

Seatback Has Your Back: A Start-up With a Wellness Vision



Danit Ein-Gar

In 2017 a young Israeli couple decided to improve the way people sit. Sigal Lustig, a physical therapist, noticed that many of her patients suffer from neck and back pains that are amplified by their sedentary lifestyles and, specifically, by many hours of sitting in front of computers. Sigal and her husband, Or Lustig, a mechanical engineer, decided to develop a “smart chair” – a chair that motivates people to improve the quality of their sitting – so they founded the startup “Seatback.”

Or and Sigal had no experience in founding startups, so they applied for an accelerator competition and pitched their innovative idea. To their surprise, they won first place. As competition winners, they received a visit to the MIT entrepreneurship center in Boston to meet potential investors. This gave them the boost of confidence they needed. Or quit his job to dedicate all his time to making their dream come true: developing a smart chair that can monitor the user’s posture and sitting habits and provide feedback. In 2018, they developed the first prototype, a chair add-on cover with motion sensors. To attract

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investors, Seatback had to provide convincing evidence that the chair can detect sitting postures and, more important, can change users' sitting habits.

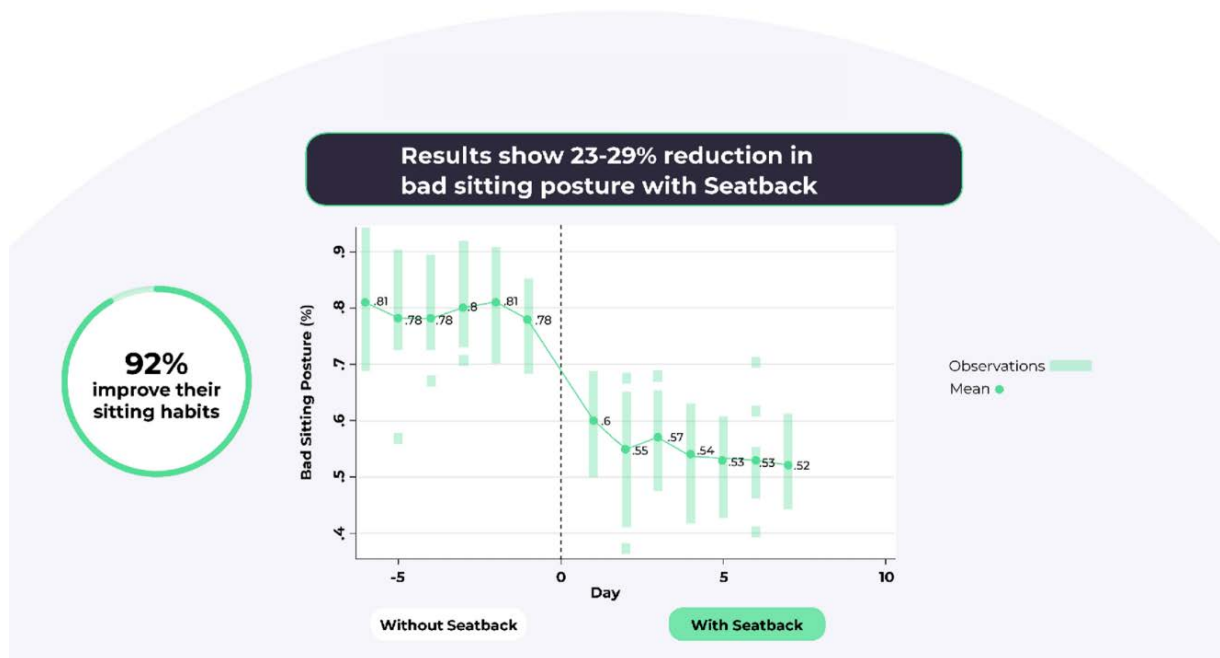
The Clinical Trial

In mid-2018, Seatback conducted a clinical trial in collaboration with Dr. Berkowitz, a radiology expert at the Rambam Hospital in Israel. The goal of the clinical trial was to show that a smart chair with biofeedback software can improve users' sitting behaviors. Fourteen hospital physicians participated in the trial. They all installed a beta version of the Seatback app on their phones, and for six months they sat on a chair with the Seatback add-on cover. The cover had motion sensors that detect and collect data on users' physical posture while sitting.

During the first three months, users' sitting behavior was monitored, and two types of data were collected: duration (how long the user sits overall and how long the user sits in a specific posture) and posture (back leaning, front leaning, side leaning, and slouching). In the next three months, users received two types of feedback via the Seatback app: vibration alerts that signaled to the users that they needed to notice something about their sitting posture, and message notifications with suggestions for behavioral change such as changing a sitting posture, standing up and walking, or performing some exercise like hand lifting.

At the end of the six-month clinical trial, the users' sitting postures during the first three months (without Seatback biofeedback) were compared to those of the last three months (with Seatback biofeedback). The results showed a 23% to 29% reduction in undesired sitting postures with Seatback.

Figure 1: The Clinical Trial Results



The clinical trial results were presented at conferences in Israel and the US and received much attention from the medical community. At the beginning of 2019, thanks to the success of the clinical trial, the company received a \$600,000 investment from angel investors and moved to develop and manufacture its first model. By 2020 the company sold a few dozen chairs for beta-testing use.

The Marketplace and Competition

The Covid-19 global pandemic and the shift of many employees to work from home led to a dramatic decline in the B2B market demand for office chairs. Seatback realized it had to reassess its business model given this dramatic workplace change. As the only company with an eco-system approach that offers a smart chair with a biofeedback wellness-promoting app, Seatback decided to shift its main R&D focus to accelerate the

development of a SaaS (software as a service) platform. The company's vision was to advance users' health and well-being by offering a healthy chair with a personalized biofeedback app that not only relieves back and neck pain but can also help prevent it.

Over the past 20 years, ergonomic seating has grown from a niche industry to a mainstream one, with increasing demand mostly from office workers looking for more comfortable and healthier office chairs. Seatback was facing major competition from established office furniture companies, as well as from new companies appealing to a new market: the gamer market.

