

Empowering people to live their fullest lives

Backing the next generation of companies advancing human health

2023



In 2018, when we made our first investment into a company called Future, we didn't yet grasp how much the mission of that company, and the movement it exists in, would be central to our careers in venture.

During the diligence process, we started to formulate ideas of human health and how to help people change their habits. We reflected upon the health of our households and extended kin networks, and how they differ to our former classmates at Princeton.

This first investment led to others in the space and became the central thematic focus of our fund.





When we first solidified our identity as a Human Performance-focused fund, we sought to develop a clear theory of the next phase of human health—one rooted in our comprehension of a wide set of social, cultural, regulatory, economic, and commercial developments.

As a thematic fund, we wanted to share and articulate our understanding, and raise our voices on behalf of the founders and engineers building the next generation of companies that will advance human health.



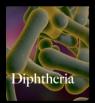
We often operate from a perspective that the world as we see it now always was. We have short lives, and even shorter memories. The system of industrialized healthcare that we now enjoy is relatively new. We've pushed forward the boundaries of science past our imaginations, commercialized and distributed countless life-saving therapies, and created access to care that was unprecedented in human history.

Our modern healthcare system was built in the last 80 years—well within the memory of people living today. The technological underpinnings of our modern healthcare: antibiotics (1928), medical imaging (X-Ray-1895, Ultrasound-1955, MRI-1973), and vaccines (Influenza-1945, Hep B-1972, 1961-MMR), have saved tens of millions of lives and doubled the average life expectancy— a feat without precedence in human history.

No longer do those with access to care in industrialized countries die of diseases borne of poverty such as cholera, diphtheria, whooping cough and tuberculosis. Others, like smallpox and polio, have been almost, if not entirely, eradicated.









>< PAYLOAD

Recent technologies discovered through development-by-accumulation: mRNA vaccines (the first new type of vaccine since Smallpox-1798), genetic testing and engineering, the biotechnology revolution, and stem cell research, represent some of the most promising future technologies that will further advance the bounds of science.

It is our belief that, when we look back, we will recognize *that* healthcare system as the predecessor to an entirely new social paradigm and technological architecture around human health.

A convergence of technological, social, and cultural factors have led to this moment, which represents an epochal change in Western society's social understanding of what it means to be healthy. The reason is that the structures that we have built no longer address the problems that they were originally built for.

As our society became richer and industrialized, it created conditions that made us more healthy in some ways, but less healthy in others. While we have solved the diseases of poverty, we are beset by those of wealth. When looking at the statistics of how healthy people are, and the quality of their lives, we encountered two statistics that revealed the dimensions of the problem.

Firstly, for the first time in modern American history, life expectancy has decreased, caused by chronic, preventable disease, deaths of despair, and plague.



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Secondly, the vast majority of our healthcare system (80%) exists to manage, not heal chronic conditions, caused by some interplay between the individual and their environment.

80%

of our healthcare system exists to manage, not heal chronic conditions

>< PAYLOAD

Our healthcare system, built to deliver healthcare to the sick, is not structurally oriented towards reducing the incidence of sickness in the first place. Indeed, it is expensive, wasteful, difficult to access, and innovation-limiting.

The solution to this endemic problem will not be found in this healthcare system, or according to its logic, power structures, and commercial arrangements.

The most common suggested improvements: increasing access to small-molecule pharmaceuticals and large-molecule biologics (like Ozempic, in the case of obesity), employing government economic intervention to create, stabilize, and protect markets, shifting towards a "risk management" perspective when evaluating populations, and commercializing technology to scale healthcare delivery will help us "trim the margins," but ignores the underlying social crisis that is creating these outcomes.

The modern healthcare system is a part of a larger social and environmental system we have built that has made us sicker, more anxious, physically stagnant, and spiritually impoverished. What we are calling for along with many others is a fundamental reweaving of the social and environmental fabric to create more human flourishing—completely rethinking our social relationship with health and creating a new paradigm of our well-being.



>< PAYLOAD

Medicine is a social practice. We contextualize our understanding of health based on the social, cultural, and emotional learned signals. It was not written by Hippocrates that doctors must wear white; "an apple a day keeps the doctor away" is written in our hearts, not medical textbooks. As such, it must be understood as reflecting and co-evolving with our technological, economic, and cultural evolution. There's a saying that "Generals always fight the last war." The war of healthcare delivery has largely (although unevenly) been won.

