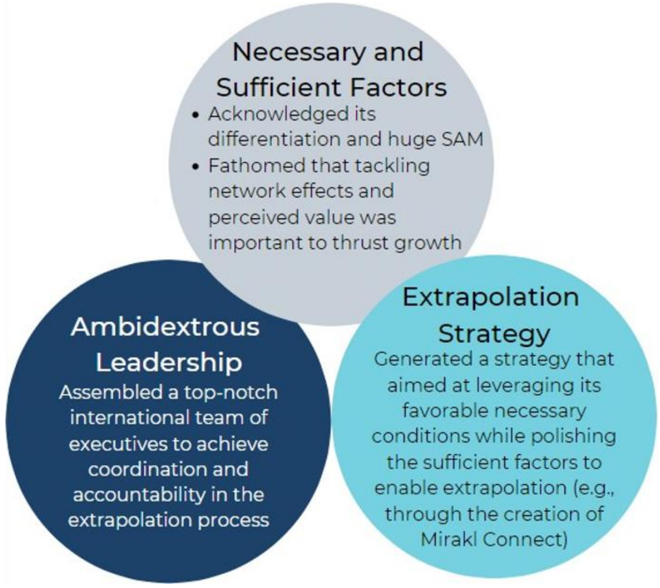
The rationale behind Mirakl Connect was to place its stakeholders on one platform, for them to share value and find new opportunities, providing customers with extra tools to launch an ecommerce marketplace and optimize the time to adoption. In Mirakl's perspective, the Connect platform could attract additional customers through its wide network of sellers - to expand their offering - and partners - to leverage better features and gain visibility to their network.

The advent of Covid marked a huge opportunity for Mirakl to further accelerate its extrapolation phase. Investors were ready to inject more capital in Mirakl's accounts, as they trusted its scalability, reliability, and track record. Indeed, Mirakl was profitable from its seed round while growing at a strong pace and had a healthy retention rate, which was partly attributable to the customer success team, expanded in the previous round. On September 22nd, 2020, Mirakl announced another massive funding round amounting to $300 million.

As per Elaia Capital (2020), on top of hiring over 300 engineers in the following 3 years, the funds from this round were planned for:

- Investments in tech, to enhance their product features and improve their offering for the B2C and B2B markets.
- Integrating new analytics capabilities to fuel AI and personalization solutions for even faster time to market, greater operational efficiency and security for operators and sellers.
- Platform extension through the creation of new platform APIs and pre-built connectors to market ecosystem tech partners.
- Advance Mirakl's solution to ease retailers and brands in launching a new marketplace, onboarding sellers and scaling SKUs; and
- Expand Mirakl Connect, in line with the company's vision to become the central platform for digital marketplace players.

The plan of action was to double down on the strategy adopted in the Series C round, keen on optimizing their product's functionality and integrability, as well as on powering their newly created Connect platform. On top of fostering the ecosystem of Mirakl-powered marketplaces, Mirakl Connect served to further expand Mirakl's network and reach, to facilitate the achievement of Nussbaum's ambition to increase the number of customers 5-fold by 2025, assuming that there were still plenty of companies that can thrive from marketplaces.



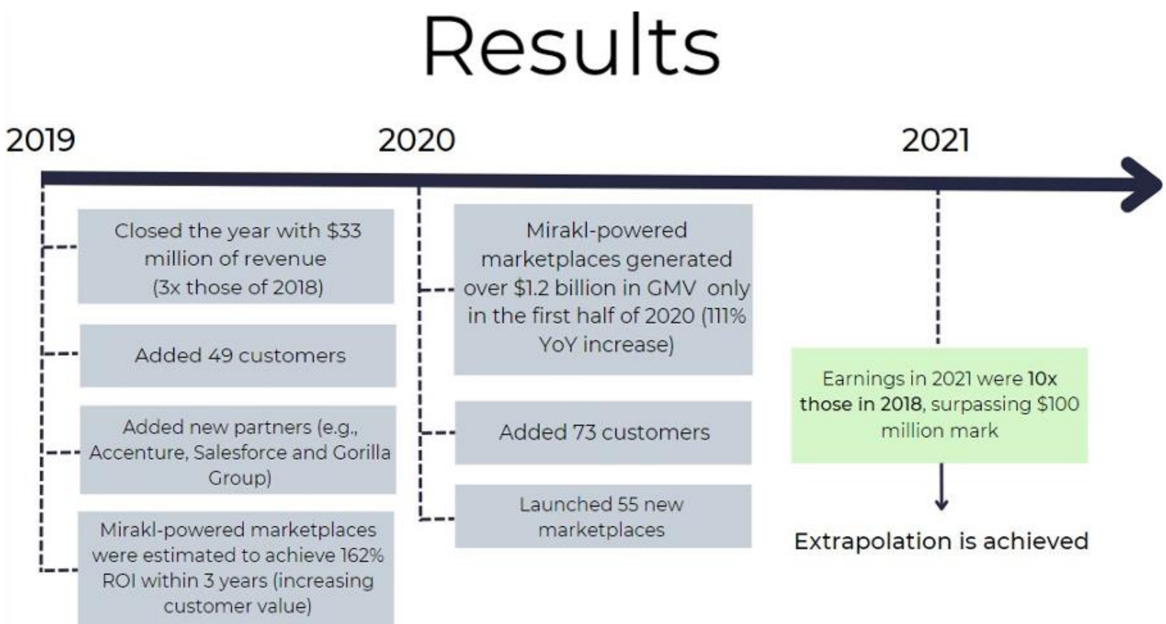
In line with its rapid operational, financial, and geographical expansion (i.e., to the US), Mirakl was called to hire hundreds of new employees, as expressed in the Series D note. Hiring during a period of high growth while preserving a sound company culture may be extremely challenging. As per Lazarus (2020), investor and advisor of Mirakl, Nussbaum and Corrot were successful in assembling a stellar operational and international team, by snatching senior managers from other leading companies in France and in the US and integrating them with speed and precision. Corrot himself, as any proud CEO, stated: "we were lucky to assemble such a talented team of loyal, efficient and passionate people around us, since the very beginning of Mirakl." The perfect integration of new elements of leadership in the company is vital for the creation of ambidextrous leadership, leading to coordination and harmony in periods of chaotic and rapid growth.

What Are the Results So Far?

With fresh cash on hand, Mirakl went on to expand its human capital, both in quantity and in quality to keep up with the increasing demand. In 2019, it closed the year with $33 million in revenues - 3 times those of the previous year - adding 49 new customers (e.g., Airbus Helicopters and Thales). Mirakl consolidated its position as a leading "platform of platforms" through Mirakl Connect, augmenting its value proposition to B2B and B2B customers. The optimization of the platform through investments in tech and AI allowed for operators and sellers to handle business at a scale, with the support of new features (e.g., advanced catalog management) and improved partner software integration, adding the likes of Accenture, Salesforce and Gorilla Group to their network. In turn, this provided customers with a better ability to upsell, and thereby make more revenue, partly shared with Mirakl through GMV-based commissions. It was estimated that Mirakl-powered marketplaces could deliver a significant 162% return on investment within 3 years, driving revenue up by $412 million (Investegate, 2020).

In the first half of 2020, amid the Covid crisis, Mirakl-powered marketplaces generated over $1.2 billion in GMV, signaling a 111% year-over-year increase. Thanks to its investments in tech, Mirakl was ready to cope with the demand upsurge, signaling the stability and scalability of its marketplace platforms, which maintained 100% uptime over 2020. By 2021, ecommerce sales kept brewing, increasing by 16% YoY only in the US, allowing Mirakl to sign 73 new customers, including many Global 2000 companies, while launching 55 new marketplaces (Mirakl, 2021). With customers almost doubling from 2018, they are on track to achieving the 5-fold objective by 2025 that was pinned by Nussenbaum.

In 2021, Mirakl's earnings were 10 times those in 2018, as it announced breaking the $100 million ceiling.



What Can Be Learned from This Unicorn?

Mirakl's growth from 2018 to 2021 is a striking example of successful extrapolation. Here are some of the key learnings that can be extracted from their story:

1. Mirakl had a strong team and vision from start to finish. Corrot and Nussmebaum alone were a proven couple of serial entrepreneurs with expertise in digital marketplaces, with a history of working together, who saw an opportunity to disrupt the industry. Clear vision and drive allowed the co-founders to hire "A+ leaders" (Dias, 2021), ensuring ambidextrous leadership to keep up with the hundreds of people added to the team every year.

2. Mirakl tapped a boundaryless market size, which could've been hard to keep up with. The co-founders knew the market well and were capable of masterfully handling the huge spikes in demand through continuous process optimization. This provided the platform with agility and scalability to adapt to new demand and enabled its massive rollout.

3. Not only were they wise in managing fresh capital, but they were also extremely timely in closing their rounds when needed. Their Series C was cardinal in accelerating its growth, enabling the creation of Mirakl Connect. Mirakl was seen as a trustworthy and fertile investment thanks to its successful track record, healthy financials and unit economics and its ability to constantly

deliver through a responsible use of capital. The latter is intrinsic in Mirakl's values, that is "to be respectful of investors' money, spend wisely and be ROI driven", as stated by Corrot (Mirakl, 2019).

4. Through the creation of Mirakl Connect, Mirakl alleviated the shortcomings posed by its value-for-money ratio and lack of network effect. Addressing these thrusted Mirakl's growth, showing the importance that sufficient factors might have in the extrapolation process.

Mirakl is now valued at $3.5 billion, closing a $555 million Series E funding round only a year after the previous round, doubling its total capital raised to date. Mirakl and its investors have deep conviction that the market is still unexploited. Their objective is to sustain rapid growth through continuously investing in technology and partner ecosystems. So far, this strategy has proven successful. Will Corrot and Nussenbaum be able to further scale to justify the pace and size of its funding?

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Ornikar

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Company Overview

In March 2021, Ornikar raised $110m from the investment fund Kohlberg Kravis Roberts (KKR). This round of financing enabled the company to become a member of the 'Next 40' list of the most promising start- and scale-ups in the French tech ecosystem and to enter a new stage of high-growth. However, Benjamin Gaignaults and Flavien LeRendus' company has not always done so well.

FUNDING HISTORY

- Seed - $1.6m - 2014
- Series A - $11m - 2018
- Series B - $40m - 2019
- Series C - $120m - 2021

In 2013, Benjamin Gaignault launched the concept of an online driving school, based on the idea of making driving licences easily accessible, at an affordable price and based on technology. While, the business model was immediately appreciated and supported by major French investors, it was not popular among driving school unions, who decided to sue Ornikar, accusing the start-up of not being a fully-fledged driving school. From its initial launch in 2014, to the first driving hours offered under a driving marketplace model in 2017, Ornikar had to endure multiple trials and had no revenue for the first 3 years. The company faced 10 different lawsuits and paid several financial penalties, amounting to roughly $300k. While some founders would have been intimidated by these lawsuits, Benjamin Gaignault and Flavien LeRendu, who were only 24 years old at that time, succeeded in finding political advocates who enabled them to unblock the legislation and authorised competition in the driving lessons market.