Office chairs

In 2020, the ergonomic chair market was valued at USD \$12.76 billion and was projected to reach USD \$23.96 billion by 2028, growing at an annual rate of 8.4%.¹ However, the demand for "traditional" office chairs had been in a decline since the rise of interest in a healthy lifestyle and the awareness of the damage caused by sitting long hours in front of computers. Most traditional chair models have limited features that force users into fixed sitting positions. The U.S. Occupational Safety and Health Administration (OSHA) opposes the use of traditional office chairs that do not adhere to standards that include adjustable armrests, lumbar support, and a reclining backrest.²

The two leading global office chair company leaders in 2020 were Steelcase and Herman Miller, which jointly generated USD \$6.22 billion in revenue.³ Founded in 1905, Herman Miller is an office furniture and equipment company. It was the first company to offer an ergonomic chair to the mass market, which became the blueprint for every ergonomic chair that followed.³ Since 1994, Herman Miller had produced the Aeron chair, which was known for its lumbar support and was America's best-selling office chair for

many years. In 2016, the chair was updated with a new suspension system, better spine support, and a re-engineered tilt.⁴

Steelcase was founded in 1912 and is the largest office furniture manufacturer in the world, offering furniture and technology products to office retailers and to the education and health sectors.⁵ The Leap chair, introduced in 1999, sold 5,000 units a week during its first year and became the company's most popular release.⁶ The ergonomic office chair was designed with eight adjustable controls, including chair height, armrest positioning, lumbar support, seat depth, and back positioning.

Gaming chairs

Compared to the massive, multi-billion-dollar office chair industry, the gaming chair industry is still small but growing fast. The global gaming chair market reached a value of USD \$1.07 billion in 2021. This market was estimated to reach a value of \$1.7 billion by 2027, projecting a CAGR of 7.10% during 2022–2027.⁷ The growth of the gaming chair industry is mostly attributed to the incredible growth of the eSports industry.⁸

For a long time, the two industries relied on different sales strategies. The office chair industry focused on B2B sales to corporate and government offices. Only a small fraction of office chair sales came from B2C. Enterprise sales made up 64.5% of the total, followed by sales to the institutional market such as government offices and schools.^{9,10} The smaller gaming chair companies could not compete with the enormous competitors in the B2B market and chose to rely on B2C strategies aimed directly at individual consumers.

In 2020, due to the Covid-19 pandemic lockdowns, the demand for office furniture in B2B markets dropped severely. At the same time, the demand for gaming chairs grew as the eSports industry boomed and more people started playing, streaming, and watching

gaming content. In addition, employees who once worked at the office and now worked from home found themselves in need of better home office furniture. With well-developed B2C marketing strategies and efficient eCommerce channels, gaming chair sales boomed while sales in the office sectors declined.

Several brands had set the design standard for gaming chairs.¹¹ The first was DXRacer, an American company established in 2001 by engineers from the collapsing U.S. auto market. DXRacer engineers were stuck with thousands of luxury car seats that would never be sold. Luckily, luxury car seats were on the cutting edge of ergonomic science. The company launched its first gaming chair in 2006, and its original design became the blueprint for all gaming chairs to follow. Their famous DXRacer Air chair has the shape and functionality of a premium gaming chair, featuring solid lumbar support and a comfortable headrest. The company is known for its innovativeness, and in 2021 it released a gaming chair that can be attached to a footrest or laptop stand module.

In 2008, the Taiwanese AKRacing company launched its first gaming chair and later became the second biggest company in the industry. This was another luxury car seat manufacturer that was looking for better opportunities in the new eSports market. As part of its repositioning, the company became a sponsor for professional gamers and in 2013 sponsored the World Cyber Games.

While not the first to offer gaming chairs, Secretlab is the largest gaming chair company in the industry. The gaming chair brand, based in Singapore, took the market by storm when it released its first chair in 2014. Secretlab is considered to manufacture the best premium gaming chairs on the market. Their chairs come in small, medium, large, and XL sizes and are available in many designs, distinct colors, and with intricate detailing.¹²

Varied materials are used for the upholstery to suit the demands of every customer, and logos can be added to the chairs. In 2019, Secretlab partnered with HBO and introduced Game of Thrones-themed gaming chairs. The company also offers a five-year warranty and takes pride in honoring it.¹³ In 2020, while many businesses shrank due to the Covid-19 lockdowns, Secretlab expanded exponentially, with estimated annual revenue of \$350 million.¹³ The company opened distribution hubs in Australia, Japan, Malaysia, New Zealand, and Europe, and in many parts of the world consumers can buy a Secretlab gaming chair online.

The booming gaming industry, on the one hand, and stagnation in office chair demand, on the other, sparked massive changes in the multi-billion-dollar office chair industry and led many office furniture manufacturers to switch their focus toward a gaming chair-style B2C model. Herman Miller collaborated with Logitech, a large computer peripherals manufacturer, to create the Embody Gaming Chair, designed to be the best in comfort and gaming. The product hit the shelves in the summer of 2020 after careful input from over 30 Ph.D. professionals in ergonomics, vision, and biomechanics.¹⁴ The Embody chair caught the eye of Shroud, a popular Canadian streamer and YouTuber with more than 10 million followers, who adopted the chair as his main gaming chair.¹⁵ To ramp up the hype, Herman Miller partnered with other influential gamers, such as TimTheTatman (4.4 million followers) to further promote its chairs.¹⁶ The Embody chair's price point is \$1,495, which puts it at the very high end of the market.¹⁷

IKEA, the world's largest furniture retailer, is the most powerful market entrant to date, with total revenue of \$28.8 billion in 2020 and 446 stores in 52 countries. In mid-2020, IKEA announced a partnership with ASUS Republic of Gamers (ROG). The goal

was to release a gaming furniture collection first in China by 2021 and then move on to a global release. IKEA's new gaming furniture release in China was a success and included chairs, desks, and accessories.¹⁸

Attracted by these market dynamics, large office chair brands also started to manufacture more affordable gaming chairs. HNI Corporation, the fourth largest office chair company in the world, owns Respawn Gaming. The Respawn gaming chairs are affordable models with mid-range features. Although Respawn gaming chairs are not innovative and technologically advanced, they are very popular, thanks to robust marketing campaigns and affordable prices. Respawn partners with a growing army of up-and-coming streamers. Each post on the Respawn Twitter account gets flooded with replies from devotees.³

Some predict that the gaming chair industry is heading for the mainstream market. In the work-from-home era, gaming chair demand is thriving, with hundreds of styles and dozens of brands to choose from. However, most gaming chairs do not have advanced ergonomic features. They may be better suited to users than cheaper office or task chairs, but they do not prevent back and neck problems. Their car-seat-like design strengthens the misconception that these chairs are healthy for long periods of sitting, making these chairs parents' preferred choice for their children.