A new paradigm must emerge to solve the problems of today, and not those of yesterday.



Our new paradigm: Human Performance

We invest in technologies that empower the individual to measure and optimize their health at minimum cost

We focus on







Our new paradigm, which we call human performance, begins with a radical idea: empowering individuals to manage their own health. It focuses on the basic elements of our health to create the conditions for flourishing: eating, moving, sleeping, managing stress, and community.

We invest in solutions that focus on health, not sickness, prevention instead of treatment, and habits, not interventions. This shift represents the great promise of the new paradigm of human health, driven by a human-centered ethic that educates consumers on how their choices affect their health, generates affirmative structures around them and in their communities, and creates a positive relationship with how they manage their health. As a paradigm, it serves equally as a conceptual framework, a social vision, and a descriptive tool for how our understanding of health will evolve in response to technology, biology, and history.



Human Performance rests upon three pillars:

1

The greatest focus in managing our own health should be on the fundamental constituent acts of living: eating, sleeping, moving, and managing stress.

2

Behavioral change is the goal of human performance companies and is the primary determinant if they will succeed or not. 3

Users must be empowered by personalized, relevant data to improve their wellbeing.

We invest in the products, services, platforms, and communities that enable people to live better and longer. We're less concerned with any particular business model relative to the problems these companies exist to solve:



Obesity



33%

of children

Co-morbidities include: coronary heart disease, stroke, type 2 diabetes, metabolic syndrome, cancer, sleep apnea, osteoarthritis, gallbladder disease, fatty liver disease, and pregnancy complications.

Cancer death due to overweight and obesity.



14% of men



20% of women



\$169 billion

In annual medical savings could potentially be saved if overweight and obesity problems were eliminated in the United States, and even modest caloric reductions (100 calories per day) across the population could save as much as \$58 billion in medical costs.



Sleeping

70mm More than 70mm Americans have a sleep disorder.



Sleep deficiency is linked to heart disease, kidney disease, high blood pressure, diabetes, stroke, obesity, and depression.



Moving

50%

of children

don't get enough physical activity.

Mere minutes of exercise in regular doses reduce anxiety and risk of heart disease, cancer, diabetes, and dementia.



Managing Stress

In 2019-2020



21% of adults

were experiencing a mental illness.





15% of adults had a substance use disorder in the past year. Of them, 94% did not receive any form of treatment.



Community

Social isolation significantly increased a person's risk of premature death from all causes, a risk that may rival those of smoking, obesity, and physical inactivity.



1 in 5 Americans experience loneliness, where they have limited meaningful interactions with others. (kaiser family foundation)



While these statistics are American, they are mirrored across the Anglosphere. We see similar trends in Canada, the UK, Australia, and New Zealand. The transnational nature of these trends illustrates that their causes are more fundamental than differences in between systems. This speaks to the broader need for a paradigm shift in human health.



The "wellness" movement, with a holistic approach towards health and an emphasis on the importance of social and environmental factors on health and well-being, represented the first competing paradigm of health in the Western world to modern medicine. Its idea of health as being constituted of various modalities: spiritual, physical, emotional, etc., created space for a more diverse and open cultural conversation around health.

Human performance, as an emerging sector, represents a commercial evolution within the wellness culture—one that shares its cultural space, but pursues different goals and leverages different methods (ie., growth and profit).

Accordingly, human performance is a more complete conceptual and commercial framework that can meaningfully represent a true antithesis to the traditional healthcare's orthodoxy and orthopraxy.

> IGNITION

The trends converging are:



Globalization is creating new integrations of cultural knowledge.

Cultural synthesis with the East, particularly India, has given us new epistemological frameworks for wellness- from mindfulness and meditation to yoga. Science as a social practice is built on top of culture, and different cultures approach truth from varying directions and validate conclusions in different ways.

While the West is wedded to the peer-review process and the scientific method, we suffer from a crisis of replicability in our experiments. Diversity, as always, will challenge our norms, disrupt groupthink, and allow cultures to evolve more fully developed understandings of truth.

