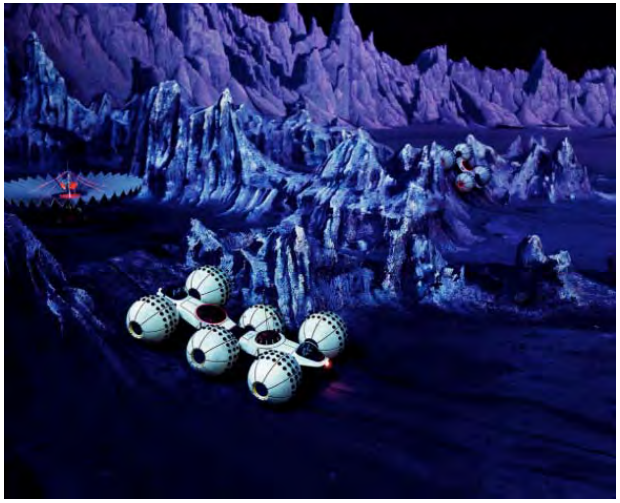
Minnesota Expo 2023

WELLNESS AND WELL-BEING FOR ALL: HEALTHY PEOPLE, HEALTHY PLANET

A Formative Experience



The MHTA ACE Team

Kristina Schatz
The Iron Yard

Ameara Mansour
H.B. Fuller

Ashley Bremers
Thomson Reuters

Kirsten Preston
TrecStone

Ben Stusynski
Dell Technologies