Average gaming chairs cost more than \$300 in the United States, with prices going all the way up to \$1,000. However, there are many cheaper gaming chairs that cost \$150–\$250, with the cheapest models being sold by Walmart and Amazon.

Gaming chairs vs. office chairs

When it comes to gaming chairs versus office chairs, modern chairs with ergonomic features have much in common and suit diverse users. There are, however, some features of gaming chairs that do not exist in most office chairs. For example, some gaming chairs offer footrests that allow users to not only tilt the backrest but to put their feet up as well. Some gaming chairs include speakers integrated into the headrest to guarantee a more immersive experience without the gamer having to wear uncomfortable headphones for long periods. Most gaming chairs are designed to look sleek and stylish – in the style of a racing car. A design that is aesthetic and cool, not functional, yet adored by young consumers. Unlike the office chairs that have maintained a conservative, mature, solid, design, the gaming chairs offer a unique design and come in a wider range of styles, colors, and features.

Personalization of the chair to meet the specific needs of consumers is an area in which manufacturers in both industries have invested much R&D. Some gaming chairs offer personalization that can fit ages 12 and up. Parts of the chair can be adapted to fit users' different body sizes. With a growing segment of children entering the market, gaming chairs opened the chair industry to new colorful designs. However, for some consumers, these somewhat childish designs make gaming chairs unsuitable for the office space.

An important aspect of a gaming chair is durability. Gamers at play are constantly leaping up and down, putting a lot of stress on the chair's base and hinges. Most expensive gaming chairs invest in durability innovations. To signal the chair's quality, companies offer long-term extended warranties. For example, AKRacing is so confident in the

durability of its chairs that it backs all chairs with a five-year warranty on the chair and a ten-year warranty on the frame.¹¹

While the main designs of gaming chairs are more focused on individual consumers' needs and personal preferences of style and fashion, the office chairs that target industrial offices are focused on maximum durability and worker safety. The industrial office market is characterized by shift workers, which means the chair must be easily adjustable to different heights and weights. These chairs are bought by companies promoting their employees' health. Although Covid 19 led to a global decline in the B2B market, since 2022 workers have started returning to the office and the demand for office chairs in the B2B sector is expected to rise.

Consumer and Lifestyle Trends

The demand for ergonomic chairs is expected to continue growing, fuelled by several economic and health trends, leading individuals and big firms to invest in healthier office furniture.

Consumers of ergonomic chairs vary. They can be heavy video game players, adults, teenagers, students who divide their time between video games and studying, work-from-home professionals, managers and employees working long hours at the office, and adults with health issues such as back and neck injuries. Even hobbyists and tech enthusiasts who do not spend as many hours in front of the computer as do gamers invest in ergonomic chairs despite their hefty price point. Some consumers are more design oriented while others are more function oriented; and, as in every market, consumers vary in their price sensitivity.

Several trends have changed consumers' lifestyles massively, contributing to the growing interest in ergonomic chairs.

eSports on the rise

eSports are organized competitive multiplayer video games, played by professionals and viewed by spectators through live streaming.¹⁹ eSports have transitioned from an underground movement to mainstream pop culture over the past decade. In 2021, the global eSports market was valued at just over USD \$1.08 billion, an almost 50% increase from the previous year.²⁰ Experts estimate that by 2024 the total audience for eSports will surpass 570 million people.²¹ Professional players and Twitch streamers, filming themselves playing live in front of millions of fans, have brought the gaming chair to mainstream crowds, starting from a very young age.

Work from home is here to stay

Remote work, home office, hybrid work, and telework are some of the terms used to describe settings where workers are not physically present in their employer's office or the customer of their services. The concept mainly works for jobs and tasks that involve a large amount of screen work. Statistics on remote workers reveal that over 4.7 million people work remotely at least half the time in the United States. Globally, 16% of companies are fully remote, and about 62% of workers aged 22 to 65 claim to work remotely at least occasionally.²²

Remote work has proven to have several advantages for both employees and employers – with money saved on office space, and time saved on commute. Today, the advancement of digitalization and the shift to a more knowledge-based economy in many countries has made the option of remote work more realistic, and most companies are

embracing the remote work model fully or partially even after Covid-19 restrictions have been lifted.

Under these conditions, consumer demand for ergonomic furniture has soared. In the work-from-home era, facility managers no longer make furniture-buying decisions. Instead, consumers working from home can choose their own furniture suited to their own tastes and personal needs. With the hybrid home-office work model becoming popular, many firms are considering subsidizing office furniture for their employees working from home.

Health and wellness permeate every aspect of our lives

Covid-19 gave a much-needed boost to the wellness and self-care trend. Today's consumers lead an increasingly "wellness-oriented" lifestyle and are concerned with nutrition, fitness, stress, and their environment. Health-conscious consumers are concerned with the quality and health benefits associated with every aspect of the products they purchase and consume.

McKinsey estimates the value of the global wellness market at more than \$1.5 trillion, with an annual growth of 5 to 10 percent.²³ In addition, McKinsey's research unearthed that consumers' reported improvements in wellness levels have fallen behind their hopes and expectations. A rise in both consumer interest and purchasing power presents tremendous opportunities for companies, particularly as spending on personal wellness rebounds after stagnating or even declining during the Covid-19 crisis. At the same time, the wellness market is getting increasingly crowded, creating the need to be strategic about where and how companies compete.

McKinsey's research also revealed several consumer wellness-related trends that have been gaining momentum over time. Among those are the personalization of products and services that address physical and mental health needs, use of digital channels to make health-related purchases and receive services, and reliance on social media influencers for recommendations on health-related products and services. While consumer wellness-related trends are on the rise, experts point to the consequences of the pandemic, which promoted an unhealthy lifestyle and health problems. Social distancing and lockdowns created a new wave of consumers addicted to binge-watching, binge-gaming, unhealthy eating habits, and irregular exercise and workouts.