South Asian founders are meaningfully over-represented in the wellness sectors and in our portfolio, and we are better for it.





The revolution in artificial intelligence will enable consumer health companies to deliver products and services that are currently difficult to imagine.

With the internet of things (wearables and embedded sensors), we can collect an expansive quantity of personalized data, allowing us to proactively identify and mitigate threats to health and reduce costs.

As we get more comfortable interacting with technology, artificial intelligence will become a health coach—one that inhabits our biometric data, discovers our internal drivers, and communicates on our behalf with our health professionals.

Cutting-edge innovation developed for the world's best athletes and for the 20% of Americans that heavily invest in their health will enable companies to prove the commercial viability for wide market adoption.

> IGNITION



We can't understate the degree to which a humanperformance centered vision of health is a competing system to traditional healthcare.

The social relationship between a doctor and a patient is incredibly different from the relationship consumers have with companies. In a traditional healthcare setting, your data privacy is protected under law. In the other, you become a broker of your own data, selling it in return for what could very well constitute your entire healthcare.

They could exist in radically different regulatory structures, reflecting completely divergent legal norms. Our society has grown comfortable, in certain ways, with the tech companies behind our favorite products. Their approach in the health sector will reflect their core businesses as they compete to win against the traditional healthcare system, rather than emulate it.



We are, after all, talking about 20% of the economy.

In technological circles, we often talk about "an iPhone moment," when an innovation arrives that fundamentally changes everything. When the iPhone gained sufficient adoption, it became a platform in and of itself.

On that platform, trillions of dollars of economic activity was built, in the form of now-indispensable products and services that are smartphone or tech-enabled. We are in another iPhone moment with the emergence of health-focused wearables.

Wearables, most notably the Apple Watch and the Oura Ring, will be the platforms upon which the new healthcare system will be built, a belief that Tim Cook advances when he says "Health will be Apple's longest lasting contribution to humanity." Gould, in the field of evolution, taught us about *punctuated equilibriums*: the observation that there are intermittent episodes of rapid speciation. Intermittent bursts of frenetic energy will spark lines of inquiry as varied as the problems they attempt to solve, and the segments in the market that they grow to inhabit.



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Internally, we categorize companies within human performance in terms of problem sets, technologies, and models. We evaluate the companies we're considering adding to our portfolio based on the problem they are solving within the core modalities of eating, sleeping, moving, and stress.

We try to understand why this particular solution is one that will empower the consumer to positively adjust their behavior, and compare different theories of the case with each other. We assess the dynamism of the underlying technology.

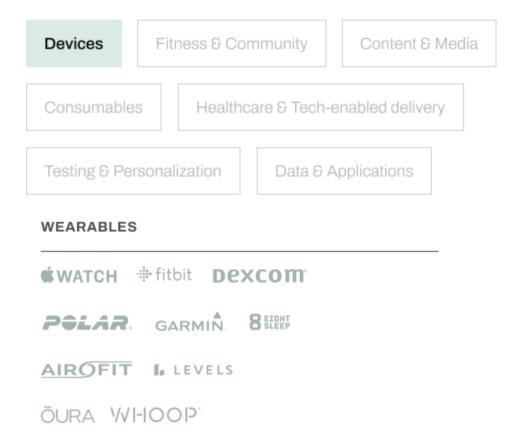
Recognizing that health has dimensions, we sometimes define companies as being related to specific modalities. However, as habits are connected to one another, we usually think it's more helpful to classify on the type of interaction that the company is having with the user.



We'll highlight some of the market segments below.

HP MARKET SEGMENT EXAMPLES

Explore players in key market segments:



Wearables: Wearables are devices that use various types of sensors to record the rhythms of our health. They create personal datasets that enable the user to understand aspects of their daily functions. We evaluate wearables on four bases: what variables they measure, how sensitively they measure it, the presentation of the data to the user, and the utility of that knowledge. That data is the foundational element of the new commercial arrangement we'll be able to make.

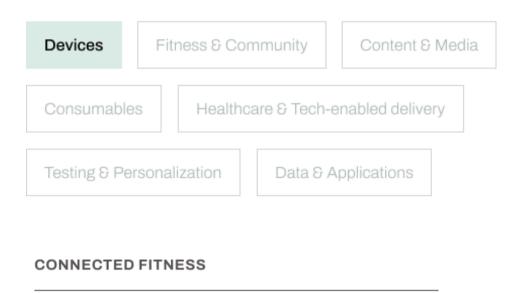
Note: the above market map is illustrative and is far from a complete representation of the Human Performance ecosystem.