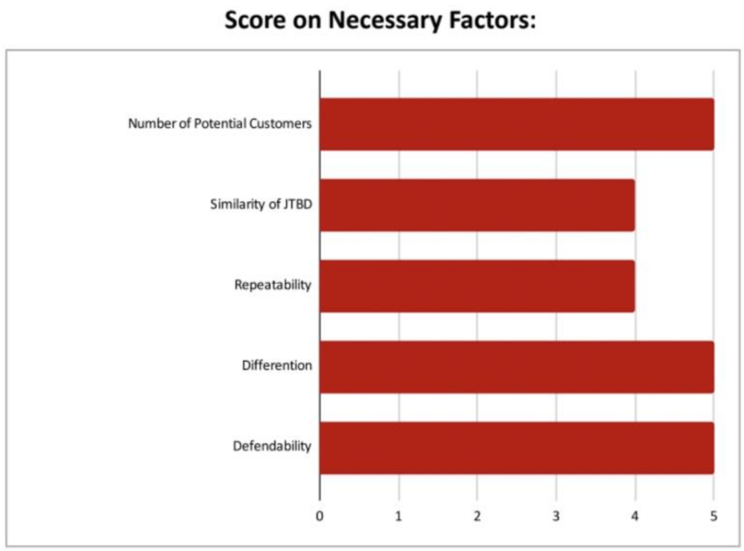
In 2018, only one year after its official launch, the startup earned more than $1 million in revenues and raised its second round of funding of $11 million. The objective at that time was to invest significantly in marketing initiatives and to promote the company to as many potential customers as possible. In 2019, the company raised its Series B round for a sum of $40 million. The new investors, Eurazeo and H14, expected Ornikar to succeed in replicating its business model in other European countries and to diversify its activities.

In 2021, Ornikar succeeded in changing its business model by introducing a new car insurance product. As a result, the company was able to enter a second growth phase with a Series C fundraise of $110 million. With that last fund from KKR, the company is no longer recognised as an EdTech, but rather as an InsurTech company. This goes along with its new ambition of becoming the second largest French car insurance company.

Overall, Ornikar succeeded in digitising and succinctly disrupting several markets related to the driving experience. Firstly, by offering its customers the opportunity to learn their theoretical driving tests. Then, by providing a flexible and efficient marketplace model to book driving lessons for students and driving instructors. Finally, the company continues to expand its business model around driving, by offering a fully digital car insurance tailored to customers' needs and expectations.

Is the Company Ready to Extrapolate?

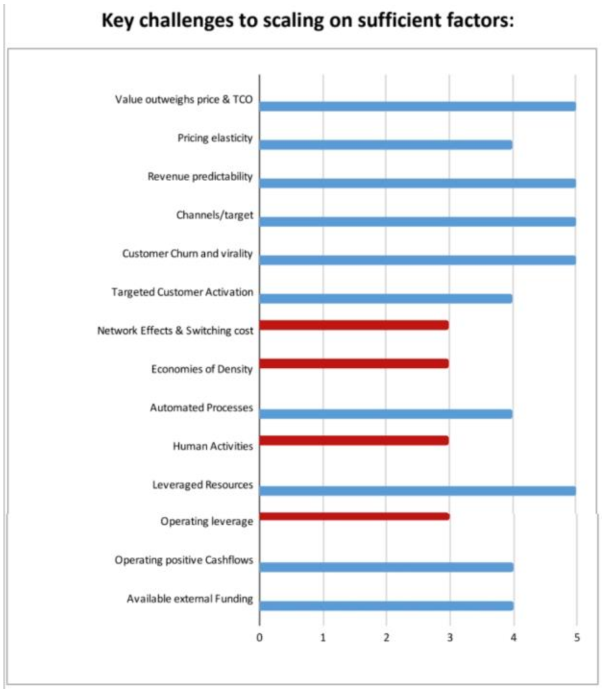
To identify whether Ornikar is able to scale on the long term, two necessary conditions have to be fulfilled. The first condition is the size and accessibility of the driving experience EdTech and InsurTech market. To assess whether this is possible, the following two factors are considered.



The number of potential customers in Europe and Worldwide is immense and very predictable. In France, more than 1.5 million candidates take a driving test every year. By owning more than 45% of the French market within 3 years, Ornikar shows that leading a market is possible. Also in new markets, the company has already evidence that launching its product is easily doable and repeatable. Onroad, the Spanish branch, "has very good results and demand is strong" according to Claire-Lise Colin. Ornikar will launch its offer in new markets in the following months all over Europe. In September 2020, Ornikar's CEO, Flavien LeRendu, told me that revenues from online learning and the marketplace were very satisfying, but that the costs of acquisition of new customers (CAC) were too important for customers who only learn and acquire once in their life a driving licence. During our discussion, Flavien R. shared that they were looking at the following ways to diversify Orinkar's business through Automobile Marketplace, Automobile Insurance and Automobile Financing. By choosing the second option and following successful early tests, the company was able to significantly increase its customer lifetime value (CLTV) forecast and the size of the market. The expansion of the business model to the car insurance market and Ornikar's aspiration to disrupt it, allowed it to raise the sum of $100 million from KKR. The company now counts not only people who want to learn to drive as customers, but also those who have just obtained their driving licence or even those who simply want to have a better insurance experience. This new segment represents a market of $20 billion in France, which represents 10 times the size of the French driving licence market.

Furthermore, the job to be done (JTBD) is very similar for all customers and countries where a driving licence is required: candidates have to learn the highway code, prepare for it and pass the theoretical exam. After that, they soon wish to be able to take driving lessons to obtain their driving license. Once obtained, most of them wish to purchase a car and need to insure it. Thus, the number of persona's is very specific, with a similar objective around driving.

The second necessary condition for any company that intends to scale is the Repeatability and Distinctiveness of the product /service. This condition consists of three different factors:



First, Ornikar's huge majority of sales currently comes from one same product: learning the theoretical driving license and taking driving lessons. Although Ornikar needs to adapt its product to each new market, the changes and adaptations are very minimal. Indeed, from country to country, the driving-license is not the same and therefore the educational content must be changed. This represents "one to two months of work" according to B. Gaignault. The fact that Ornikars business models essentially relies on technology and the user experience offered around driving makes it very repeatable for each new market. Ornikar does not score a 5 out of 5, because it still must adapt its offer strongly to the legal situation of the countries. Flavien LeRendu, told me in 2020 that the company had faced several setbacks in terms of internationalization. He admitted that "they had gone too fast, that they had neglected the legal and political aspects in the countries where they wanted to launch". Therefore, they decided to leave the German market in 2019 to relaunch in a later stage.

Moreover, regarding differentiation, Ornikar is fundamentally different from its competitors, who are for the most part physical driving schools, as well as more recently car insurance companies. Overall, these markets have not yet been digitized in Europe as a whole. Since its launch in 2014, a few other French and European companies have entered the online driving-license market. However, Ornikar stands out from them, by having possibilities to continue the learning and post-license experience with its marketplace to complete driving hours and its new car insurance service. Ornikar also differentiates itself in terms of costs, by being 40-50% cheaper than physical driving schools.

Finally, regarding defendability and switching Costs, the learning of the theoretical exam, as well as the software products that Ornikar offers, can be copied quite easily. However, it is highly complex to copy the entire value proposition offered by Ornikar (driving lessons, marketplace for professionals, insurance). Additionally, Ornikar has managed to create particularly interesting switching costs, such as the reduction in the price of driving hours and car insurance for its former customers. The fact of creating a whole ecosystem around driving makes it very difficult for competitors to enter this market.

What Are They Doing to Extrapolate?

Ornikar seems to be focusing on the following tactics to scale its business:

Offering cheaper products and services with a better value to disrupt traditional markets such as the driving school and car insurance markets. By moving faster than competitors, focusing on its technological expertise and having a user-focused mindset, Ornikar managed to identify and solve essential customer pain-points (pricing, digital product, flexibility with marketplace…)

Then, striving for excellence. During our discussion in 2020, Flavien LeRendu shared with me that the fundamental success of the company, as well as its ability to scale and raise funds will be its ability to attract, recruit and retain the best experts on the market. At the time of our discussion, the HR team consisted of only one person, which he identified as a real barrier to growth. Only one year later, Patrick Devine, director at KKR, mentioned that he was "thrilled to invest behind Benjamin, Flavien, and their talented team". Indeed, in only one year, the HR team has shifted to more than 20 people, working on key people issues that have enabled the company to better structure itself and recruit high executives. One of the main outcomes of this new HR division is that it has allowed the company to make the decision to either let go of some of its early employees or to reconsider their role in the company.

They also focus on achieving low churn markets. Offering a global experience around driving and being present in low churn markets enables the company to maximize its customer lifetime value. Once a customer is acquired for the first service (theoretical driving-license), the organic conversion rate for the next service (practical driving-license) is very-high. This logic also applies to the new car-insurance service offered by Ornikar according to Flavien LeRendu. While virality is high among young clients who share their driving experience with friends & family, the company could try to enhance this tactic by adding referral gifts and discounts.

Moreover, they use growth hacking, Ornikar succeeded in launching a new trend in France to achieve strong growth and to limit its customer acquisition costs. Indeed, the company faced a problem of notoriety and a lack of confidence in its offer that disrupted what everyone knew at the time of its launch. To address these issues, Ornikar took advantage of appearances in the press and conventional mass media that customer leads would trust. They then reused these media appearances to create online advertisements.

One of the final tactics described by Benjamin Gaignalut is to raise funds fast. This is an essential tactic that allows rapid growth and keeps founders focused on their business. The last round took the company only 3 weeks.

What Are the Results So Far?

The company has clearly achieved a product-market fit and is already leading the driving-learning market in its home country. Ornikar, however, has yet to show that it can scale its offers as effectively in many countries and thus also that it can defend its market. If these conditions are fulfilled, its service will be able to achieve a market-fit profit. For its car insurance offer, Ornikar has succeeded in finding a problem solution-fit but is still struggling to find a product market-fit and thus to reach an extrapolation phase. The company must therefore ensure that it identifies the scaling constraints of the car insurance business model and that it resolves these constraints sequentially.

The question of the future of the driving experience market can be addressed. While the driving license will not disappear as it is, it is highly possible that the car insurance market will shrink with self-driving cars.

What Can Be Learned from This Unicorn?

Ornikar is an excellent example of a company being driven by data. By looking at its financial indicators, the co-founders realized that they needed to significantly increase its customer LTV. By choosing to enter the car insurance market, the co-founders ensure that Ornikar will have recurring revenue from its customers. The company is certainly taking a risk by entering a new market, but it is doing what it does best. Which is, to disrupt a market with a new digital and data-driven business model.

Ornikar also leverages this data-driven mindset to gain a fundamental advantage over competitors who do not have the same data on new customers. Indeed, Flavien LeRendu shared with me in 2020, that the model and prices of ‘Ornikar insurance’ will be highly customized based on the data of ‘Ornikar's driving license’ users. As a reminder, Ornikar now already graduates one out of every two new clients entering the French car insurance market. Research shows that the future of insurance will be behavior based.