Back and neck issues

Back and neck pain is a common problem for many people, regardless of occupation. This is the most common type of pain among U.S. adults, with up to 70% experiencing neck pain that interferes with their daily activities during their lifetime.²⁴ Head and neck afflictions are also the sixth most costly condition in the United States. Health care costs and indirect costs for back pain exceed \$12 billion per year. Employers lose money when their employees suffer from various health problems and cannot work. U.S. companies lose around 83\$ million in workdays each year because of back pain.²⁵ Many studies show that poor workstation ergonomics increase the risk of musculoskeletal problems.²⁶ Correct sitting postures, in combination with proper movements throughout the day, can help mitigate those risks.²⁷ Experts recommend people set a timer to remind them to move every 15 to 30 minutes.

There are several ways to monitor people's postures. For example, wearable clothing or sensors are designed to attach to the body. Systems using wearable sensors or

intelligent clothing have several advantages. They are easily portable; the sensor is either part of the clothing or can be easily attached to the clothing and can even be placed directly on the skin. The sensors are located on the head and the neck, and the system reacts to incorrect head-neck positions with light vibrations. Several companies offer this solution. Their products range from adhesive strips to necklaces to smart clothing.²⁸ Other solutions include fitness apps specifically designed to target the back and the neck and to correct the user's posture. However, so far wearable clothing and sensors have not gained much attraction in the marketplace, and some consumers find them uncomfortable or unfashionable.

Smart homes and IOT furniture

In 2020, there were about 11.7 billion people connected to IoT (Internet of Things) devices, and this number is estimated to grow to 30.9 billion by 2025.²⁹ IoT home automation offers the ability to control domestic appliances by electronically controlled, internet-connected systems. Connected devices in a smart home allow the user to remotely control functions such as security access to the home, temperature, lighting, and the home theatre. It has become a major trend in recent years, with home appliances and furniture being equipped with wi-fi connections.³⁰

Smart home innovations, specifically for home offices, have garnered growing attention and continue to evolve as companies switch to hybrid or permanent work from home. Tech innovations from noise-canceling windows to video filters that hide the messy living room background in video calls are just the beginning of the potential for growth in this field.

As the smart revolution matures beyond its conceptual stage, the furniture industry is beginning to emerge within the IoT market. The global market for smart furniture was valued at USD \$143.6 million in 2020 and is anticipated to expand at a CAGR of 12.4% from 2021 to 2028, according to a new report by Grand View Research.³¹ The IoT offers home furniture and appliances that have physical components combined with digital capabilities, which open many opportunities for value creation. Product designers are looking at connectivity as another differentiator beyond style, quality, or price.

While ergonomic chairs provide support for sitting, they do not collect data on users' sitting habits, are unable to forecast potential health problems, and do not correct sitting positions. Sensors that collect information about users' sitting habits and connect to software that aims to form healthier working habits can be a welcome innovation in this market. For example, by connecting a smart chair to an app, users are not only reminded to sit better or stop their work and exercise, but they can also receive direct feedback from the chair's sensors on whether they are performing their exercises correctly. The chair and app can become personal health assistants and can even give healthcare professionals valuable information for monitoring follow-up care.

These trends and changes in lifestyle inspired Seatback's founders to envision their startup as a holistic solution rather than merely as a technologically advanced ergonomic chair. Seatback has invested in both designing a smart chair with sophisticated sensors and in crafting an accompanying app that interacts with the chair.

Seatback Chair and Seatback+ App

At the beginning of Seatback's chair development process, different options for gathering data on users' sitting habits were considered. These options were either camera-based technologies or sensor-based technologies. The camera-based technologies seemed simpler and cheaper because Seatback would only need to develop the SaaS software without investing in hardware development. Data for the app would come from the users' computers or smartphone cameras. However, this option was taken off the table quite quickly due to privacy concerns. No employee wants to be monitored by a camera during their entire working hours. While the decision to focus on sensor-based technology solutions was rather straightforward, choosing which sensor to use was more challenging. The company consulted with MIT experts in electronics and motion sensors when considering the different weight and motion sensors in the market and assessing them based on four parameters: availability, stability, affordability, and scalability. The manufacturing cost of the Seatback system was estimated at \$10-\$15. This was regarded as a relatively small additional cost, given that the manufacturing costs of office chairs ranged between \$100 and \$1,500 in an industry of 20%-30% retail margins.

There was only one company that offered a somewhat competitive solution: Netherlands-based chair manufacturer BMA Ergonomics. Its Axia smart chair has motion sensors that monitor the quality of the sitting posture. When the sensors indicate poor posture for a long period of time, the user receives feedback through a vibration signal under the chair. Similar to Seatback, BMA Ergonomics also had an app that provided users with reports on the quality of their sitting habits; however, its app did not include recommendations for changing sitting posture, standing, or exercising. By 2021 only 1,000

users had downloaded the BMA Ergonomics app. The chair, while looking very stylish and high-end, did not seem to justify its high price (between €50 and €1000) and showed sluggish growth.³²

Although there were other options – such as Upright’s wearable training device, worn on a person's upper or lower back to correct posture – it was quite clear to Or and Sigal that wearable devices would not offer a full solution. The marketplace needed an ergonomic chair that was able identify unhealthy sitting behaviors and provide each user with specific recommendations for behavioral change that could prevent health problems. Seatback’s vision was to provide a holistic wellness solution that encourages and motivates people to reach their health goals by tracking their sitting habits.

The company invested in developing an advanced Seatback+ app that has undergone several development phases and modifications. The Seatback chair and app provide users with live, real-time reports on their sitting behavior; live personalized biofeedback recommendations; personalized health-related content; and a personal health program. The app gives users live feedback on the quality of their sitting postures, allowing them to monitor how long they have been sitting and in which postures. Additionally, it sends pop-up messages with on-the-go recommendations such as modifying the chair features, changing sitting posture, stretching, doing sitting exercises, or standing and walking. Each user receives personalized, enriching content such as videos with yoga and Pilates exercises and office exercises, dietary recommendations, recipes, health-related articles, blogs, and posts.