Devices continued.

HP MARKET SEGMENT EXAMPLES

Explore players in key market segments:





4TEMPO @ ECHELON

NordicTrack

Connected Fitness: Connected fitness refers to a group of products that were the first widely distributed, internetenabled fitness machines. Companies like Peloton, Tonal, and Mirror created brands around sleek machines, often more technologically advanced than machines available in gyms, and sold them directly to consumers.

Note: the above market map is illustrative and is far from a complete representation of the Human Performance ecosystem.



The founders of these companies argued that they could incorporate several business models used by technology companies to sell a hardware product.

Specifically, they believed that a DTC model would enable them to skip the middle layer and sell directly to customers for increased profitability and customer relationship (like Casper, for instance).

These companies were beset by persistent supply chain problems, both in terms of delivering machines and accurately forecasting demand. Additionally, they implemented a subscription model to build revenue streams similar to other tech companies, arguing for valuations on the basis of recurring revenue (we believed that it would be difficult to convince the average consumer to buy a machine over \$1k and also try and also charge them \$15 a month).

Finally, by leveraging brand, they argued that they could create a unique relationship with the consumer (they miscalculated, both in terms of their ability to establish a brand and the messaging itself). When connected fitness devices have a relationship with their consumer that creates habitual change or generates a proprietary dataset, they will more resemble tech companies in the impact technology can have on humans.



Explore players in key market segments:

Devices

Fitness & Community

Content & Media

Consumables

Healthcare & Tech-enabled delivery

Testing & Personalization

Data & Applications

EQUINGX









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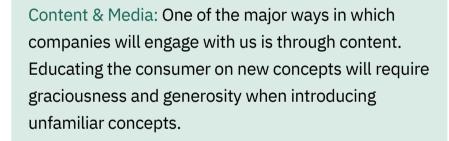
Healthcare & Tech-enabled delivery

Testing & Personalization

Data & Applications









Through content, consumers will be educated and motivated to address their health in ways that both reflect ancient wisdom and modern technologies and practices.



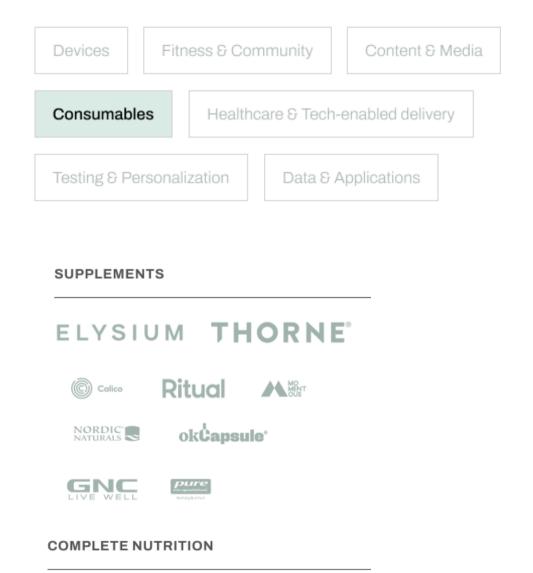
Artificial intelligence and machine learning can be leveraged to show consumers positive content that they particularly respond to—not unlike what Tik Tok does.



This technology, when employed well, will create ways of delivering content that's increasingly relevant to us to make positive choices.



Explore players in key market segments:



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representation of the Human Performance ecosystem.

soylent

AthleticGreens

KA'CHAVA'

Huel[®]



