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RUMAL ENGAGE





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The Time is Now for Hardtech :



MARKET BEHAVIOR IN PREVIOUS CRISES FAVORS SENSIBLE BUSINESS GROWTH AND STABILITY, WHICH THRIVES IN THE MIDWEST. HARDTECH SECTORS WILL LEAD THE WAY.

The current economic realities triggered by the global pandemic of 2020 are not similar in nature to those of either the dot-com bubble or 2008 recession. We can still look to the economy's past reactions to forecast what is to come for the venture ecosystem now. In this time of crisis, the market will favor business sustainability over prospect potential.

Previous Economic Shocks and Investor Activity

Year over year for the past decade, venture investing continued to post record highs in dollars invested. In fact, before the COVID-19 pandemic, the U.S. saw a 62.4% growth, or \$52 billion, in venture capital deal value over the past 5 years alone and analysts projected these high figures to continue. After seeing such tremendous growth, it is difficult to comprehend such a shift as the downturn marked by COVID-19. But looking at history, we have seen this dramatic plunge before. It ultimately shapes investor behavior and unlocks new opportunities in previously un-explored or under-valued companies.

The notorious 2000 dot-com crash drove similar market behavior. The bubble excitement — fueled by a plethora of early-stage capital and interest surrounding growing internet companies — led to a record level of IPOs and influx of money due to the 1997 Asian financial crisis. This growth drastically changed the outlook for soft tech investors. In 1999, 39% of all venture investments went to internet companies, such as Amazon, eBay, pets.com, Napster, and Yahoo. The infusion of capital catapulted growth throughout the sector, as companies hit the public market at unprecedented pace.

Value (in billion U.S. dollars)

Between 2000 and 2002, that bubble burst and the market experienced a staggering 76.81% fall. Investors watched the once multi-billion-dollar companies they invested in drop to zero.

As a direct result, investor behavior took a stark turn. The links between high valuations and *prospect* of growth were quickly rewired to favor company *fundamentals*. Qualities like a solid business model, a plan for cash flow, clear product development roadmaps and market potential became the strongest considerations in the diligence process. Companies with these characteristics – like Apple, Samsung, Tesla, NVIDIA, Qualcomm, and Peloton – began to lead in investments.





26.0%

18.5%

20.2%

Deal volume recovered slowly and cautiously until the next major shock in the economy. In 2008 in the U.S., venture funding dropped 26% amid the first year of the Great Recession. But within two years, venture funding levels surpassed those prior to the recession. It should be noted, however, the recovery from the 2008 looked different for different areas across the U.S. The West Coast had been largely known for its high valuations and unicorn pre-revenue companies. But though it had been a market leader prior to 2008, it underperformed in both measures of deal value and deal count regarding year-over-year growth and recovery post-recession. Meanwhile, the Great Lakes and Midwest – which is largely known for a more conservative investing approach - vastly overperformed in the same regards. Average YoY Post 2008 Recession (2009-2012) **Deal Value** Region GL&M 26.2% West Coast 14.8% US Overall 16.4%

Deal Count

(Source - Pitchbook)

It was not until 2018 that U.S. venture capital funding reached in the volume seen in 2000, nearly 20 years after the bust of the dot-come bubble. But throughout the bumps in the economy, a new type of company gained attractiveness for investors: one built for sustainability, that leverages strong foundational business competencies.

History Repeats Itself: Today's Global Pandemic and Investor Trends

Throughout 2019, economists were warning of an impending recession. After 10 straight years of a bull market and the S&P 500 up by 400%, this level was unsustainable. As expected, 2020 brought a hit to the economy, but differently than most economists and investors could have predicted. There was no clear market failure or bubble burst this time. Instead, there will be a \$7.1 trillion dollar global GDP pothole that is exposing the fragility of the global economy. As in the past, things will recover. But this time, we expect there to be lessons learned, or more accurately re-learned, which will drive a different approach to investing: a pivot back to fundamentals. Some of the most promising startups have been built on years of consistent losses fueled by the promise of a lucrative exit (e.g. Uber, Lyft, WeWork, Peapod).