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Outdoorsy

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Company Overview

Outdoorsy was founded in 2015 by **Jeff Cavins** (Entrepreneur and seasoned CEO, led 3 Public & 6 Private Companies, awarded with Sony's Highest Global Honor - "Samurai", for sales and leadership excellence) and **Jennifer Young** (Proven marketing professional with 20+ years international experience, has been recognized by Forbes as Top 50 CMO Game-Changing Marketing Leaders).

The couple wanted to connect people with outdoor travel, to serve their passionate interest in outdoor experiences they thought to maximize the usage of **17 million RVs** in the US, which sit unused for 350 days of the year.

The company forms a **P2P marketplace** linking owners and potential renters, thereby saving up on buying their own fleet of vehicles. The innovative idea was to create easy and economical outdoor experiences as compared to competitors in the market.

Before hitting the market, Jeff and Jenn purchased an RV and traveled all across America to take insights from the travelers and RV owners on the concept and idea. By sharing their vision with people in their homes, they got to interact with families and turned in the first user for their business.

Outdoorsy has raised **total funding of $195.1M over 8 rounds**. The latest funding was from a series D round done on Jun 24, 2021. In total, Outdoorsy is funded by 14 investors and has a post-money valuation of $1Billion, according to PrivCo.

Is the Company Ready to Extrapolate?

It is possible that Outdoorsy is ready to be scaled at the current stage. However, it may be worth considering making some adjustments in order to improve the chances the scale-up will be successful.

The solution is easy for competitors to imitate, and a similar model could be developed. It may be worth considering if intellectual property, a strong brand, or other factors which are difficult to copy could be developed to make the product or solution more defendable.

Number of Potential Customers - The number of potential customers or addressable market is more than sufficient to achieve exponential growth. All the RV owners and renters who love to spend time outdoors are potential customers. The RV business at large brings $114 Billion to the United States economy, with over 40 million Americans regularly using RVs. RV ownership has increased with 11.2 million households owning an RV in 2021, up 62% over 6.9 million households in 2001 and 26% more than 8.9 million households in 2011. Post-Covid - The potential customers have seen a 4000% hike in bookings. 1.4 million monthly visits to Outdoorsy with a bounce rate of 48.90% (700,000 visitors engage)

Differentiation and Defendability - Outdoorsy has established a good brand image within a short period, but the solution is repeatable and there are many competitors in the market. Once the customers are satisfied, they might become loyal to the brand. Millennials are the major target market for RV companies, they make up 38% of campers. The P2P business model differentiates Outdoorsy from 50% of the competitors in the market, who believe in owning RVs themselves. Outdoorsy's service is perceived as differentiated and unique by the customers in terms of quality and the smoothness of the process, i.e., both functional and emotional attachment. For RV owners, Jeff says that a single camper listing on Outdoorsy can make roughly $50,000 per RV season i.e., April to September.

What Are They Doing to Extrapolate?

Year	Scaling Tactics
2015	2 Pre Seed-Rounds by Berlin ventures and NFX($120K)
2015	Outdoorsy partnered with storytellers and a **crew of filmmakers** at Ogilvy. Based on Jen's suggestions the shots were taken on the open road along the coast of California to showcase the real world of RVing in a way never seen before. A creative and cost-effective way of advertising, and putting a unique value proposition in from of the customers
2015 (late)	After many rejections, finalized the insurance offering to protect owners and renters. This helped to simplify the user buying process by reducing barriers. Convinced the **Insurance companies** to build a product but it required a large amount of money
2017	Launched Pro product - **Wheelbase**, keeping in mind the needs for professional users. Launched Pro Host program for owners of multiple vehicles, and improved insurance programs for the US, and Canada renters. This move provides a value proposition to owners and helps Outdoorsy in Revenue prediction

2017	Started uploading blogs and articles on the Outdoorsy website and app. These included **Resource guides** (Travelling in RV, travelling during Covid, RV types, RV campgrounds), **Owner articles** (RV maintenance, Business Tips, Campground rating), and **Renter articles** (Beginner tips, RV travel stories, Experience sharing). Started with the '**Owner of the week campaign**' - where the best owner was decided and was published in an article on Outdoorsy Published **success stories** of owners where they started with a single van and went to have a maintenance team to manage their fleet Low customer churn, with Network effect and high virality
2018	**Series B** funding - $25M from Altos Ventures, Aviva Ventures
2018	100% growth in the business with the addition of 1000+ RV owners across 14 countries. Helped accelerate mission-critical operations worldwide.
2019	**Series C** funding - $50M from Greenspring Associates
2019	Team grew from 5 people in 2015 to a 275+ strong working team in California, Florida, Utah, Indiana, Texas, New York, Canada, France, the U.K., and Australia. Major additions were made to the **Senior leadership team** with executives from Google, Tesla, eBay, Mercedes-Benz, Airbnb, and Expedia This would help to drive the company's commitment toward global growth, unlocking international supply, and scaling the marketplace's geographic reach
2019	**Vehicle Purchase Program** - company strategized to unlock valuable campervan supply, especially for the Millennials and Gen Xers. Reports proved that 70% of the rentals came from the younger demographic group and have been increasing over the last 3.5 years. Collaboration with Mercedes-Benz for the supply of initial models. Targeted customer activation on this group.
2019	**Referral model** - $50 referral amount to the new user and $75 to the existing user. $100 to the existing user, if the new user lists an RV. The more the referral link is shared the more the users start earning. Economies of density and the target channels increase.

2021	**Debt financing** - $30M from Pacific Western Bank. **Series D** funding - $90M from ADAR1 Partners, Convivialite Ventures, Monashee Capital Corp., Moore Strategic Ventures, SiriusPoint. Available external funding.
2021	Launch of '**Roamly**' as new Insuretech division. It is a wholly owned subsidiary of Outdoorsy and provides insurance for RV sharing in 50 states. Roamly charged 20-25% less than the other policies in the market. It shares free quotes to the users in 60 secs. Operating leverage is high, and this division reduces the cost further
2021	Selected **Google Cloud** as its platform to support secure, low-latency, and global infrastructure for the growing user base. This will also help to expand the availability of its services internationally, and AI and ML can be used to power personalized consumer recommendations and dynamic pricing on the app or website. Automating time-consuming process and utilizing leveraged resources

What Are the Results So Far?

In terms of **customer reviews**, 800,000+ nights booked, with 93% having a **5-star rating**. Outdoorsy has been **rated A+** by the Better Business Bureau (BBB), with a 5/5-star rating. List of 15 unique features, that set Outdoorsy apart from the competitors.

In terms of **RV Rental pricing**, rental prices can change based on: Rental market location, Seasonality, and Type of RV, but on average Outdoorsy still charges lower than the competitors.

In terms of % **Increase in users**, the audience coming on Outdoorsy.com is most interested in News and Media & Travel. (Read or post blogs, and articles) % Of the crowd coming from the Referral model has increased to 3.69%. Based on the **marketing and SEO** practices used, organic keywords contributed 82.49% and a total of 7K keywords are driving traffic to the website with 'Outdoorsy' itself contributing to 7.93%.

In terms of **Global expansion and post-Covid growth**, the hospitality, and travel industry had seen the hardest hit by the coronavirus. Despite this, outdoor travel remained resilient and got popularity because of people traveling in their vehicles. April 2020 - The company saw a **4,000% increase in revenue** and moved from a 75% cancellation rate to a 200% increase in bookings. 2021 - Expanded to **large metropolitan areas** like New Orleans, LA, and North Carolina, which showed an average increase of 90% in the long-distance road trips taken. According to the survey by Go RVing, **65 million** U.S. leisure travelers are planning to take an outdoor RV vacation in 2022

In terms of **success of roamly**, Roamly has ~50K+ visits in 7 months of launch. It saves 25% for the users as compared to others in the market and is estimated to return $20 million in premiums in 2022. Global insurer **SiriusPoint** has successfully partnered with Outdoorsy on the launch of Roamly, a first-of-its-kind offering in the global markets.

What Can Be Learned from This Unicorn?

P2P business - No externalities involved, no fixed monthly operations/ maintenance/ infrastructure cost. The business expansion of scaling depends on the owners and renters. Outdoorsy uses a unique policy of equal opportunities for both the owners and renters. There are equal referral opportunities on both sides, as well as the success stories revolve mostly around owners increasing RV fleet. In the Covid era, they have portrayed themselves as alternatives to the hotel, kept on adjusting based on market demands, and are coming up as Airbnb for RVs.

Expansion moves – To extrapolate the company increased its workforce by 60X and expanded its operations to 14+ countries. Covid and lockdown restrictions came as a blessing in disguise for the business. Today the company has 48 million users offering more than 40,000 vehicles for rental across 14 countries and hit 1 billion transactions earlier this year.

In-house Insuretech division - Launching the division Roamly, helped them to resolve the RV insurance hassles like policy loopholes, and no-rental restrictions, which further helped to gain the owner's trust in the rental process.

Service Differentiation - Outdoorsy has prioritized creating the safest recreational platform considering the safety of RV renters and their families. Also, the background check system with ID verification and social media aggregators helps the owners to rent out their RVs safely. Target audience segmentation worked well and helped to prioritize the channels and services for the millennials and GenZ.

Marketing channels - Major chunk of traffic coming to the website is from Search (58.5%), and social media contributes just 1.8%. With a strong family of 220K+ followers on Instagram, the company can focus more on running ad campaigns and daily interactions with the users. This will eventually help to better connect with the Millennials and Gen Z.

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Popmenu

Author: Daniele QUADRANI

Company Overview

Brendan Sweeney knew nothing about the restaurant industry before he and his co-founders launched Atlanta-based startup Popmenu. What Sweeney did know was that it was crazy that while every other company was using incredible graphics, curated text, carefully crafted images and imaginative videos to present their proposition to customers, restaurants were releasing a plain text-based menu. "It's just crazy that restaurants present their inventory, which is their whole story, their whole selling proposition, in plain text," Sweeney said.

Popmenu is a SaaS company that helps restaurants optimize their menu to attract more guests through search, redesign websites to be a true transaction driver for restaurants and implement automated marketing tools that keep restaurants connected with guests and ensure their menu is top-of-mind when mealtime rolls around. Moreover, they provide also a direct ordering solution that streamlines the guest journey and removes hefty third-party ordering commissions.

The platform enables businesses to take control of their digital presence and increase customer engagement.

The leadership team is composed by Brendan Sweeney, Mike Gullo, Anthony Roy and Justis Blasco co-founders of Popmenu, had all worked together both at CareerBuilder and Commissions Inc. It was the experience at Commissions that inspired them to start Popmenu. Where Commissions was about designing tools to help local real estate agents and brokers take some power back from the large online platforms that were taking over a large part of the market, Popmenu is bringing the same tools for small businesses to restaurateurs. In fact, Popmenu tries to help restaurants take back control from websites like Yelp and TripAdvisor.

Amount raised	# Funding Rounds	# Investors	Estimated Annual Revenue
$87.1 M	4	7	$61M

The funding round led by hedge fund Tiger Global Management will value it at $525 million, including the investment. That's six times its valuation in October when the five-year-old startup raised a $17 million Series B round at an $87 million valuation.