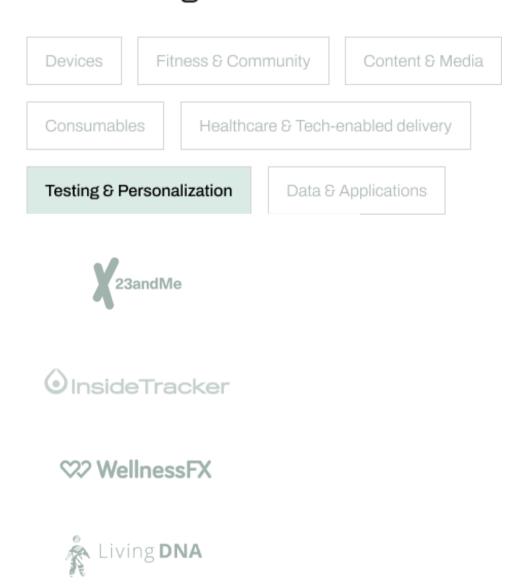
Explore players in key market segments:

Devices Fitness & Community	Content & Media
Consumables Healthcare & Tech-enabled delivery	
Testing & Personalization Data &	Applications
MEDICINE	
Oak St. Health Bright HealthCare JUNO one medical	
FOOD	
modifyhealth. SEASON ♣ faeth ¶ foodsmart	
MENTAL HEALTH	
betterhelp O TELADOC. talk space Modern Health Lyra	

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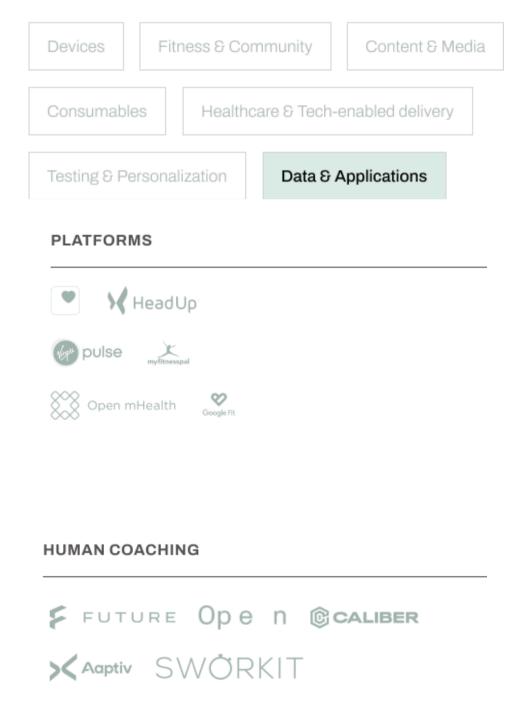
Explore players in key market segments:







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Case Study



TXV Portfolio Company

Oura is an SF-based health and technology company that produces wearables and mobile health monitoring technology. One of the most advanced wearables on the market, the Oura Ring contains sensors that measure a wide range of body metrics associated with fitness, sleep, and recovery. The Oura Ring measures body temperature, blood oxygen levels, heart rate, heart rate variability, and respiratory rate to determine which stage you're in at any given moment while you sleep — and how long you spend in that stage before transitioning to the next. By tracking the quality and quantity of your sleep and activity throughout the day, Oura provides actionable insights to drive sleep quality.

Lack of sleep is one of the most under-discussed factors in the human performance conversation. According to the National Library of Medicine, 50 to 70 million Americans suffer from a disorder of sleep and wakefulness, hindering daily functioning and adversely affecting health and longevity. Sleep loss is oftentimes overlooked. Everyone knows we are a bit "off" without the proper amount of rest, but few know that the effects of poor sleep can impact more physiological factors. Chronic sleep loss has been attributed to health issues such as an increased risk of hypertension, diabetes, obesity, heart attack, and stroke.



Case Study



TXV Portfolio Company

Levels is a metabolic health company that educates and empowers consumers to understand and address their metabolic health. Levels produces a sensor that attaches to the back of a person's arm, and via a tiny probe that inserts under the surface of their skin, continuously measures a person's glucose. That data is accessible via a smartphone app, and provides real-time feedback on how diet and lifestyle choices impact your metabolic health.

Metabolic health describes how well our body produces and uses energy. The West is in an undiagnosed crisis in metabolic health, as 92% of us have some level of metabolic dysfunction. Metabolic health sits at the center of many bodily processes and is starting to be understood as having a wide-ranging effect on health. Every one of the trillions of cells in our bodies is a small powerplant that converts fuel (usually glucose or fat) to energy the body can use (typically ATP).