Typically, when markets dip, corporate debt increases and future earnings result in the flight of investors, particularly in volatile investments like startups. In past recessions, the market experienced significant reductions in IPOs and M&A activity for years afterwards. This leaves some investors either unsatisfied with highly



leveraged, and now risky, corporate stock or impatient with subsidizing the growth of startups with a delay in exit of 4-6 years. The good news is that innovative technology is well-positioned to address foundational issues this crisis exposed across various industries. Investors are primed to be rewarded, but it will not be through unicorns as it has been in the past. Alexandre Lazarow has it right in his piece "<u>The New Hot Startups Will Be Camels, Not Unicorns</u>": **'Camels', built to weather volatility but still deliver on the promise of high returns and cash-generating investments will be the next focus area for investors. The most promising sectors where these exist are at the nexus of hardtech and soft tech.**

Smart Manufacturing and Industrial Internet of Things (Expected 5yr Market Growth: 362%, \$709B)

Before the COVID-19 crisis, the Industrial Internet of Things (IIoT) began showing signs of the next big opportunity. Grand View Research projected in 2019 compounded annual growth rate (CAGR) of nearly 30% from 2016 – 2025 reaching a market size of nearly \$1 trillion. The challenges presented by the pandemic only strengthened the need for machine to machine communication, robotics, automation, equipment monitoring, edge computing, connected employees and other IIoT technology. The shortages of products across the country does not stop at Personal Protective Equipment (PPE). There has been a shortage of bikes, cameras, computer equipment, and countless other items. This is the case even while manufacturers have found ways to guickly return to their essential work. Other industries like finance, consulting, real estate, tech, and software have been able to shift to a work from home model without significant relative shifts in demand. Manufacturing, on the other hand, has experienced increased demand while having supply chain constraints and workforce limitations. Through this, it has become clear where the economic pain points exist. Manufacturers took a hit, not because of lack of work, but because of an inability to be nimble in an increasingly digital and remote economy. Manufacturers need to find ways to be more flexible to disruptions in global supply chains and nimbler to deliver quick solutions for local markets. IIoT innovation is positioned to deliver tremendous competitive value. It is no longer about efficiency in energy usage, lighting controls, and smart blinds/windows anymore. Manufacturers will need more; they need real business and market intelligence.

Other large opportunities reside in securing supply chain flexibility and enabling a nimbler workforce. Innovation around Cobots will have significant impact on the industry in the next 15 years. Performance management utilizing responsive artificial intelligence built on a foundation of hardware-based data collection solutions will position businesses to better analyze shifts in workforce fluctuations and supply chain constraints. New players will be created delivering IIoT platforms as a service. This will include integrations with Cobots, smart robots and existing equipment.

The promise of IIoT has never been more valuable or timely. Manufacturing is facing a convergence of three serious forces: an aging workforce, an increase in

natural disasters and other supply chain disrupters, and the availability of smart and adaptable equipment. The growth of this technology will fortify the U.S. Manufacturing base that our economy, and our lives, depend on.

Med Tech (Expected 5yr Market Growth: 248%, \$312B)

Seemingly one of the most obvious areas to start looking to invest is within the healthcare sector. Currently, healthcare represents 12% of the U.S. workforce and 17% of its overall spending (10% globally). These numbers are expected to grow with increased health consciousness and an aging population. Recent projections have predicted CAGR greater than 19% over the next 5 years for Internet of Things (IoT) technology in the healthcare market. In the past decade, we have seen advancement in digital health highlighted by the recent \$18.5B acquisition of Livongo, a hardtech enabled platform empowering people with chronic conditions to live better and healthier lives. COVID-19 is testing the foundations of the healthcare industry by affecting human and capital equipment resource availability. The shortage of PPE, ventilators, beds, and increased engagement from innovative problem solvers delivered quick solutions that were functional, but untested. This provided a unique window into the realities of the state of medical device innovation.

Medical technology has the highest barriers to entry compared to any other industry. Expensive tools and equipment are often needed to develop a product and there are necessary, and evolving, regulatory barriers. The COVID-19 pandemic briefly reduced the regulatory barriers and innovators quickly delivered disruptive ideas in a matter of days to solve some of the most pressing issues affecting our communities. This is lightning speed compared to typical industry product development cycles, which have historically been between 10 and 15 years. The fresh eyes of innovators across the country reduced the price of \$30,000 devices to \$1,000, and timelines for market entry were reduced to weeks. While many of respirators, ventilators and other devices pushed into the market were not fully tested, the number of solutions developed reveals the rich opportunity for improved designs and technological improvements. These new designs and improvements can be expected to be the drivers for sales going forward. Regulations will come back, but development timelines and the competitive landscape may fundamentally change. Regardless of what happens, it is reasonable to assume that if medical device companies do not collaborate with innovators now, they will have their cash cows slaughtered in a few years.