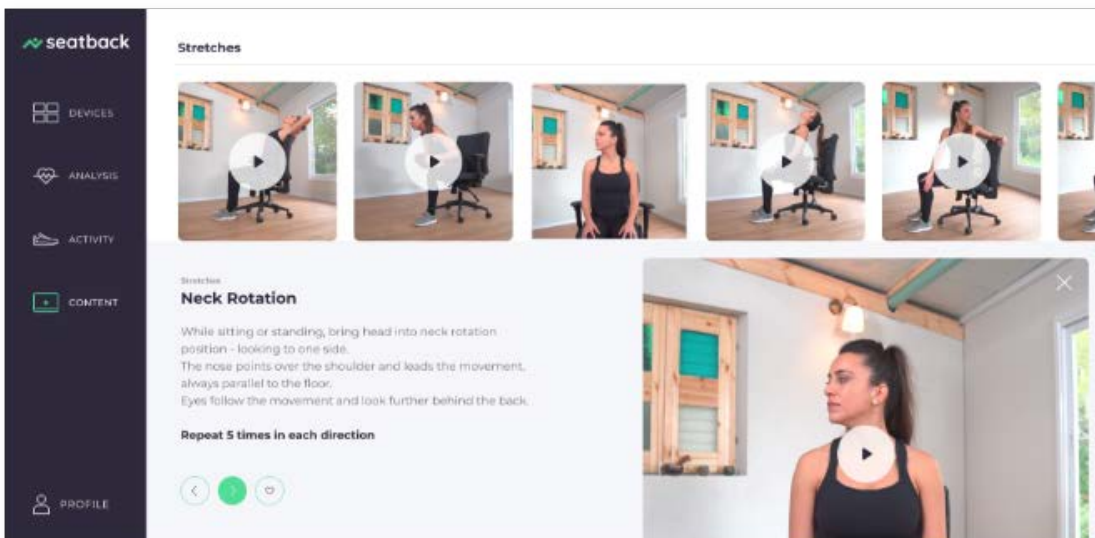
While the internet is loaded with similar content from Vloggers, YouTubers, and social media influencers on Instagram and TikTok, Seatback+ offers content that is tailored

to each user's needs and constantly adjusts the recommended content according to the data gathered by the app. Highly engaged users can also set a health goal, and the app will build a health plan, monitor progress, and provide incentives for attaining the goal.

Figure 2: Seatback+ Biofeedback



Figure 3: Seatback+ Recommendations



The Managerial Challenge

In the post-pandemic world, people and industries have changed. Yet, there is great uncertainty about how these changes will shape the future. Seatback must decide how to leverage its business from a startup venture to a solid, profitable, high-scalability company. Seatback's founders must consider all aspects of their business and make important decisions. Specifically, how should Seatback position itself in the marketplace? Is Seatback an upgraded office chair or a sophisticated gaming chair? Who should it target: the B2B or B2C market? Should it target Professionals working from home? Adult gamers? Kids? What should the company base its value proposition on? Should it be based on its unique and sophisticated sensor-equipped chair or on its personalized biofeedback app? Can Seatback offer a holistic wellness ecosystem, and what platforms would support it? How should it plan a pricing strategy to scale up and support sales while maintaining the perception of quality? What should be Seatback's distribution infrastructure? Should it invest in an advanced direct marketing eCommerce store, or should it collaborate with an international offline or online retailer?

Exhibit 1: Global Office Chair Market Value Share by Application, 2017 (%)¹⁰

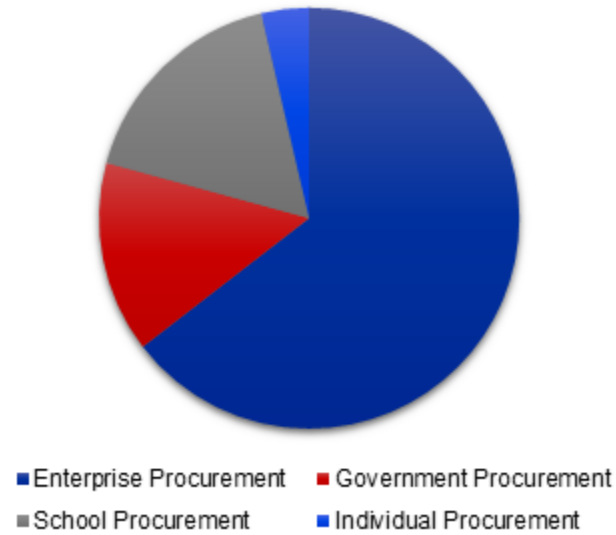


Exhibit 2: eSports audience size (in millions) and market revenue (in million U.S. dollars) worldwide from 2019 to 2024²¹