MINNESOTA STATE FAIR

EXPO 2023 MINNESOTA

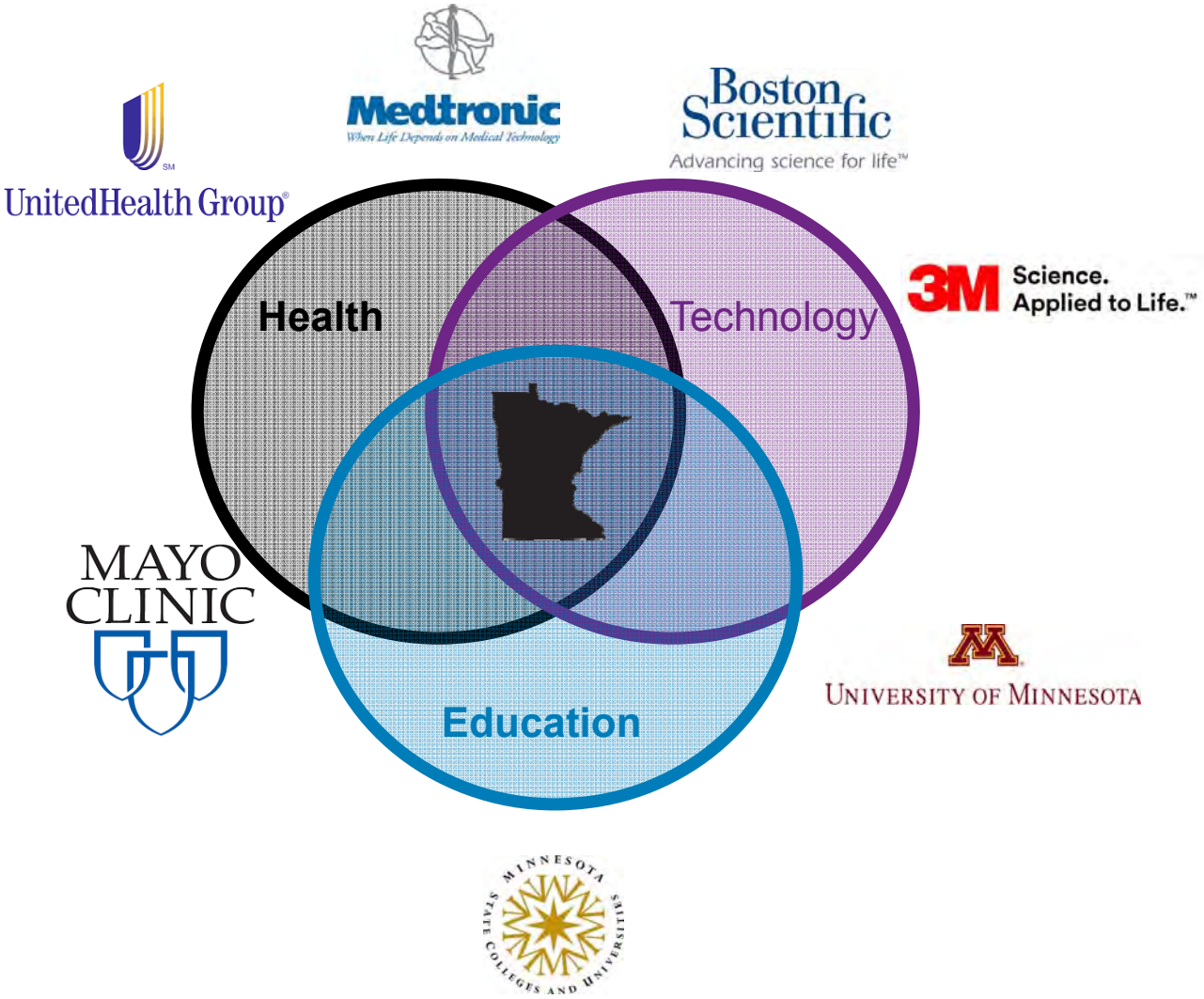
Recent World Fair Hosts and Themes

Minnesota on Track to Host 2023 Fair

Healthy People, Healthy Planet

EXPO 2023
MINNESOTA

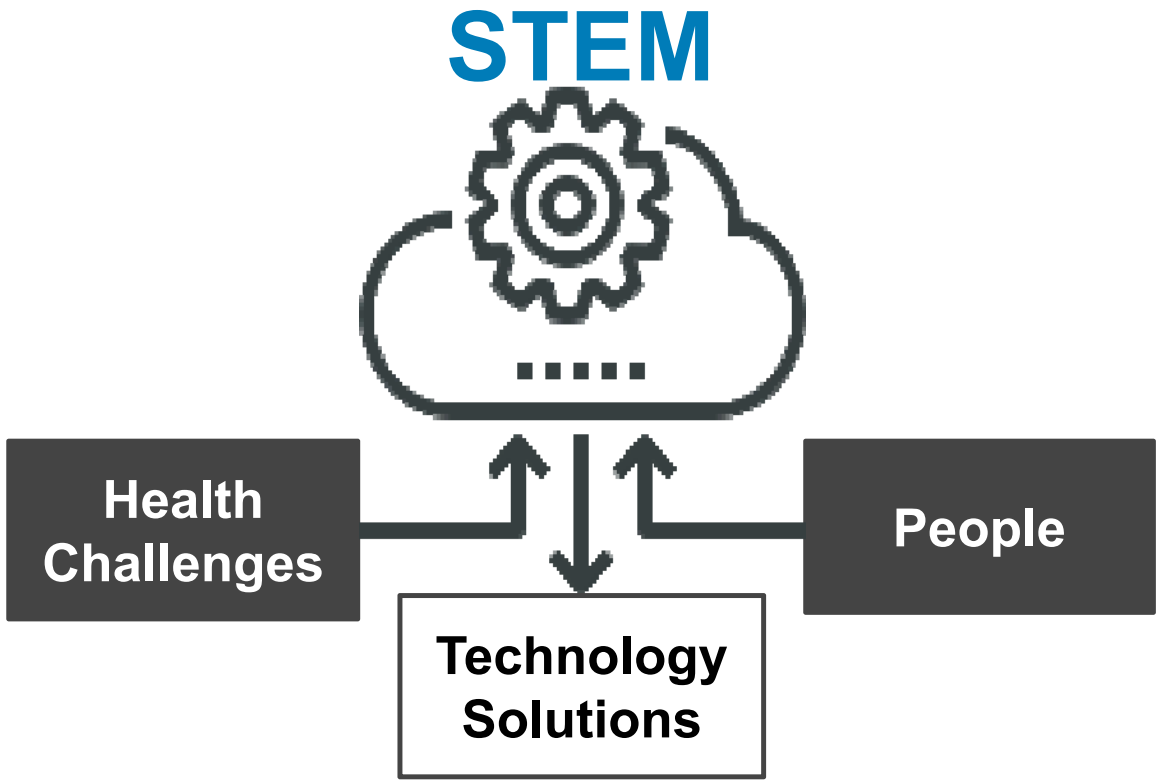
Why Minnesota?



How do we ensure the Expo 2023 creates lasting global change?