Funding Type	Money Raised	Announced Date
Seed	$585,000	May 4, 2018
Series A	$4,559,981	Nov 12, 2019
Series B	$17,000,000	Oct 15, 2020
Series C	$65,000,000	Jun 11, 2021

Popmenu has therefore not yet become a unicorn but is considered by many as a potential one, who will reach this status very soon.

Is the Company Ready to Extrapolate?

As we can see from the graph and analyses below, the service seems to have potential to scale. This is because it is distinct and addresses a large addressable market with similar needs.

According to an article published by McKinsey, more than 650,000 restaurants open their doors to the hungry public on a daily basis in the US (McKinsey, 2020). We can split the restaurants into two main categories: chain restaurants (CR) and independent restaurants (IR). While CR were able to react quickly to the pandemic crisis thanks to their access to quick capital, effective branding and digitalization and well-oiled existing delivery and takeout strategies, IR struggled due to the lack of all or some of those aspects. If we also consider that nowadays 90% of guests check out a restaurant online before dining – more than any other business type - it becomes crucial for a restaurant to have an impactful online presence to attract and engage their customers. Popmenu is therefore a solution that aims to help IR, by building an engaging menu and integrating delivery capabilities.

For those reasons, IR are the main target of the service offered by Popmenu. Knowing that IR represents 53% of the market share, the Serviceable Addressable Market (SAM) for Popmenu is around 344,000 restaurants in the US.

Moreover, the job to be done for the customers is always the same. Popmenu offers the same tool to every restaurant, which can be used in different ways, depending on the needs of every restaurant.

Popmenu conducted a research and found that there are other competitors in the industry that offer a similar solution. In fact, the main competitors in the market are currently four according to Popmenu's competitors' analysis: SinglePlatform, MustHaveMenus, Omnivore and TouchBistro. Anyway, all these companies offer some useful features for modern restaurants, especially when it comes to menu management. But modern restaurants need more. What they don't want is a bunch of different tools with different technologies that they then have to try to make work together. They don't need to pay for add-ons, plug-ins, and premium features - they just need a tool that does it all under one platform with one login. That tool is Popmenu.

Popmenu's competitor analysis

	SinglePlatform	Popmenu	MustHaveMenus	Omnivore	TouchBistro
Online Menu Management	✓	✓	With Premium Plan	✓	✓
Multi-Location Menu Management	✓	✓	✓	✓	✓
Physical Menu Designer	Unclear	✓	✓	✗	✗
Website Management	With Premium Plan	✓	✗	✗	✗
Online Ordering	✗	✓	✗	✓	✗
Scheduled Social Posting	With Premium Plan	✓	✗	✓	✗
Automated Remarketing	✗	✓	✗	✗	✗

Source: Popmenu's website post

Popmenu is differentiated among its competitors because of its all-in-one platform, but especially thanks to the in-house social media environment they are building out with their Pops and Reviews. This is a really big value add and allows restaurants to take control of their image from the start. For a CR, reviews can be less impactful but for IR, a handful of good or bad reviews can be directly linked to their financial performance. As we can see from this data shared by a business developer at Popmenu, in just two months of using Popmenu, Ocean Deli Pizza in Wallops Island, Virginia doubled its online orders and increased their website visitors by 900%.

Before and after using Popmenu

	3rd Party Solution	Popmenu
Daily Website Visitors	50-60	480-500
Email Subscribers	0	1600+
Online Orders per day	15	35
Average Online Order Value	$25	$33
Average Income from Online Orders Weekly	$4,500	$10,000+
New Ordering Streams	2	7
Third Party Commissions	+$2,500/mo	$0
Menu Printing Costs	$12,000	$6,000
Advertising Spend	$0	$0

Source: Tracy Lazarus, LinkedIn post, 2022

To grow and defend themselves from competitors and new entrants, it will be vital to build partnerships. A suitable example is the one already established with Doordash which allows restaurants to use the delivery platform's driver network without paying DoorDash commission fees on orders.

What Are They Doing to Extrapolate?

Technology has been a blessing in many ways to overcome the pandemic crisis. A strong online-ordering presence, digital loyalty programs, and robust customer-relationship-management (CRM) systems have been lifesaving for restaurants during this crisis. According to the McKinsey study, the use of off-premises methods such as takeout and delivery is well supported through companies like Doordash, Uber Eats, and Grubhub. The area that IR still struggle with a lot is their lack of digitalization. While CR like Dominos have a website with a relatively decent UX for people looking to order pizzas, independent restaurants rarely have more than a PDF of their menu for customers looking to order. Moreover, according to Tracy Lazarus, Business Developer at Popmenu, 30% of consumers say that: if a restaurant redirects them to a pdf menu, they will simply move on. This situation meant that the solution provided by Popmenu was able to grow significantly during the COVID-19 crisis. Confirming it, the co-founder Sweeney said: “We saw 10 years of trends in the first 10 weeks of COVID-19”. “A lot of people were unprepared for it.”.

The sales team as we can see from this Account Executive position advertised on their website (Popmenu Job Board, 2022), develops strategies and messaging to drive awareness and to sustain a strong client pipeline. But their sales team is not there just to simply sell; Popmenu wants to be a true partner for restaurants -empowering owners and operators with the technology tools that will keep them successful long into the future.

They acquire new clients in three steps. First, prospect restaurants, to assess their potential to grow thanks to the implementation of the technology. Second, develop targeted messaging and methodologies that establish credibility and trust, convincing the prospected leads to start a demo. Third, ensure that the deals are closed without using heavy discounting or making promises of miracles and lofty customizations as a way to secure a contract.

Almost all sufficient scalability criteria are met, which is a good indicator as to why Popmenu has scaled up to date and will continue to do so.

There is only one neutral factor that should be addressed: price elasticity. As the price raises a customer might prefer a cheaper option with a lower quality of the services provided. This happens due to the fact that the value perceived of the solution by most of the IR owners is not very high. Therefore, one of the priorities in this business is educating customers on how digitalization can positively impact their business.

There are three main constraints in this business: brand awareness, perceived value of the solution and ease of implementation.

In the next paragraphs, we will see what Popmenu is doing in response to these constraints.

Popmenu is addressing this constraint by being present on social media almost on a daily basis (LinkedIn, Facebook, Instagram, and Twitter) and posting fact-based content with client performances, statistics, data and insights on the market’s trends and customers’ behaviour and posts describing Popmenu’s different features. These actions are increasing Popmenu’s brand awareness. They offer a marketing solution for restaurants, so it’s imperative that their branding is done properly as well.

To drive growth in new client acquisitions and clients, the value of the solution must be perceived by the client. By marketing the results, they are having with their most successful clients, they are doing a great job. Just by entering their website, you are immediately exposed to data about their customers' successes or quotations of positive reviews of their solution.

To address the ease of implementation, Popmenu is taking two simple actions:

1. Publishes educational content regarding the platforms use and new features.
2. Supports a website that answers all your questions (https://support.popmenu.com/en/).

What Are the Results So Far?

Popmenu has 61M USD estimated revenues per year. Knowing that they have 320 employees (Craft, 2022) who cost the company, based on the table below, a total of 26,4M USD, and considering a huge amount of constant investments in R&D for the enhancement and development of new features for their product, which we assume to be at least 50% of the revenues, plus operational costs (Marketing and Maintenance costs) which we assume to be around 10% of the revenues, the total costs would be around 69,5M USD. The company is therefore not yet profitable (1,9M USD loss) but is keeping on growing. Reinvestment of revenues and external funding (currently 87M USD in total) are sustaining the growth.

Costs of Personnel

Department	N. employees	Salary (USD)	Salary per department (USD)
Total employees	320		
Sales	90	100.000	9.000.000
Business development	50	100.000	5.000.000
Support	50	50.000	2.500.000
Marketing	45	75.000	3.375.000
Software engineers	30	95.000	2.850.000
Operations	20	45.000	900.000
HR	10	60.000	600.000
Product management	10	90.000	900.000
Finance	5	100.000	500.000
Management	5	150.000	750.000
			26.375.000

Source: Excel sheet calculations based on assumptions

If we analyze the current unit economics, Popmenu is currently loosing 282 USD for every customer acquired. Anyways, the revenues are in constant growth as they are acquiring new restaurants into the platform every month. Popmenu will be able to be profitable soon thanks their economies of scale. The platform is there, and they have no relevant costs in terms of software for every new client acquired, while the price/revenues will increase as the features added to the platform are in constant development. Popmenu is in fact on a mission of having a unique solution that connects all the restaurants need on one platform.

Unit Economics analysis

	(USD)
Revenues	61.000.000
Costs of personnel	26.375.000
Operational Costs	6.100.000
R&D	30.500.000
Total Contribution	- 1.975.000
Number of restaurants	7.000
Unit Economics	- 282

Source: Excel sheet calculations based on assumptions

What Can Be Learned from This Unicorn?

Popmenu does more than simply make websites look nice for savants whose computer abilities don't quite match their culinary prowess. Popmenu offers restaurants a flat monthly subscription that gives them access to Popmenu's platform to provide online ordering and marketing services such as push updates and emails, as well as the ability to incorporate third-party reviews and recommendations on their own websites. Recent additions include waitlisting, reservation systems and an AI based phone answering service which runs 24/7 have been added to the platform. The vision they have is to fill all the needs of a restaurant on one platform. Bringing everything into an all-in-one solution is solving a lot of problems in the industry making it much easier for IR owners to have more control over their business. A proof of their success is that they have already implemented their platform in more than 7,000 companies, according to their website.

More recently they have also opened a restaurant on their own. This is to really try and step into their clients' perspective and having the chance to run tests and gain useful insight for future developments.

Trying to solve the pain point of IR, by analysing their perspective, is what has really made them grow substantially over the years.

Knowing and understanding your customer's needs is at the centre of every successful business, whether it sells directly to individuals or other businesses. Once you have this knowledge, you can use it to develop your strategy to address the needs and pain points present in that market. If you always have in mind your customers and care about them, taking the right decisions will come because of it. Moreover, Popmenu has been able to grow significantly by focusing on one implementation at a time. They could potentially introduce a lot of different features together, but the result won't be the same.

To summarize, Popmenu is a good case to look at for any company that wants to make its business successful, mainly thanks to these two factors: they know their customers and care about them and they make implementations step by step focusing on one at a time.

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RapidSOS

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Company Overview

"Remember when a smart watch saved a man's life by detecting heart attack? Well, we have got not the watch but the software to thank for collecting and transferring the data to first responders on real time basis."

Michael Martin, the co-founder, realized the gaps in the emergency response industry when his father fell off of the roof of his home and could not reach his phone to dial 911 until his wife came back. This led Michael Martin and Nicholas Horelik to create RapidSOS' first product in 2012, a smartphone app which gave the users the ability to see their family members' real time locations and call 911 on their behalf. After that, the firm expanded rapidly by examining millions of 911 calls and creating a database for effective emergency response in partnership with 5,200 911 centers across US. In 2018, they partnered with Apple to allow iPhone users to share their location automatically and securely with first responders and later that year partnered with Google to cover the android users. Uber became their first partner to provide additional data and since then, there have been a flow of on-ground partners making the database stronger by the day. In 2020 alone, the company provided data to assist in addressing more than 150 million emergencies. In 2021, it decided to enter the UK market in partnership with MedicAlert with a similar business model as in the US.