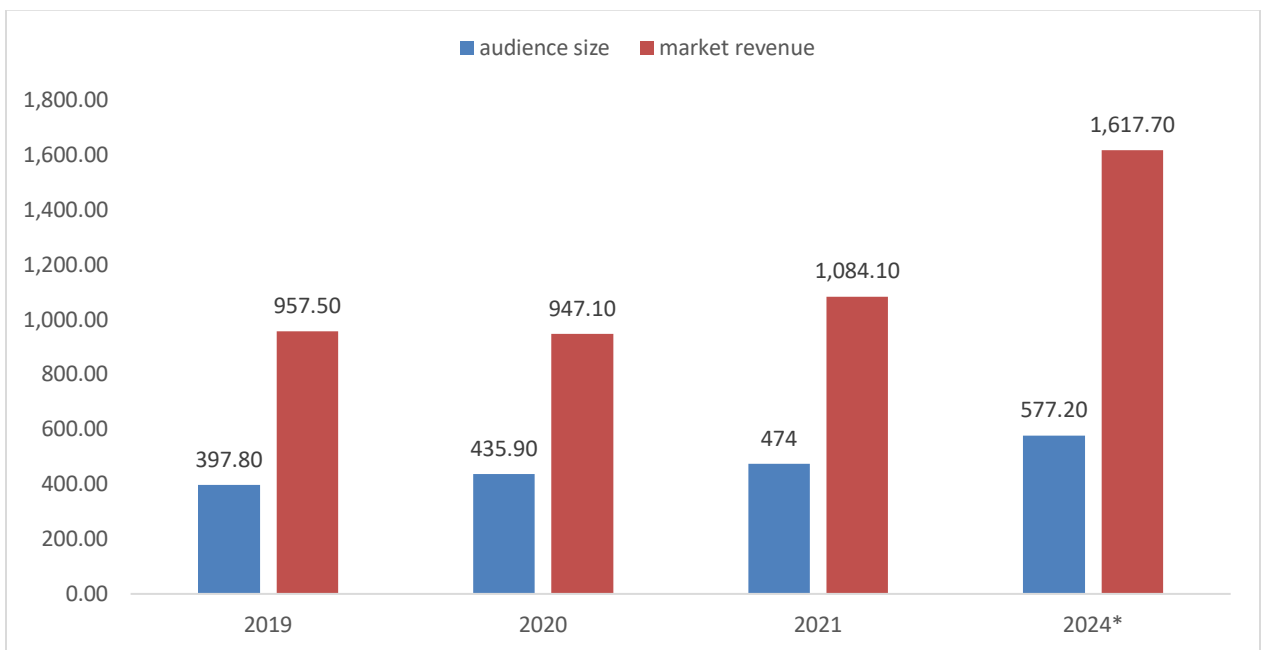
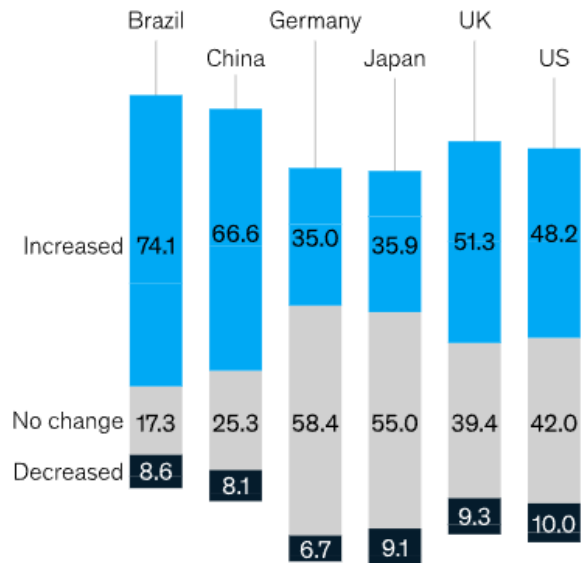
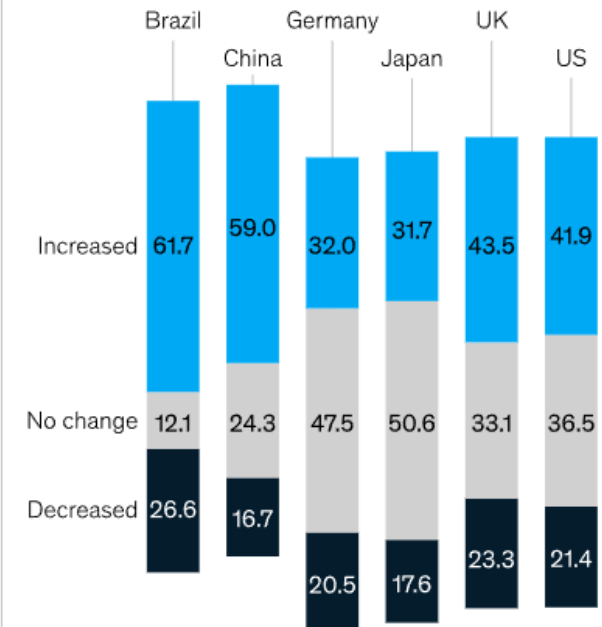


Exhibit 3: Wellness prioritization according to McKinsey & Company’s Future of Wellness Survey 2020²³

Change in wellness prioritization compared with 2–3 years ago,¹ % of respondents



Change in overall wellness level compared with 2–3 years ago,² % of respondents



¹Question: Thinking about how you prioritize wellness, how has your prioritization of wellness changed compared to 2–3 years ago?

²Question: How has your overall level of wellness changed compared to 2–3 years ago?

Source: McKinsey Future of Wellness Survey, August 2020; Brazil, n = 1,374; China, n = 1,311; Germany, n = 1,283; Japan, n = 1,109; UK, n = 1,277; US, n = 1,319

Exhibit 4: Leading office furniture companies worldwide in 2020, by revenue (in billion U.S. dollars)³¹

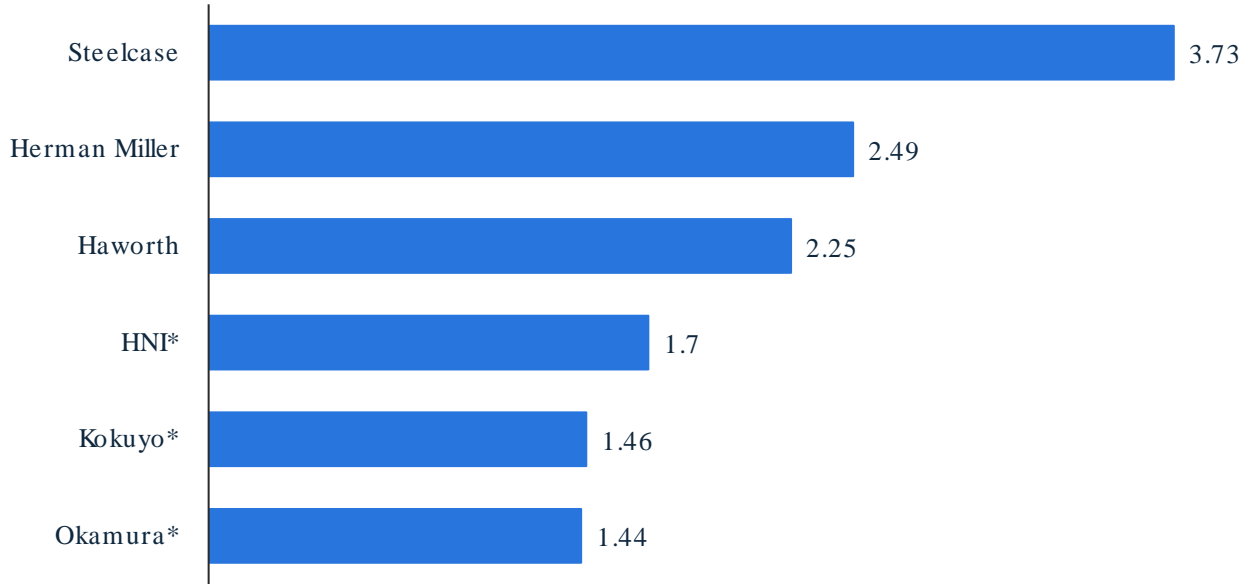


Exhibit 5: Share of people with low back pain in selected European countries in 2019³³