Smart Homes and Buildings (Expected 5yr Market Growth: 247%, \$21.8B)

The last recession was a clear hit to consumer markets, specifically housing. The COVID-19 crisis is exploiting weaknesses across all industries, consistently challenging internal collaborations and adaptability within business environments. The pandemic has catalyzed opportunity in the B2B space and in technologies



that make hard assets more adaptable and improve remote controls and collaboration. Smarter equipment, buildings and collaboration tools will define this next decade of growth by delivering business resiliency. Successful investors will find safe and solid returns through a combination of product sales and recurring revenue. Startups who can deliver B2B solutions that reduce disruptions in global workforce and supply chain will drive the next long bull market.

Connected Devices (Expected 5yr Market Growth: 281%, \$25.9B)

One of the more exciting, newer Camels is Peloton. Peloton is the largest global interactive fitness platform with a community of over 2.6M members. What makes Peloton so unique is that it has different product lines that diversify its revenue streams and cater to many different markets around the world. Between its multiple hardtech products, digital app, and apparel business, Peloton has a strong business model to weather the storms within the rapidly changing fitness industry. This model, along with its strategy surrounding COVID-19, has allowed the company to nearly quadruple in value since its IPO in September 2019.

Hardtech will Lead in Returns Over the Coming Years

The economic recovery is widely expected to be quicker during this COVID-19 crisis, however the lasting impact of the additional debt it has brought will impact investors for years to come. Patience will be key, and with over \$3T injected into the economy, **Camels will win the race through this storm delivering solid returns and security. This new reality positions hardtech solutions as the most lucrative investments for the next decade.**

In our current economic downturn and pause on record levels of venture financing, the question is: where will investors turn next? It is hard to foresee investors betting on startups promising big growth but operating at a loss for years to come. It will be the Camels who will dominate – those who are looking to create a reliable, profitable core before promising record growth. It is the Camels who will persevere through this financial drought and weather the journey far better that its peers.

In the coming years, innovation around the industrial internet of things, health tech and smart buildings will not only deliver economic resiliency but also significant returns for investors who support a wave of innovation that position products, people and businesses to adapt to the uncertainties that lie ahead.

At mHUB, we are focused on supporting hardtech and physical product companies – companies built on fundamentals. Through our various programs, mentors, equipment, corporate partners, and community of innovators, we strive to lower the barriers to commercializing product-based businesses.

THE SUCCESS: CREATING THE CONDITIONS FOR PRODUCT INNOVATION TO THRIVE IN THE MIDWEST

A direct result of industry collaboration, mHUB was launched in 2017 to drive the industry 4.0 in the Midwest. Its mission is to develop an entrepreneurial ecosystem around physical products and hardware innovation and accelerate industry growth by cultivating a community of collaboration and connection between innovators, entrepreneurs, and manufacturers.



0 5 10 15 20 25 30 35 40

COMPANY STAGE

DISCOVERY: Assessing customer demand before building a prototype, and identify necessary design pivot points along the way.

DELIVERY: Preparing for and executing product launch, while focusing on building a solid foundation that ensure product gains traction and build momentum..

GROWTH: Establishing systems to prepare for and support continued growth.

mHUB exists to convene the entrepreneurial ecosystem around physical product innovation to ensure that the manufacturing industry continues to accelerate, grow and thrive. The mHUB community includes over 350 active and alumni startups and small businesses supported by a deep talent pool of product designers and developers, entrepreneurs, engineers and manufacturers, corporate leaders, industry experts, mentors and investors. mHUB provides a hyper-resourced environment to entrepreneurs with the goal of commercializing new hardtech innovation that will lead to new businesses, intellectual property, investment, revenue and job creation.

THE OPPORTUNITY: MEMBER FUNDRAISING AMBITIONS

The mHUB member company base is largely early stage with the majority of members seeking or active in seed rounds. Equity, debt, convertible debt, and safes together make up 50% of fundraising efforts. Only 14% of member companies are using personal savings, which is down from 33% in 2018.

MEMBER FUNDING ASKS

Series	2017	2018	2019
Pre-Seed	21	25	10
Seed Round	8	7	20
Series A	5	7	10
Series B	4	1	2
Series C	0	0	2

Companies are continuing to grow, with many advancing to later fundraising stages.

KEY TAKEAWAY*

mHUB startups show attractive opportunity for investors. Member and alumni companies:

- Continue to post higher revenue than comparables in the region
- Are elevating fundraising targets on average and in total
- Advancing into later stage rounds of fundraising

Fundraising Targets, 2018-2020 (by Series) (Average)



Companies are asking for smaller rounds, while posting higher seed-series revenue than the average Midwestern hardware startup.