From the Series A funding round of $4.6M in 2016 to Series C of $86.3M in 2021, RapidSOS has raised a total of $288.5M, which is double the amount of the closest competitor. The last round in February 2021, funded by Insight Partners, led to the company's entry into the Unicorn list.

Is the Company Ready to Extrapolate?

The next question which comes to mind is, who buys RapidSOS' services? At the core of it, RapidSOS offers data essential for first responders to reduce their response time as well as act on important details. This makes the service applicable to multiple industries like *Security,* directly linking your home or office alarms with first responders, *Healthcare*, increasing their patient care with easy sharing of life-saving data, *Mobility,* sharing real-time crash and location data, *Apps,* easy way for users to connect with first responders (For example, panic button in Uber), *Real Estate,* enabling smart buildings by linking floor plans, door controls, video feeds directly with first responders and *Wearables,* which makes for the biggest market given the ever increasing number of connected devices. Additionally, these industries along with the emergency response departments exist around the globe making the number of potential clients extra-ordinarily high.

The target market is extremely diverse and focuses on multiple and very different industries, however, fundamentally the end goal for each one of them is to provide their users a better and more safe experience by directly linking them to the most reliable emergency service, this makes the job to done similar for all potential clients. However, despite the similar needs, it might be slightly difficult to reach out to clients in different industries, essentially the diverse nature of their customer persona would eventually lead to increased marketing expenditure. Further analysis reveals that RapidSOS offers 5 basic products or the combination of them to different clients as per their requirements. These products include *RapidSOS Connect*, which shares real-time data with first responders, *RapidSOS Health,* maximizing operational efficiencies and cost savings by optimizing patient journey, *RapidSOS Monitoring,* a team of highly trained professionals providing assistance to users, *RapidSOS Portal,* a digital platform with verified emergency data from over 400M devices, and *RapidSOS Integration,* a partnership with public safety software. This vast variety makes the service customizable to a certain extent, reducing the ease of repeatability. Additionally, the heavy reliance on government and on ground partnership can hinder the smooth international expansion plan.

The one hindering its expansion might as well be the strongest differentiating factor from its competitors. RapidSOS in the US right now covers 92% of the population, and this is not because it tried to solve a problem with the user, but it recognized the problem at the end of the first responders. The technology being used by emergency departments lacks uniformity, consistency and most importantly is rarely updated, so RapidSOS developed easy APIs which can be implemented with any technology being used by the first responders. In the words of *Martin himself, "There are now close to 20 billion devices out there with critical information, and at the bottom is advanced software systems to work with that, but between is the 1960s voice infrastructure. So the challenge is to get between one and the other, but also to be able to get on the phone with someone in need and have a coherent conversation."*

This sort of governmental partnership allows RapidSOS access to a plethora of data, and successfully blows all competitors out of the water. It has a few close competitors, like *Everbridge,* which are much older in the industry and provide almost all services except the connection with first responders. This makes RapidSOS the only available solution. Additionally, it integrates their service into client's ecosystem creating a database of life-saving information, thus becoming next to impossible to switch.

What Are They Doing to Extrapolate?

RapidSOS had a very humble beginning with just a mobile application allowing location sharing with your friends and family, what made it extrapolate is the identification of an actual problem accompanied with data growth and support. It focused on collecting data for years at end and made their service the best and the only available option, which lead to its partnerships with technology giants like Apple and Google as their trusted emergency response software provider. The ever-existing value that is offers would outweigh any price concerns given it is the only available and reliable solution. Also, once integrated into their service, RapidSOS has the power and convenience to add more features and data and charge extra for them without fearing turnover given the dependence created. However, since it targets few large clients with mostly licensing deals, it is difficult to establish a continuous inflow of cash, which makes them dependent on raising funds for bettering their offering moving forward.

As discussed, one of the strongest pillars this firm stands on is the data. RapidSOS got hold of this data in two ways, first, monitoring of 911 calls in partnership with the emergency response department, and second, partnerships with companies working on ground as eyes and ears for 911. These include firms like *911 eye, 911 inform, Geocomm, Equature, RoadMedic, Rave* and many more. Most of these firms were RapidSOS' competitors when they initially started, however, they used their competitors and built a new offering which brings together all their services in one.

RapidSOS takes the maximum advantage of technology which makes it a breakthrough in the industry. Currently, it collects data from 400 million connected devices, a market which is ever increasing not only in the States but around the world. In UK, each household has upto nine connected devices from watches, smartphones, speakers, to locks, alarms and many more. All these devices when synchronized to generate a consolidated form of data can become the most powerful tool not only for first responders but many more industries such marketing. These automated processes enable RapidSOS to create an easy expansion plan with just a partnership with the emergency responders in the target country.

Another pillar of strength for RapidSOS is its stellar reputation for securing privacy. Given the sensitive nature of the information, their agreement with the device manufacturer mandates the transfer of information only in the case of an emergency.

We never store any personal data" Jessica Reed, head of strategy and global partnerships at RapidSOS.

Additionally, what makes the service attractive and acceptable to the emergency departments is the fact that it comes completely free of cost. The business model of RapidSOS is designed as such that the emergency responders get the data and technology free of cost, so the only cost on their hand is a couple of hours of training for their personnel to understand and implement the technology. On the other hand, the revenue is generated through charging the device manufacturers a license fee to equip their devices with this state-of-the-art technology. To summaries, the emergency responders get the information for free, the device manufacturers get a more equipped device thus more customers and the customers get better service, a win-win for all stakeholders involved.

The recent strategic partnership with Honeywell, a multinational conglomerate which is a giant in the technology industry, has opened more doors for RapidSOS in the future. The synergies between the two firms will enable faster transmission of data to first responders, the focus being on saving minutes or even seconds, which is all that matters when the conditions are life threatening

"Honeywell provides critical life safety systems that enable facility managers to harness the power of data to deliver enhanced fire safety service," said Michael Martin, "We are excited to work with Honeywell and equip first responders with intelligent, incident-specific connected building data before arriving on scene to better protect our communities."

What Are the Results So Far?

It appears like RapidSOS did everything right, from development of easy technology for first responders, to creation of the strongest emergency database, to clients like Apple and Google, to partnerships like Uber, to successful funding rounds and strategic investments. However, what remains more or less a mystery is its pricing structure and profitability. Given the lack of information on those two fronts, we can make use of proxy data to see the extent of its extrapolation.

Since 2018, RapidSOS has entered partnership with more than 60 companies (often referred to as the *RapidSOS Ready* companies). It is offering its technology to more that 5,200 911 centers which amounts to 92% of the United States' population. In addition, the partnerships enable RapidSOS to gather data from more than 400 million connected devices. The increase in these numbers only in the last 4 years shows the impact of its operations and actual extrapolation.

What Can Be Learned from This Unicorn?

RapidSOS is the ideal organization when it comes to successful social startups, and the success stems from the fact that it recognized the real problem while the competitors were trying to solve a superficial one. While the competitors tried to bridge the gap between people in emergency and their known ones, RapidSOS directly connected them to first responders, reducing response time exponentially. Another feather in its hat is the sheer focus on data collection and efficient usage. In today's world data is power, and RapidSOS conveniently used this fact to its advantage becoming a need for all connected device manufacturers and a want for first responders.

As we have already seen, its strategic partnerships with data collectors, data providers and service providers have collectively resulted into the formation of this one-point solution for everything emergencies, across the board. It has an easy road ahead given it grabs the opportunities in more markets before competitors build something similar and enter partnerships with the emergency departments. An expansion in the United Kingdom this year will pave the way for future expansions as it will initiate the formation of standard operating procedures for international expansions.

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Squire

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Company Overview

Squire is a management platform for barbershops created in 2015 by Songe Laron and Dave Salvant. Originally created as a booking platform for barbers, the solution has quickly evolved as an all-in-one management platform (Squire, 2022) designed to resolve barbers' specific day-to-day constraints. Indeed, after witnessing the failure of this booking platform the two founders realised they had no knowledge on the reality of being a barber and owning a barbershop. Therefore, they bought one and managed it for a year (Feldman, 2021). This experience has made them realise that what barbers needed was a platform helping them on their day-to-day life and the specific problems arising from the job, such as collect payments, pay their multiple barbers, handle the rental of chairs, dispatch tips, pay suppliers, and in addition, book customers (Squire, 2022). Squire was the first company to develop a solution which targeted specifically and only barbershops, a niche and untapped market. Valued nowadays at $750M, Squire has raised a total of $143M in equity and $22M in debt over 10 rounds (Crunchbase, 2022). The last round, in July 2021, brought $60M, has the purpose of increasing the sales reach of Squire and reinforcing their engineering teams (Business Insider, 2021).

Songe Laron and Dave Salvant had no knowledge in the barber industry prior the creation of Squire. Indeed, both were running very successful corporate career, the first in M&A law in a major US law firm, the second in finance at JP Morgan (Feldman, 2021). After they met, they quickly acknowledged how going to the barbershop were intrinsic to their daily life and culture, as young African-American in their mid-30s. The founders realised that a few other start-ups targeting small businesses had succeeded and that no other company was targeting barbers only, and decided to begin the Squire adventure.

Is the Company Ready to Extrapolate?

After careful evaluation of the multiple requirements necessary to achieve scalability, we can conclude that Squire can scale.

The serviceable addressable market is large enough to achieve scale. Indeed, there 109,000 barbershops in the United States only (Feldman, 2021). Currently, Squire has achieved $12,5M in revenues with 2,800 barbers, one client bringing $4,465 in revenues every year to Squire in average. Moreover, Austin Byrd, the Head of Finance and Strategy at Squire, emphasized that the goal of the company was to reach all the barbershops in the world. After less than 7 years, Squire has reached the UK and Canada. They do not plan on expanding their Serviceable Addressable Market by targeting other wellness businesses such as hairdressers (Austin Byrd, 2022). Indeed, he believes that they would lose their differentiator if they expanded in other verticals. Moreover, the solution would not address well the needs of other verticals. However, we might wonder if the barbershop culture is as significant in other countries as it is in the United States. For example, in France, there are only a few barbershops and the owners might not have the same needs as Americans' because, for example, they might not rent their chairs to outside barbers. It is crucial, for Squire to reach a large enough Serviceable Addressable Market, to focus on the countries where the barbershop culture is predominant. On the other hand, The Job to Be Done is identical for each customer, allowing Squire to fulfil the same need with one solution.