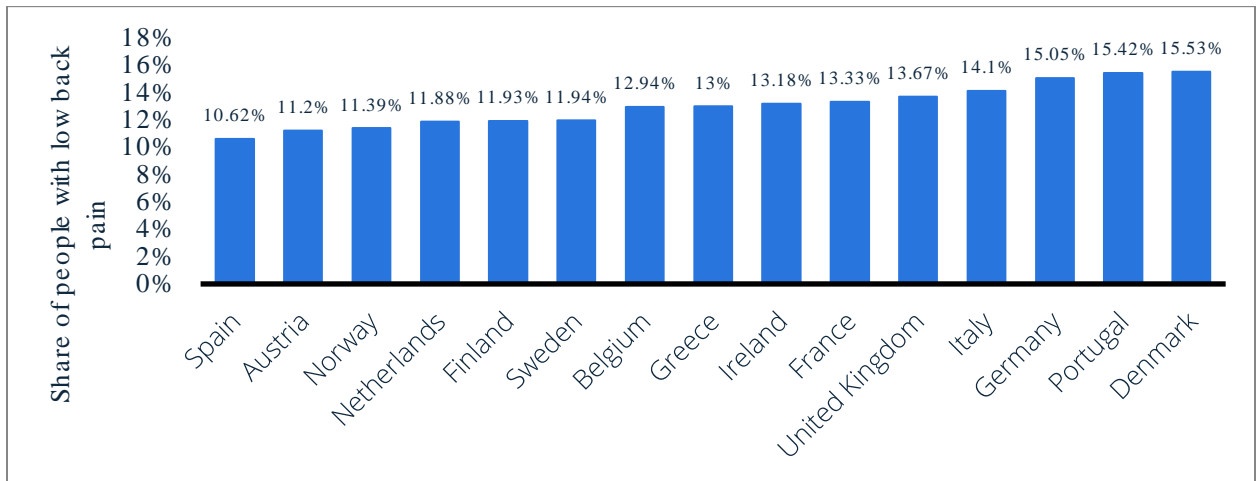


Exhibit 6: Percentage of adults in the United States who experienced back pain in the past 3 months as of 2019, by age³⁴

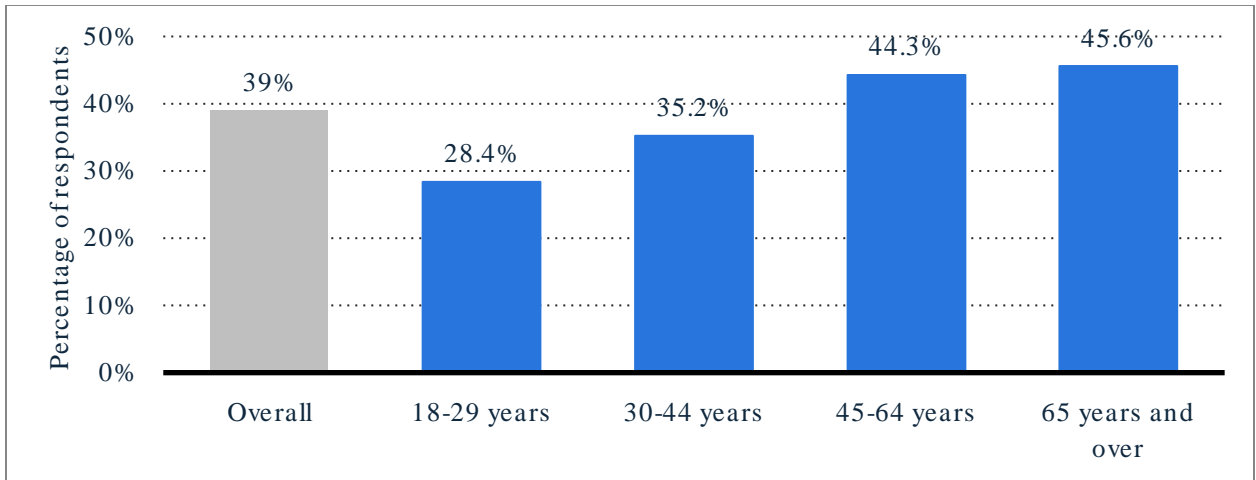


Exhibit 7: The Aeron office chair by Herman Miller



Exhibit 8: The Leap chair by Steelcase



Exhibit 9: DXRacer original gaming chair



Exhibit 10: IKEA gaming chairs



Exhibit 11: The Embody Gaming chair by Herman Miller and Logitech G



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Exhibit 12: Axia 2.0 Office Chair by BMA Ergonomics



Exhibit 13: European B2B Market Representative Dataset

To estimate the European B2B market, Seatback purchased a representative dataset of 100 European companies. The data include the following information:

EIN = Employer Identification Number

Size = Number of employees

Net income = Net income per employee (Profitability proxy)

Zip code = Geographic location

Year = The year the company was founded

CSP = Current office furniture supplier (Competition proxy)

GDPR* consent = General Data Protection Regulation

*Agreement to receive marketing offers (Customer loyalty proxy).

Based on the dataset, consider the following questions:

1. How many segments does the B2B European marketplace have?
2. Which segment is the largest?
3. Which segment seems most profitable?
4. Who are the main competitors in each segment?
5. What is the “customer loyalty” of each segment to each competitor?
6. Which segment should be targeted based both on potential profitability and penetration risks?