When our cells cannot run those processes efficiently, it can lead to any number of conditions depending on what cells are suffering. In the brain, poor metabolic health can contribute to decreased mental acuity (brain fog), anxiety, or Alzheimer's. In the blood vessels, it can contribute to microvascular disease (like erectile dysfunction and retinopathy, and kidney disease) and cardiovascular disease (like heart attacks and strokes). In the liver, non-alcoholic fatty liver disease. In many cells: cancer, which is linked to poor metabolic health. Metabolic dysfunction can even lead to obesity by interfering with our body's fat storage and burning capabilities. Books like The Mind Gut Connection and others have started to increase cultural awareness of this space in ways that will redefine how we understand our natural functions.



Coaching: Tech-enabled wellness platforms are now leveraging technology to disintermediate training and coaching, enabling a level of personalization and attention that could only be compared with in-person direct attention.

In the words of one of our founders, "We already know what works to keep people healthy, because we know that the healthiest people in the world, athletes, are surrounded by coaches."

Tech-enabled wellness platforms are now leveraging technology to disintermediate training and coaching, enabling a level of personalization and attention that could only be compared with in-person direct attention.

Wearables, in particular, have also allowed coaches to gather data and track progress in real-time, enabling them personalize their interactions by tailoring plans, driving accountability, or offering support. Coaching, enabled by different forms of trackers, can be tailored to the specific modality that the user is addressing: fitness, sleep, meditation, or nutrition, among others.

> LAUNCH

Case Study



TXV Portfolio Company

Ladder a mobile platform to enhance your fitness through expertise. Ladder's combination of community, expertise, and guided workouts closes the gap for those who know how to workout, but are in need of a real program and community. Ladder's platform allows you to join a guided, structured workout with music, while seeing demonstrations of form and keeping pace on your screen. Within the platform, you encounter a community of people that encourage you as you go along and are following the same program as you. Ladder has created a fitness experience that brings entire communities of people together to lift each other up toward healthier lives.

"People want more than just a good workout," says Ladder CEO Greg Stewart. "They are looking for expert guidance, motivational support, personalization, and they expect a world-class, tech-driven experience. This is exactly what we are delivering." They've leveraged their data to find the right coaches in the right modalities for the right customers, creating a flywheel of dedicated users through understanding and providing them the right type of expertise.

Tech-enabled Healthcare Delivery: Primary care doctors will always be the first line of contact with the healthcare system for any consumer, in particular for families with young children.



Case Study Cont.



TXV Portfolio Company

As the traditional healthcare sector co-evolves and interacts with the emerging consumer health tech sector, they'll be able to adopt technology that will drive their ability to increase responsiveness and deliver more care. Tech- enabled primary care leverages telemedicine, electronic health records, health apps, wearables, and other digital tools to provide patients with a more seamless and personalized healthcare experience.

Through tech-enabled primary care, patients can easily connect with their healthcare providers, access their medical records, and receive virtual consultations from the comfort of their own homes. Moreover, digital health tools can be used to monitor patients' health and wellbeing remotely, enabling healthcare providers to detect and intervene early in case of health issues. By providing more convenient and accessible care, tech-enabled primary care can improve health outcomes, reduce costs, and increase patient satisfaction.

As the government begins to change the ways that they qualify how care is delivered, tech-enabled healthcare providers stand to benefit from the new openness to innovating care delivery models.

Spurred by policy changes initiated by Washington and the states, value-based care models, in which companies are compensated on their impact on health outcomes rather than how much care they deliver, are emerging to compete within the traditional healthcare system. Such an approach allows for unprecedented openness in care delivery, and will create the conditions for experimentation of healthcare delivery.

> LAUNCH

Case Study



Juno Medical is building the next iteration of digitally-enabled primary care that is purpose-built for the whole family. Juno's inclusive, comprehensive care services provide a one-stop solution for patients and their families' day-to-day care needs. The company's hybrid clinics feature exceptional hospitality, modern technology, and transparent prices that won't break the bank. Juno specializes in delivering care in neighborhoods that have been traditionally denied equitable healthcare access, such as Harlem, Brooklyn, Inglewood (Los Angeles), Greenwood District (Tulsa), and Reynoldstown (Atlanta).