In terms of Solution Repeatability and Distinctiveness, the solution needs a certain degree of adaptation for each customer based on two main factors: the size of the barbershop and the extent of needs of each barbershop. There are multiple solutions priced between $30 and $220 (Squire, 2022), each offering a different extent of features, and a different platform based on whether the barbershop is independent or part of a group. To scale more effectively, it would be interesting for Squire to limit their number of offers from 6 to 3. As per the distinctiveness of Squire's solution, the software fulfils this condition. Indeed, it is the only solution aimed specifically at barbershops. Squire has three potential competitors: Booksie, Mindbody and Boulevard. However, Mindbody and Boulevard are not specifically targeted at barbershops: they target wellness centers at large. Regarding Booksie, it is their main competitors for their booking software and that they are similarly priced (Austin Byrd, 2022). However, Booksie only offers booking, far from the all-in-one management solution developed by Squire. Squire is therefore highly differentiated, and their customers understand their specificities and unique value proposition. In terms of defendability, Squire has high switching costs, making it difficult for customers to switch solutions. Indeed, customers who decide to switch would have to subscribe to multiple solutions to replace Squire (Austin Byrd, 2022). Their defendability and switching costs are Squire's main strengths.

To conclude, Squire has all the necessary conditions to scale, but need to keep working to adapt to each market's particular cultural approach to barbershops in order to extend their Serviceable Addressable Market and simplify their offers to increase the repeatability of the solution.

What Are They Doing to Extrapolate?

In order to achieve the extrapolation phase, Squire's management has implemented interesting tactics over the last two years.

Firstly, in terms of monetization strategy, Squire has perfectly adapted its product to its market and their customer profile and needs. Squire remunerates through both means: a subscription fee ranging from 30$ to 220$ each month and a transactional fee of 2% of the booking price (Austin Byrd, 2022). Because Squire targets small businesses, their customers are very price-sensitive, and Squire is the price leader on the market based on their full capabilities. Booksie is priced similarly but they do not offer a management platform, only a booking one. Being the price leader was a very interesting tactic from Squire to sign customers despite barbers' low treasury and business uncertainty. Secondly, allowing their customers to renew their contracts monthly was one of the main tactics to convince barbershops to sign and to quantity the value of the solution both in time saved and new bookings acquired through the app. Squire was also able to adopt a strongly flexible payment and contract option to their customers because of the high switching costs they have put in place with a very complete solution. The last monetization tactic undertaken by Squire was to wave all their subscription fees during the Covid crisis (Feldman, 2022). As Squire quickly realized that barbershops would face a very difficult time and struggle to pay their fixed costs, Squire decided the best tactic to keep their customers was to waive it. It created trust between the company and the barbers and ensured customers would not churn due to a difficulty to pay subscription costs.

Regarding the route to market, Squire has adopted two main tactics to reach the extrapolation stage. On one hand, as Squire focuses only on a single customer persona, they have chosen an innovative marketing process. Squire's main marketing strategy is to partner with barber influencers (Austin Byrd, 2022), who have many followers on social medias and whose opinions are trusted by barbershops and their customers. Implementing this strategy has allowed Squire to get known and trusted very quickly by their prospects. On the other hand, Squire has kept a small number of channels throughout their growth in order to apply a consistent messaging. In addition to the partnerships in place with barber influencers, Squire has created an exceptional sales team of 55 employees. They have implemented a consistent approach and strong internal processes to measure their performance (Austin Byrd, 2022). Therefore, Squire can control thoroughly how they sell to their prospects and show a unified messaging.

Furthermore, Squire has leveraged the density effect of the solution to grow, and this strategy can put them on track to achieve extrapolation. By expanding city after city, Squire has ensured that they reached an acceptable number of barbershops in each city, to attract barbershops' customers on the application. When Squire began, the application was not optimal because barbers did not have any bookings through the application and the leadership team has therefore decided to expand one city after another (Feldman, 2022). Internationally, Squire has reached London and multiple cities in Canada, and is waiting to grow their number of customers on each of these cities before expanding to others.

Finally, Squire has shown incredible adaptability to their customer needs, constantly evolving. After changing their solution from a simple booking platform to an all-in-one management platform, Squire spotted a new customer need: financial tools (The Fintech Times, 2022). By launching Squire Card directly into their solution, Squire aimed at facilitating barbershops' transactions and expense tracking. This tactic also allowed Squire to be able to upsell their current customers, thus improving their transaction acquisition costs.

What Are the Results So Far?

In order to evaluate the results of the scaling tactics outlined, we will estimate how they have impacted Squire's customer acquisition and transaction acquisition costs.

In terms of customer acquisition costs, the cost associated with acquiring new customers compared to the number of new customers, we only have information regarding Squire's sales costs, as their marketing expenses are completely private. With 55 sales employees up to date, and with an average package of $100,000 per year for each sales individual for both fixed and variable income, we can estimate the sales costs to be $5.5M per year. Squire has an estimated 2,800 customers (Feldman, 2022), acquired through the last 7 years, an average of 400 customers per year.

Therefore, for the year 2021, the Customer Acquisition Cost would be, assuming 55 sales employees and 400 new customers each year on average: $5.5M / 400 = $13,750.

The Customer Acquisition Unit Cost would therefore be $13,750 in 2021. We can suppose that the CAC is way lower due to the virality created by Squire through their partnership strategy with influencers bringing new customers and social media advertisement that also creates an important traction. Therefore, this channel tactic puts Squire on track for extrapolation.

In terms of transaction acquisition cost, it is difficult to estimate it accurately without any information on its related costs. However, Squire has implemented successful strategies to lower the existing transaction acquisition costs and make sales profitable after scaling. Indeed, launching Squire Capital, the financial tools of Squire (The Fintech Times 2022), is a major opportunity for Squire to upsell all their existing customers. Customer churn is high at Squire, but only because small businesses often go out of business and must close (Austin Byrd, 2022). For the barbershops that survive and thrive, Squire's customer churn is very low, showing a true value perceived by customers. Therefore, Squire has most certainly significantly reduced its transaction acquisition cost, increasing its opportunity to extrapolate in the future.

What Can Be Learned from This Unicorn?

After carefully reviewing Squire's scaling strategy, we have found out that Squire has all the necessary requirements to scale but need to work on some factors before it achieves a true extrapolation phase.

In terms of successful strategies, Squire has been able to provide an innovative and complete solution, creating high switching costs for customers, at the lowest price on the market. By adopting a strategy of closeness and understanding of their customers, Squire has limited the high customer churn coming from the instability of owning a small business. Regarding the Customer Acquisition Costs, in addition to customers brought through influencers and social media ads, Squire should also implement referral programs, just like Dropbox did, in order to significantly reduce it. Indeed, barbers are part of a community, and a referral program would be the most cost-effective tool to acquire new customers for Squire. Incentives could range from earning a discount on their first month for the referee, to enjoying additional features for free for the existing customer who refers.

However, in order to achieve the extrapolation phase, Squire needs to focus its efforts on automating its solution. Indeed, there is a strong human input after the sale is finalized: the solution needs to be customed for the client, and the installation is heavy (Austin Byrd, 2022). Automating Squire's solution would thus decrease labor costs and reduce the operational expenses. To conclude, improving these two main factors will contribute to Squire's extrapolation in the coming years.

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Uniphore

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Company Overview

"*Our mission? Give each customer a voice*"

Founded in 2008 by Umesh Sachdev and Ravi Saraogi, Uniphore is a B2B2C company that positions itself as the trailblazer of conversational AI. The company offers SaaS on a subscription-based model. The platform analyses customer service conversations through a technology called natural language processing (NLP) to gather insights into customer's issues, opinions, and emotions. The system provides live actions suggestions to customer service agents as well as post-call analytics.

The focus of the company is the research and development of innovative systems, based on two technological areas: speech recognition and speech biometrics. That's where the company gains its leadership position and advantage over competition: it all comes down to differentiation through true innovation.

As the founder and CEO Umesh Sachdev explained:

"*We have built out an AI and automation platform that, like Tesla, cannot just be replicated and put out in the market. Uniphore did not just start our journey a few years ago like many who are trying to play catch up. It can't be done.*"

Excellence is pursued through world class teams, focused on creating a new standard for the market. As explained by Mr. Sachdev, the key to the company's success is its continuous search for experts in each discipline involved in the process. Not only in the engineering team, but also in every other team of the company, such as financial and go-to-market team.

*"We continue to lead by **developing, optimizing, communicating, and demonstrating advanced solutions** that do things others haven't even thought of."*

Initially incubated at IIT Madras (India), the company received an initial investment of $100,000 from the National Research Development Corporation. In February 2022, after a series E founding of $400M, the company has officially become a unicorn, estimated at $2.5 billions.

Is the Company Ready to Extrapolate?

Uniphore was created to solve an issue: bring voice-based internet services to people in rural areas of India, focusing on dialects and speech recognition. They soon realized the huge opportunities this technology offered. Their main goal was to create a company that would have an impact on millions of people, therefore easy to commercialize on a large scale. The call-center based business model was abandoned to focus on the creation of scalable new technologies and software.

“*As someone who started to solve the problem for rural India, we recognized that the technology has* ***global application***.” (Umesh Sachdev)

The **serviceable addressable market** is huge. The customer service industry has been estimated at $350B. The industry, especially the SaaS market ($145.5B in 2021), has experienced huge acceleration due to the covid pandemic. Customers were expecting the same level of customer care, if not higher, during and after the lockdown, pushing companies to search for the next best solution. The conversational AI market has benefitted from this boost of demand as well, currently valued at $4.8B, it is expected to grow to $13.9B by 2025. The number of potential customers in this B2B2C sectors is massive: Uniphore’s solutions can be applied to all companies that offer customer service, moreover the application of speech technologies can range from smart TVs to smartphones to home appliances.

Currently the company focuses on medium to large size companies, the service offered consists of a common platform (“X platform”), that can be adapted to the customer’s needs without major adjustments. Moreover, the company focuses on a small number of extremely valuable customers: 15 customers pay more than $1 million a year, and three are spending more than $5 million. Uniphore makes 70% of its money by selling to about 100 large companies.

Regarding **solution repeatability and distinctiveness**, the company offers a modular solution: each customer can select specific features of the platform and combine them to satisfy its needs. Thus, the solution is extremely repeatable, with minimal adaptation needed. Moreover, the company can differentiate its offering through a unique portfolio of tools and capabilities offered. From the beginning, the founders have focused on researching untapped business opportunities, granting Uniphore its leadership position. While competitors are trying to catch up, Uniphore continues to invest in R&D, protecting its prime position in the market using intellectual property and patents. Finally, through strategic acquisitions of pioneer companies in adjacent sectors, the company is planning to sustain its competitive advantage overtime.

Therefore, the solution appears ready to extrapolate.

What Are They Doing to Extrapolate?

Uniphore’s scaling tactics can be distinguished in 3 phases:

1. Building the right foundation (2008-2015)
2. Taking a proactive approach (2015-2019)
3. Seize the opportunity (2019-2022)

Their first tactic in the scaling process took place years before the extrapolation period, from the creation of the company in 2008. This can be considered as a preparation step, to be ready for scaling. Uniphore’s founders knew from previous experiences that their next venture would have needed a **scalable scope and structure** right from the start. They worked on the Problem/Solution Fit by **recognizing limitations and issues** that weren’t being addresses in the current customer service market and focusing on those. They understood that their focus on the Indian language, its dialects and speech recognition technologies represented a huge **opportunity**. The company **differentiated from Big Tech companies** (such as Microsoft and Apple) that were focusing on western languages. Having clear in mind an **untapped niche** in a valuable and growing market, they decided to adapt their business to solve the market's limitations.