Revenue, Deal Size, Valuation for Seed Series (Midwest/Great Lakes -mHUB comps; 2014-2020)



Though trends in the Midwestern market show decreases in both capital invested and revenue, revenue for mHUB member companies is trending up.

[•]Based on mHUB's annual member survey and market analysis and PitchBook data

A LOOK AT mHUB MEMBER COMPANIES



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SΛΒΛΝΤΟ



Winston Privacy develops an internet filter that delivers faster browsing, fewer ads and safer, more private internet on every device in your home. Winston Privacy began at mHUB as an idea in October 2017 and has since grown to a successful, commercialized business. The company turned to mHUB's vast network of professionals with deep expertise in hardware technology for advice, direction, and partnership. As Winston Privacy continues to grow, the company's engagement at mHUB has also proven to be a powerful recruiting tool for new talent.

Hardware is harder than software. With a focus on hardware technology, I've leaned on mHUB's community of professionals who've had experience in hardware for advice and direction.

Richard Stokes,
CEO and Founder,
Winston Privacy

We love how many great resources are available through mHUB, especially having access to the lab equipment

> – Craig Rupp, CEO and Founder, Sabanto



Sabanto is a Farming-as-a-Service company performing row-crop operations using advanced autonomous equipment. Sabanto's supervised autonomous machines support farmers throughout the harvesting cycle, supplementing the agriculture workforce and increasing efficiency across U.S. farms. Sabanto's founder and CEO Craig Rupp uses mHUB for the resources and lab equipment. We are so confident in our ability to deliver for customers, and it's because of this space.

> – Adam Hokin, CEO and Co-Founder, PedalCell

mHUB has provided us access to mentors and resources that have enabled us to design and deliver products more efficiently to our customers.

LL

– Sona Shah, CEO and Founder, Neopenda



Delivery Discovery Crowth Consumer S30K

PedalCell's CadenceX is the ultimate bicycle power source that keeps cyclists safe and connected. A dead battery quickly ruins a ride for cyclists, cutting off a fitness tracking session, navigation, or even leaving you vulnerable and in the dark. CadenceX converts a rider's motion into continuous charge for their USB devices such as lights, smartphones, GPS, action cameras, and more. Its patented design has a 200X outdoor lifespan than any battery, outputs up to 4X more power than other bicycle generators, and be installs in minutes on nearly any bicycle. The company sells its product via its own store, select distributors, and B2B sales channels. PedalCell uses mHUB's community of hardware entrepreneurs, contractors, and suppliers for product development and scaling production.



mHUB member Neopenda, is a Chicago startup that is evolving health tech in markets that need it the most with its revolutionary product neoGuard. This device sends vital signs data wirelessly from multiple infants to a single tablet and is designed specifically for under-resourced communities who often have one nurse to take care of more than 80 infants. It records pulse rate, respiratory rate, blood oxygen saturation, and temperature; and collects continuous sensor data at the point of care. Founders Sona Shah and Teresa Cauvel leverage the member community, mentors and prototyping equipment at mHUB. Since locating at the innovation center, they've transitioned from prototype to design freeze on neoGuard. Additionally, they've established a relationship with a manufacturing contractor to build tooling and build a pilot.

Patents: 4

Employees: 5

mHUB COMPANIES IN THE NEWS



Greenlight Planet: \$90 million to expand energy across Africa

"Greenlight Planet, operating the Sun King brand with over 1.3 million products sold in Kenya, Uganda, Tanzania and Nigeria, and South Asia, has secured \$90 million in new funding to expand its Pay-As-You-Go (PAYG) solar consumer financing business across its markets."

(TechMoran, 2020)

Proxfinity: Proxfinity has been contact tracing for years

"Proxfinity, creator of the world's first social hardware for business, announced ResCUE—a contact tracing platform designed to help any company or organization track whether workplace social distancing guidelines are being followed in real-time, and identify how close a COVID-positive worker has come to other employees. ResCUE is an easy-to-deploy wearable device that, combined with the SaaS backend, informs businesses about the potential level of coronavirus exposure in their workforce, and offers a much more concrete measure of infection-related risk at the enterprise-level than testing alone."