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EIN	size	NetIncome (\$M)	zipcode	year founded	GDPR concent	CSP
40-2478089	51-200	873	16130	1999	yes	CompanyB
80-8016554	11-50	325	62802	2005	no	CompanyA
72-8973958	1-10	72	38721	2008	no	CompanyB
87-4848778	11-50	350	12348	1999	yes	CompanyA
39-8660371	1-10	61	30696	2007	yes	CompanyA
99-1486244	51-200	1766	26787	2001	no	None
54-8926972	11-50	401	72769	2004	no	CompanyA
32-8867759	1-10	96	37073	2009	yes	CompanyA
34-7051927	51-200	2875	27785	2004	no	CompanyA
97-3049052	1-10	88	58007	2016	yes	CompanyC
98-5372693	11-50	586	65259	2013	yes	CompanyA
51-9422436	11-50	593	77448	2007	yes	CompanyB
27-3872085	1-10	74	12424	1999	yes	CompanyC
56-3424876	1-10	51	77962	2020	no	None
73-3801975	1-10	22	73804	2004	no	None
72-4149437	11-50	515	95929	1997	no	None
51-9515148	51-200	3039	45380	2009	yes	None
14-0975529	11-50	488	93334	2005	yes	None
25-1235440	1-10	96	60669	2019	no	CompanyA
21-1145729	51-200	1564	84868	2005	yes	CompanyB
34-2042019	11-50	291	79238	2018	no	CompanyC
30-0853563	11-50	301	62725	2002	no	None
84-1795502	11-50	390	63724	2013	no	None
93-2843538	1-10	137	88492	1996	no	CompanyB
64-0938307	51-200	2977	84298	2008	yes	CompanyC
75-6581095	1-10	61	24259	2000	no	None
95-4560705	11-50	515	50974	2012	no	CompanyA
94-2587243	51-200	391	17407	2001	yes	None
34-6159681	51-200	1506	85909	1997	yes	None
74-2430574	1-10	48	17236	1997	no	None
64-4986274	51-200	2200	56245	2001	yes	CompanyA
60-7019555	11-50	162	87804	2001	no	CompanyB
31-2590862	11-50	678	23835	2019	yes	CompanyA
59-5367040	51-200	3098	73146	2016	yes	CompanyA
99-1013705	11-50	442	67396	1999	no	CompanyA
46-6356930	51-200	1948	32222	2009	yes	CompanyA
18-1834572	11-50	258	63417	2006	yes	CompanyA
43-5354755	201-1000	4617	54831	2013	yes	CompanyA
87-6177679	11-50	652	69565	2011	yes	CompanyA

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54-3563157	11-50	33	46991	2002	no	CompanyA
25-1157152	1-10	66	54435	1995	yes	CompanyA
83-5570726	1-10	66	12228	2002	no	CompanyA
44-5844016	1-10	69	26915	2009	yes	CompanyB
37-6409770	1-10	79	96279	2011	no	CompanyB
22-9906476	51-200	1235	87411	2013	no	CompanyB
42-5887986	51-200	2669	94699	2010	yes	CompanyB
25-3428204	1-10	98	68591	1996	yes	CompanyB
21-1615097	201-1000	4672	77752	2000	no	CompanyB
67-9676225	1-10	80	55721	2016	no	CompanyB
23-8231189	1-10	105	74230	2014	no	CompanyB
68-1376121	11-50	898	40123	2019	yes	CompanyB
77-4822536	51-200	2367	50955	2010	no	CompanyB
22-9410151	11-50	444	34055	2005	yes	CompanyC
86-7855603	1-10	80	88863	1995	no	CompanyC
83-7452537	1-10	76	29944	2016	no	CompanyC
12-7085535	11-50	567	88375	2000	no	CompanyC
85-6235540	11-50	399	10682	2017	no	CompanyC
44-1326653	11-50	419	85190	2013	no	None
58-8797986	201-1000	9348	17224	2019	no	None
34-0191893	51-200	1730	47967	2009	yes	None
45-0642751	11-50	861	37919	2018	no	None
31-9102168	1-10	70	28426	2018	no	None
88-3414207	11-50	520	75127	2016	no	None
81-0179716	11-50	460	37000	2009	yes	None
81-2199351	51-200	2500	90033	1995	yes	None
42-1767031	1-10	82	13136	1998	no	None
83-2533919	11-50	429	74711	2007	no	None
29-3489267	11-50	622	87378	2013	no	None
23-8703181	201-1000	3982	45909	2013	no	None
25-8431733	1-10	112	39276	2002	no	None
33-1509110	11-50	877	67070	1998	no	None
84-6401614	11-50	608	89868	2011	yes	CompanyA
56-4026663	51-200	2262	32812	2012	yes	CompanyA
27-4179058	51-200	1263	61183	2010	yes	CompanyA
97-0256101	201-1000	12712	16431	2000	no	CompanyA
45-1800725	11-50	532	28066	2015	no	CompanyA
36-4806258	1-10	82	15872	2001	yes	CompanyB
69-6614626	11-50	273	89868	2000	yes	CompanyB
12-0780470	1-10	62	73433	2020	no	CompanyB
31-7148759	11-50	298	91713	2003	yes	CompanyB

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99-0062928	201-1000	12228	15102	2005	yes	CompanyB
90-9895939	201-1000	8610	41226	2000	yes	CompanyC
88-5593431	201-1000	6377	66590	2018	no	CompanyC
90-0183739	201-1000	7466	28870	2011	yes	CompanyC
50-0720232	11-50	532	76548	1996	yes	CompanyC
31-2106365	51-200	832	35922	2001	yes	CompanyC
81-8980437	1-10	72	74584	2018	no	None
10-2440522	1-10	57	86762	2020	yes	None
13-3434836	1-10	90	97293	1995	yes	None
51-6047243	51-200	1782	19164	2017	yes	None
26-3821898	11-50	330	90603	2017	yes	None
57-6660779	1-10	74	14082	1998	no	None
98-2190729	201-1000	12186	10922	2009	yes	None
32-1615392	51-200	997	28582	1997	yes	None
20-0383043	11-50	339	33539	1998	yes	None
85-0732576	1-10	53	69657	2014	yes	None
89-4211698	11-50	439	36022	2001	no	None
93-7519036	11-50	493	90346	1995	no	None
97-1489269	11-50	444	55777	2009	yes	None
91-2327615	11-50	604	25701	1997	yes	None

(Note: These data are fictitious and for academic purposes only.)

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