Next, they took a **proactive approach**. This was a **long-term oriented** approach, with the perspective of building a solid product and team to anticipate competitors.

To improve the **monetization approach**, the company offers trial periods to prove the efficiency of the platform and demonstrate its results. Because of the novelty of the product, Uniphore has implemented extensive campaigns to inform and educate its customers. Moreover, by adopting a subscription-based model, revenues became predictable.

The company has also developed an effective **route to market**, focusing on medium and large size enterprises and offering a modular and adaptable product. Customers are at the core of all its processes, granting great relationships and low churn. Moreover, the company has implemented a partnership program, called "Unite Partner".

Network and density effects are crucial for the company's success: *"There is tremendous power in building a business at global scale. It gives you a network effect, ability to handle shocks during uncertain times and economic corrections, a differentiation of scale against peers and more importantly a maturity early on as you learn from multiple cultures and experiences." -* Umesh Sachdev

The more customers Uniphore has, the more information they can gather, the better and more refined the platform becomes. Moreover, having customers in the same geographical areas benefits the company. Each language and culture require specific analysis, for this reason, having customers like each other delivers additional localized economies of scale.

Relating to **unit economics**, the company has been able to automate its processes, creating an intuitive platform for CX agents. Thus, human resources needed are limited and leveraged resources are not fundamental.

Despite requiring high investments at the beginning of the venture, the company's current operating expenses are growing at a lower rate than revenues.

The company is now able to generate **positive cash flows** and to cash in from its efforts in R&D. Due to the nature of the company, it will always incur in R&D costs, however with the increase of sales and customers, they have been more manageable.

External funding remains highly available: with the growing popularity of this industry and the demand heightened by the pandemic, more and more investors want to participate.

In 2020 the **digital acceleration**, intensified by the pandemic, highlighted the need for improved CX.

From a $300M evaluation in 2017, it reached a value of $2.5B in 2022. The market was finally ready to recognize the value in Uniphore's products.

The investments made in the previous years in the geographical expansion paid off in the first period of extrapolation: the company was able to access an exponentially bigger customer base at the right time, when demand skyrocketed (Product/Market fit).

In 2022, the company has been able to turn profit out of the growth at scale (Profit/Market fit), reaching its objective of $100M annual profit. The company was able to extrapolate between 2019 and 2022. The CEO of the company also mentioned a new objective for the future: $1B revenues by 2025.

What Are the Results So Far?

Uniphore is extremely secretive about the financials of the company, however, based on statements, interviews, benchmarking, and assumptions we can analyze the results of the tactics applied. The graph below depicts the estimations done.

We can estimate an initial increase in revenue in 2015, supported by the change in revenue model. Different sources mentioned that the company's revenue doubled in that same year. From 2017 demand in the industry rapidly increased, accelerating in 2020, to reflect the pandemic. In 2022 the company will be it able to achieve the objective of $100M (established in 2017) by the end of the fiscal year. This represents the extrapolation period of the company: from $6.22M revenues in 2019 to $100M in 2022, with **16x** growth.

Let's suppose an initial net loss, due to the huge Opex needed to invest in R&D in the first years of the company. Net loss narrowed from 2015 to 2017, due to more controlled costs and better revenues. We can now assume a positive trend of decreased net losses. Between 2017 and 2019, we assume that the company starts profiting from its operations. In 2019, the CEO of the company admits a 75-80% gross profit margin (in line with industry trends), for a gross profit of around $4.66M. Keeping a similar percentage value, the company's gross profit should increase respectively to around $80M (2022) (17x growth).

These estimations and predictions seem to be in line with previous analysis: the company extrapolated between 2019 and 2022.

Moreover, it was mentioned by the CEO that the company plans to reach $1B revenues by 2025 (steady growth phase – extrapolation – 10x in 3 years).

What Can Be Learned from This Unicorn?

This case shows the crucial role timing has in the scaling and extrapolation process. Often companies scale too soon, Uniphore however was able to strategically plan its development. The founders decided to wait, work on product/market fit and market expansion to gain competitive advantage. Those steps were fundamental for the company to be scaled at the right time when the market was ready.

Another takeaway is the ability to look for untapped opportunities, by identifying a niche market that would offer great growth opportunities to the company. Deeply understanding the market, finding the right niche for the company and be ahead of competition granted the company a prime position when time came for scaling.

This approach was also key to compete against Big Tech companies, working on similar technologies. Uniphore found its niche in the market, building a portfolio of complementary and modular products to solve industry issues. The quest for innovation with unexplored technologies and approaches, differentiated it from major competitors.

The right team and a selected BoD were key to create excellence and to correctly guide the company. Attracting the right investors, not only for financial purposes, but for their knowledge and expertise is key. For tech companies, it is fundamental to continuously invest in R&D. Start offering from the beginning an MVP and then keep investing in the improvement of such products and the creation of valuable teams.

Finally, while strategic planning is a key element for Uniphore, being flexible to accommodate market changes and board members' opinions allowed the company to adapt and respond effectively to market and customer needs.

A challenge that Uniphore will have to face in the future will be retaining its competitive advantage, while competitors are running to catch up and surpass the company. Moreover, the company will need to continuously grant what they promised to both customers and investors, to retain their loyalty, financial support, and guidance.

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Ynsect

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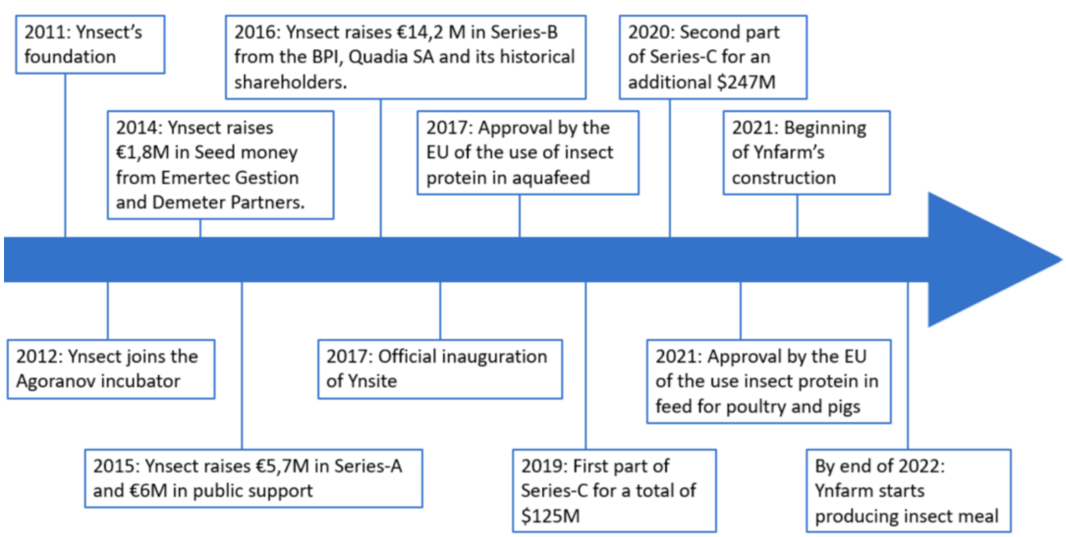
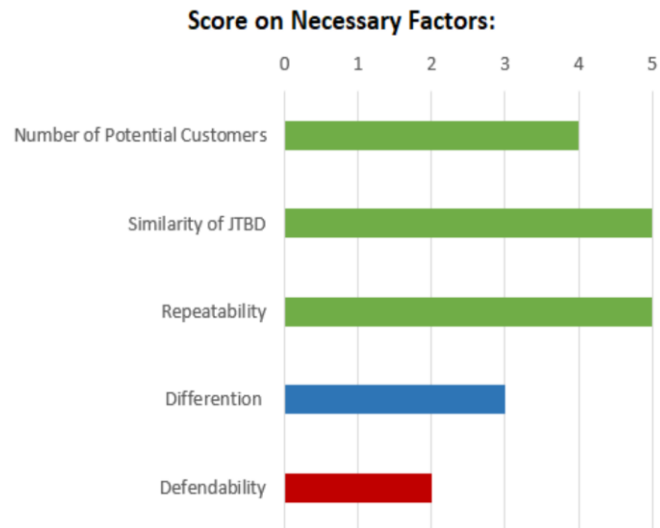
Company Overview

On the 6th of May 2021, the first foundation stone of Ynfarm, Ynsect's new insect rearing plant, was laid. After his speech in front of several members of the French government, Antoine Hubert, Ynsect's president and cofounder, probably thought about the steps that Ynsect undertook from the small lab at the Agoranov incubator to become one of the world's most exciting Agtech company. Antoine Hubert founded Ynsect in 2011 with three friends: Jean-Gabriel Levon, Fabrice Berro and Alexis Angot (INPI, 2022). Coming from different professional backgrounds, Ynsect's founders shared the belief that insects were going to become one of the key elements of a more sustainable world's food system. The company specialized itself early on in the Tenebrio Molitor larvae production and its transformation in Insect Meal (IM) (a flour-like product made from the solid parts of insects), Insect Oil (the fat separated during the meal's creation) and to a lesser extent fertilizer (produced from the insect's salvaged casting). The IM and oil are sold directly or through resellers to farmers, who use the insect protein to feed fishes, poultry, or pigs, and to pet owner to feed their pets. Since its inception, Ynsect raised a total of US$425M through several funding rounds. In 2014, the company raised €1.8 million, setting up a new facility at the Genopole outside Paris. To fund its pilot farm, Ynsite, the company raised an additional €5.7M in 2015. In 2016, the company raised €14.2M, to start the development of Ynfarm, its first large scale farm. Finally in 2020, to fund Ynfarm's construction, Ynsect raised US$372M. As a result of this series-C round, many analysts gave Ynsect the disputed title of unicorn – the company has neither infirmed nor confirmed this claim (Ynsect, 2017).

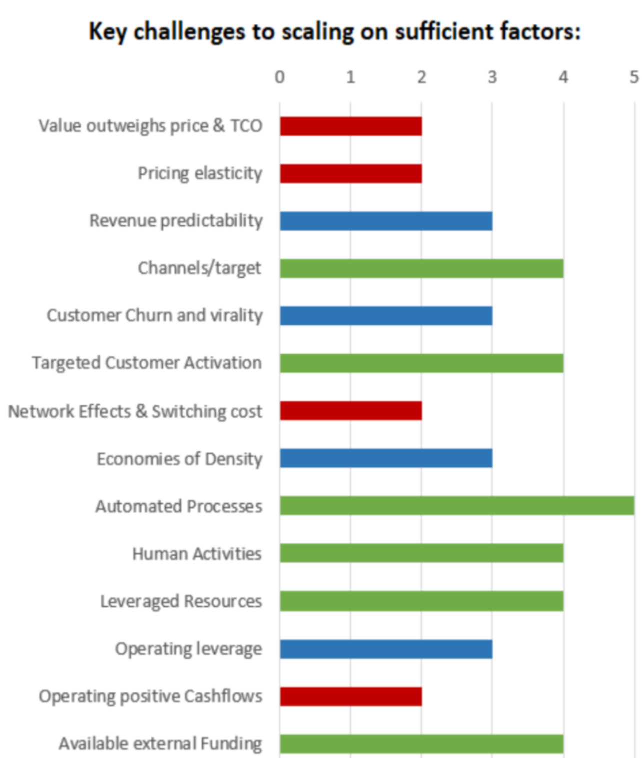


Is the Company Ready to Extrapolate?