Juno can tap into new and growing markets, which can help drive revenue growth and market expansion. By identifying and serving the needs of underserved communities, Juno's strategy can gain a competitive advantage through innovative practices and develop brand loyalty. For companies with the social mission of Juno, there are increased gains to be had through cost savings through preventative

care measures by developing a positive social relationship with their consumers. Providing regular and timely access to healthcare services can help prevent the development of more severe and costly health conditions, reducing healthcare costs in the long run.



In the coming years, we will undergo a paradigm shift in how we think about and manage our health, both on an individual and a collective level.

The Cambrian explosion of new ideas, ventures, and technologies will create a dynamic and lively sector where competition will be over how we can improve the health of consumers (or at least get them to buy a widget).

There's a lot of work to be done reweaving the social, environmental, and commercial fabrics to improve our living conditions. As such, we've identified four ways that reflect our understanding of the opportunities in the sector and what factors are most determinative of long-term success.



- 1. Health Outcomes: The central determinant of success in this sector will be whether the solution provided meaningfully identifies the problem set and offers a fit-for-purpose solution that results in a healthier consumer. As we have seen, goods and services can very rapidly create demand in this sector, but longevity will be determined by results. Healthy consumers will be created by healthy companies.
- 2. The social relationship with the consumer: One of the first questions that we ask companies is how they're considering the social relationship with the consumer. Health is immensely personal, extremely ingrained, and determined by the contexts in which we live. To break long-established patterns of human micro-behavior requires a company to have a clear moral vision, with a brand, persona, and engagement strategy that will create a positive relationship with the consumer. In many cases, the addressable market or the public at large needs to be introduced to a concept or a practice that is still emerging within our popular understanding. These can be both cultural (such as mindfulness) or scientific (metabolic health). Companies like Levels, which operates in public and is at the center of the social conversation around metabolic health, will create trust around both the problem *and* the solution through revolutionary transparency- the culture of interoperability, manifested in radical operational excellence.



3. Proprietary Datasets: As the variety of specific capabilities that we now call "artificial intelligence" are commercialized, companies will win or lose on their data quality, specialization and insights. Proprietary datasets will enable companies to generate more-effective, personalized interventions, increasing the stakes of competition. Network effects will ensure that advantages compound, both on an individual product level and an ecosystem level.

4. Technological Interoperability: To the extent that there exists some form of "Holy Grail" within consumer health, it is this: broad interoperability. All of the trends that we have identified above are driven by the creation, computation, and sharing of data between separate platforms. A series of technological, cultural, and regulatory shifts could pave the way for devices of all types to create a detailed, fully comprehensive model of your health. To do so, companies would not only need access to a wider variety of data inputs, but solve the technical problem of how devices across a variety of product segments would talk to each other. This information would then be shared with your medical provider to provide you with health strategies or health care delivery when you need it. The Al will anticipate your needs before you even do.



The future of human health will be built by the daring, delivered by the caring, with knowledge meant for sharing. We look forward to backing entrepreneurs with big dreams who are bent on solving bigger problems.

At TXV, we're focused on supporting the next generation of builders in this rapidly evolving industry. We bring to the table the first complete ecosystem geared specifically to building Human Performance companies.

First and foremost, our founders and advisors have built some of the most successful companies in this industry, such as Oura and Levels, and understand the unique operational challenges confronted in this space.

We have personal experience competing at a high-level and are building an ecosystem of advisors who are truly some of the best athletes in the world.

Last, we are a thematically-focused fund. We have a keen understanding of the human performance space and have evaluated a series of dynamic perspectives.

As a result, we have watched the best and are built towards disseminating that knowledge to scale companies.

If you are pursuing the same mission as we are, please reach out!

People-centered. Diverse Perspectives. Insightful Capital.



Apple Health: Empowering people to live a healthier day

One Medical joins Amazon

Amazon Care shutdown is a strategic decision

Google Health Strategy

Johns Hopkins: Mental Health Disorder Statistics

Harvard School of Public Health: Adult Obesity

CDC Statistics: Obesity data

The below are not explicitly referenced in the paper; however, their ideas are central to the overall concepts discussed throughout:

Dr. Peter Attia | The Drive & Outlive: The Science & Art of Longevity

Dr. Andrew Huberman | The Huberman Lab podcast

Dr. David Sinclair | Lifespan

Dr. Rhonda Patrick | FoundMyFitness

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