(BusinessWire, 2020)



NuCurrent: Crain's Chicago #1 Most Innovative Company in 2019

"NuCurrent, an industry leader in wireless power systems and technology development, announces that Crain's Chicago Business has named the company the #1 Most Innovative Company for 2019. The announcement – based on analysis conducted by third-party research firm Ocean Tomo – recognizes the overall quality of NuCurrent patents awarded in the previous year."

(PRWeb, 2019)

Toast: \$400 million in funding round to expand product lineup

"Toast Inc., a startup that provides payment processing hardware and cloud-based software for restaurants, raised \$400 million in Series F funding, as the company expands its product lineup. Toast, Inc. plans to expand its offerings to include financial products to fund restaurant business growth."

(Wall Street Journal, 2020)





Equilibria: \$2 million in funding round to launch new CBD products by women for women

"Equilibria, founded in 2019, recently announced that it closed a \$1.97 million seed round in March. The round was led by Salveo Capital, which invests in cannabis businesses, and Hyde Park Angels. Founded by Marcy Capron Vermillion and Coco Meers, Equilibria sells CBD gels, oils and creams specifically for women that are designed to help with anxiety, sleep and menstrual cramp relief."

(ChicagoInno, 2020)

MEMBER COMPANIES

3s Advisory Group AllKinds Studio Alphamerical LLC Amber Agriculture Amper Technologies Inc Analog Airwaves LLC Analog Life LLC Aquamox Arnstone Products .Inc. Axis Company Bathtub Genie **Big Fish Innovations BioRegen Tech Bishop-Wisecarver** Bit Space Booster Box Bow Tied Wood **BRIGHT PEI CONSULTING LLC** Brininstool-Lynch Briteseed **Brooks Stevens** Building Brown Workshop Bungajungle CADcraft LLC CareBand Cast21 CastAway Cat Matter Chaya Labs

Chicago Gage LLC Chicago Technical Media ChipKick LLC Colca Compendium Engineering LLC Concentric LLC **Concept Innovations Group** Concept2Creation Inc Crafty Machine Cre8tive Capital CREDO Co. Ltd. Cristaux International **Crucial Detail** Currier ouse LLC Custom Color 3D Printing **Delta Dynamics LLC** Device Dev Consulting DevOpsRockstars **DieCast Studios Digital Fiction** Dokat Inc dotUP **Duchak Ventures LLC** Edmonds Energy Solutions Ekta EmpowrXR E-Muffs Energetically PBC Enlighten Enterprises Enlighten Enterprises Inc. E-Squared Technical Solution Jeff Faye Consulting Ether - Lighting over Ethernet JJ & Companies, Inc. Everyday Engineering LLC Excelitas ezmakers Fastway engineering Fielder Gloves Fiesta Pop Studio Fluxion Technologies,LLC Focused Labs G innovation LLC GBCuBe

Global CPR Technologies LifeBot Hallsten Innovations Ltd. Maker and Geek Hank Industries Harmony Restored LLC HCM Systems Health Nest Heliosonic Concept HopFrog WoodWorks Impossible Objects Inbox3D Influit Energy Innervo Technology, Inc. Innoblative Designs, Inc. InnoMorphsis **INNOPSYS** IntuiTap Medical, Inc. iVIK Holdings Ltd JioBit Jolted Thoughts LLC Just E Skincare Karman Innovations Keeping it Covered LLC **Keysight Technologies** Kidchen LLC KOA Korea Beer Paraphernalia Koya Board Game LLC KV Gear

Lamar Johnson Collaborative Leave No Veteran Lee London Littelfuse Loring Human Factors LOVBOD Inc. Luna Lights M.Holland Co. Makexchange LLC MapTattoo Mark One srl Merit Screw Machine Products **MINIMA-MAXIMA** Mirza Minds MK Broday & Co., Inc. Motion Dynamics Mudd Law Nemik Consulting Inc Neopenda New Realm Technology NEWTON1665 Inc. Next Sketch Studio, LLC NextWave STEM Nomen Home **NoMo Diagnostics** Norman Teague Design Studio Nouvo NPD Media NuCurrent





Square One Product Devel-Star Global Connection Startchy Inc. Steel Croissant StepRack Stroma Surgical Innovation Associates Swartwerk Media Design Inc SymGym Synergeo Domes Tactile Momentum TAVO Tell It Like It Is LLC Tenet Labs Trice Imaging Troscan TTM Inc TURF design Vanreusel Ventures Verde Technical Products Verena Solutions **Vermillion Partners** Vivotronix Voault Voyant Walterscheid Inc Wernette Design Westran Thermal Processing Wicksly Winston Privacy

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