The feed industry is divided into several segments corresponding to different animal family. Currently Ynsect sells its IM to the aquaculture industry and the pet food industry. Those two industries' feed requirements add up to almost 100 million tons/year (69Mt and 29,5Mt respectively), and have been persistently growing at a rate of 7% (6% and 8% respectively) since 2015 (Tyler, 2021; Hua et al., 2019). The price of a ton of feed varies in function of its protein source and its supply, making the estimation of those two segments' total market worth difficult. However, considering that the average price of a ton of fishfeed is between US$1200 and US$2000, and that the average price of a ton of Soybean meal is US$370, we can estimate that those two segments are worth several billions dollars (Feedinfo, 2021). Furthermore, since April 2021, using insects as a source of protein for poultry and pigs rearing is authorized by the European Union, which increased Ynsect's serviceable addressable market, while not impacting the diversity of customer jobs to be done (IPIFF, 2022).



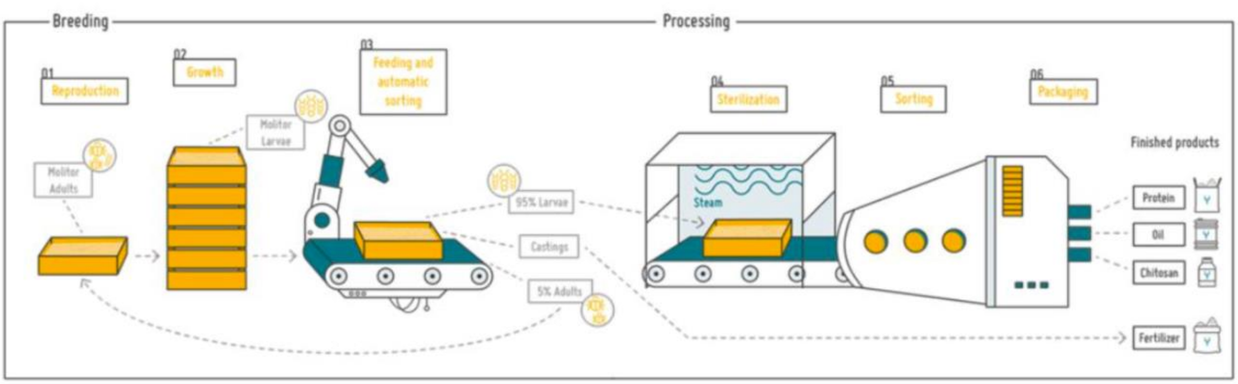
Indeed, whether it is used as feed for fish, poultry, pig or as pet food, the customer expectations in terms of quality and format are relatively similar. In addition, the repeatability of Ynsect's solution is increased, thanks to the EU's tight standards in terms of feed quality and practices (European Commission, 2022) and the International Cooperation for Convergence of Technical Requirements for the Assessment of Feed Ingredients' (founded by the EU, Canada, and the US) homogenization work (ICCF, 2022). Consequently, the repeatability of Ynsect's solution is high, as most of its customers can be serviced with the same product and with minimal adaptation.



Although, Ynsect's IM is slightly different from other IMs. It has a higher efficiency and has a greater effect of the animals' life expectancy than its main competitor's: Innovafeed, which fabricates its meal using Black soldier fly larvae (Ynsect, 2020). When compared to the two most used feed in Ynsect's target markets: fish meal and Soybean meal, IM tends to perform better. First, IM is more sustainable to produce. Vertical insect farms take less place than soy farms, and insects, unlike fishes, are not part of most humans' diet. Second, IM is more nutritious in terms of protein. In fact, IM can reach 82% of protein in comparison to 73% for fishmeal and 50% for Soybean meal. Finally, it contains a higher rate of vitamins which increases the immune system of the animal to which it is given (Govaerts, 2018).

Insect breeding technology is still in its infancy and is greatly protected by every player (Ynsect, 2022), which increases the cost and the time required to set up the necessary infrastructure and hire the adequate staff to create a project. Although, switching costs are still low - as a result of the current low distinctiveness between the industry's different protein sources - the defendability of Ynsect's solution will only increase with time, technological improvements, and regulation evolutions. As such, in 2022 before Ynfarm had started producing IM, Ynsect was in a good position to scale.

What Are They Doing to Extrapolate?



Ynsect's first years of existence were dedicated to perfecting its problem-solution fit. The founding team was persuaded of the potential of using insects as feed, however a question remained around the species of insect, which would be used. Several species of beetles, flies, butterflies, and locusts were tested before the team selected the Tenebrio Molitor larvae. Also known as mealworm, the Molitor has several advantages, "the species is gregarious (the larvae live naturally at high densities of population), nocturnal (no need to spend energy to light the breeding), and with high protein content" (Ynsect, 2017). Now that Ynsect had its star product, the company faced several constraints.

The first was the IM's production cost with the existing technology of the time. As a consequence of the large amount of workforce and space required to produce a sizeable amount of insect – insects had to be handpicked and grown on one-layer farms – the price of a ton of IM was around US$10,000 (Koeleman, 2016). Because of the price elasticity of animal feed, producing a feed, which did a globally similar job than its competitors for five times the price was a problem that Ynsect's management was going to have to solve in order to scale up.

To solve the production cost constraint, Ynsect decided to develop automated vertical insect farms. In theory, such farm could save up to 98% of the land and most of the workforce, thus considerably reducing the IM's COGS (Beaujon, 2021). Before attempting to raise the hundreds of millions of euros required to build a large-scale plant, the company needed a proof of concept. In other words, Ynsect needed to test its concept and validate that it would lower its production costs, thus enabling the implementation of a pricing strategy, in which the value perceived by farmers of the IM outweighed its price. In 2015, the construction of Ynsite, a fully automated 3,000 m2 factory, capable of producing up to 500 tons/year of IM, was completed (Capital Management, 2020). This plant, the technology of which was protected by 25 patents, handled the mealworm's entire lifecycle, and enabled Ynsect's management team to prove that its concept was both technologically and financially sound. In addition of being a real-life blueprint for the future – and much bigger – Ynfarm, Ynsite provided additional advantages. First, the company had a physical plant to present to potential investors, making the idea of massively producing insects more concrete. Second, the company could use Ynsite's production capacity, to offer samples to future buyers. As a result, the company managed to secure US$105 million in sales contract by 2020, without having started industrial production (Ynsect, 2020). Consequently, Ynsect was able in 2020 to raised US$372 million in Series-C, increasing its total funding to US$425 million, to build Ynfarm, an automated vertical insect farm with a yearly capacity of 20,000 tons of insect protein (Ynsect, 2020). This plant will produce its first batch of IM by the end of 2022.

Regulations on the production and use of insect-based feed was Ynsect's second big constraints. Before 2017, the EU only authorized the use of insects (whole or as IM) in petfood (IPIFF, 2022). By prohibiting the use of IM in aquaculture, the EU considerably reduced Ynsect's serviceable addressable market. As such, Antoine Hubert and the rest of Ynsect's management team needed to find a solution to either overcome these regulations.

In 2012, Ynsect founded, with three other companies, the International Platform for Insects for Food and Feed (IPIFF), to represent "the interests of the insect production sector towards EU policymakers, European stakeholders and citizens" (IPIFF', 2022). This organisation, of which Antoine Hubert was the president from 2015 to 2021 (IPIFF'', 2022), became the main advocacy group for European insect producers and was soon capable of changing the legislation on the use of insect as feed. Thus, in 2017, the EU authorized the use of insect proteins as fish feed (Koeleman, 2017), doubling Ynsect's serviceable addressable market. In 2021 the IPIFF and Antoine Hubert's advocacy work lead to the EU authorizing insect protein in poultry and pig feed (IPIFF, 2022).

What Are the Results So Far?

These scaling tactics have enabled Ynsect to secure US$105 million worth of sales contract, prior to Ynfarm entering production. If we assume that those US$105 million correspond to the sale of the totality of Ynfarm's yearly production (20,000 tons), then a ton of Ynfarm's meal is currently priced at around US$5,000. Prior to the creation of automated vertical farms, the price for a ton of IM was closer to US$10,000. This decrease in price will make Ynsect's meal a more attractive solution. As a result, and considering the quality of Ynsect’s product, selling the totally of its yearly production from 2023 does not appear to be a wild dream. This hypothesis is reinforced by the growth of Ynsect’s SAM with the authorization of the use of insect protein as feed for poultry and pigs.

Basing our assumption on previous research, we can estimate that the direct costs (feed + energy + water) for a ton of IM produced in an automated vertical farm is around US$1500. Furthermore, the indirect costs (labour + pest control + inventory costs + land & building costs + transport & fuel costs + research & development costs + other costs) for the same ton amounts to around US$2500 (Kooistra, 2020). As such the total cost of a ton of Ynsect’s meal will be around US$4000 and its gross profit US$1000, once Ynfarm will enter production. It is likely that as the company improves the efficiency of its breeding process (through automation and AI improvement, increased knowledge of the mealworm life cycle, …), Ynfarm’s production cost will steadily decrease. As a result, the unit margin will likely increase. If Ynsect manages to realize these assumptions, then it is likely that it will be able to scale up.

What Can Be Learned from This Unicorn?

Ynsect has always been able to count on a dedicated team built around its founding team. This has enabled Ynsect to maintain a strong and distinct organizational culture centered around innovation and sustainability (Ynsect', 2022). However, when Ynsect, as a result of its growth, required more experienced managers, Antoine Hubert - the company’s first and only CEO - did not hesitate to hire outsiders, without disturbing the company’s culture. For instance, in 2021 when Ynsect’s executive committee – a sort of senior management team - was created it was only composed of outsiders.

Ynsect’s capacity to rapidly developed a Minimum Viable Product (MVP) gave the company three advantages. First, thanks to its MVP, the company was able to file patents to protect its product and processes at an early stage (Berezina, Hubert, Levon and Berro, 2014). Second, through the distribution of samples to pet food manufacturer and later to aquaculture farmers the company was able to test its product in real-life conditions. As a result of these tests, the company was able introducing this new solution to its future customers (Ynsect, 2017) and to publish research papers, increasing its product’s legitimacy (Ynsect Press release, 2018).

However, Ynsect’s first-mover position was overshadowed by the fact that it had to create its own market from scratch. The company invested energy, time, and money on R&D, lobbying and convincing investors and potential customers of its solution’s value. It took Ynsect more than 10 years to start the construction of a viable plant. In comparison, Innovafeed, founded in 2016, was able to open a functioning insect farm capable of producing 15,000 tons/year of insect protein in 2020 – 2 years before Ynfarm’s opening (Innovafeed, 2022). This delay in developing production capacity will likely have consequences on Ynsect’s capacity to gain market share in the future.

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