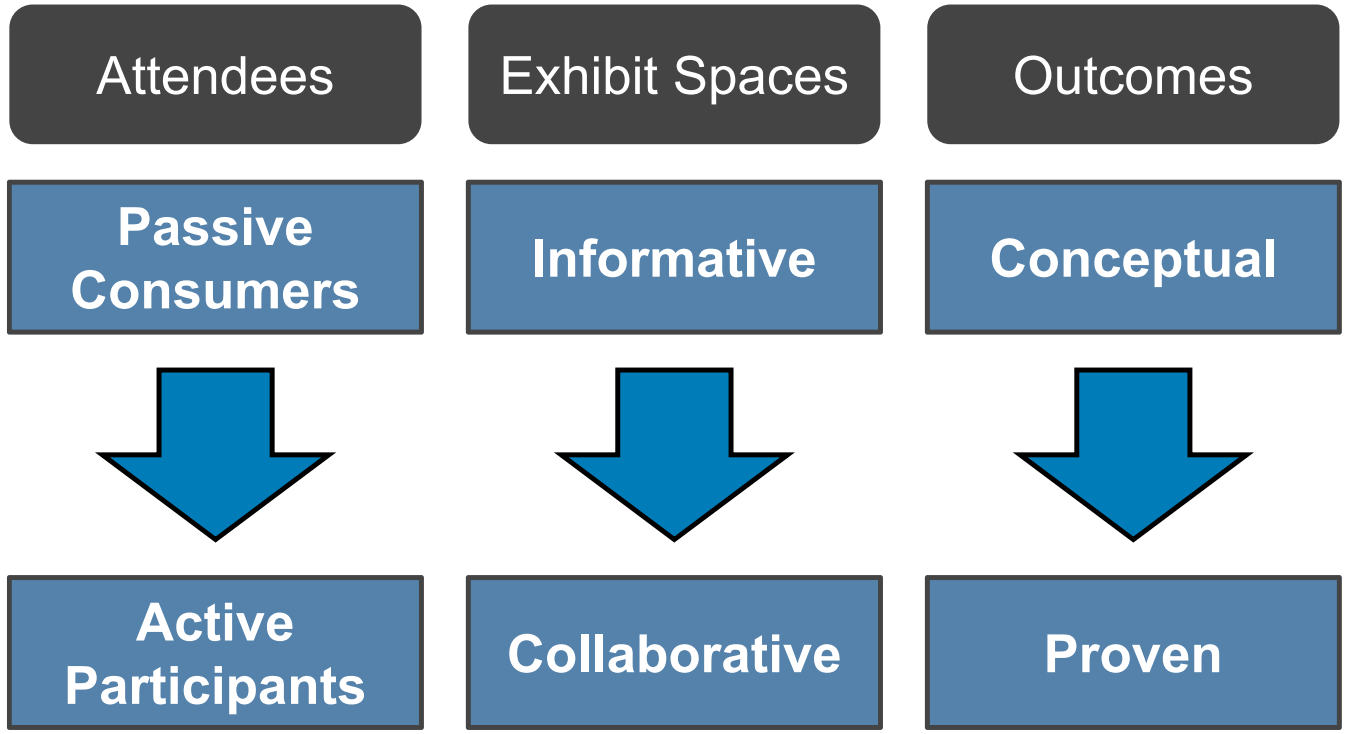
EXPO 2023
MINNESOTA

Promote STEM in partnership with the Expo



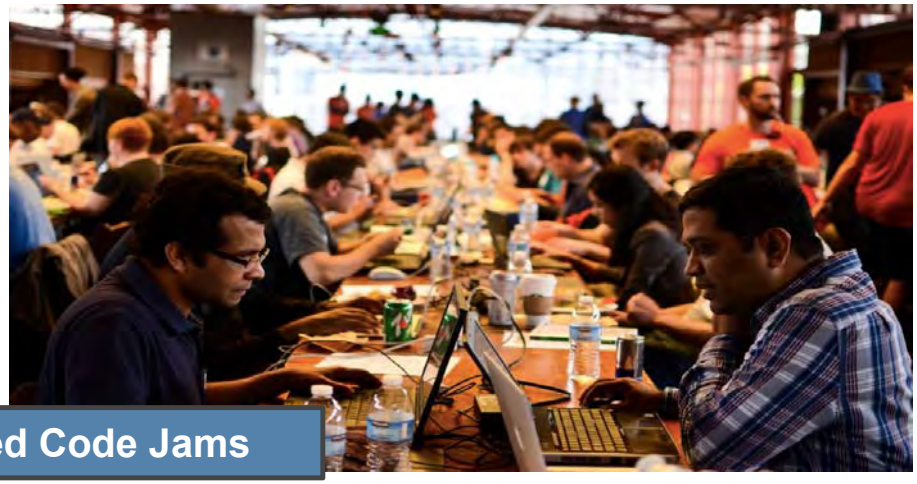
EXPO 2023 MINNESOTA

Transform the Approach, Change the World

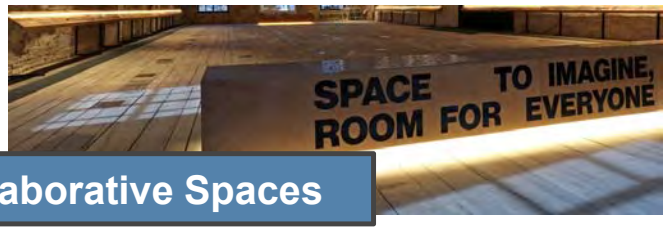


Recommendations for the Expo 2023 Team

Crowdsourcing



Hosted Code Jams



Collaborative Spaces

Digital Participation

Recommendations for MHTA Board

Create a STEM task force focused on:

- Bring STEM community partners onboard
- Connect early tech sponsors with Expo 2023 team
- Enablement of technology solutions related to hosting

Acknowledgements

Thomas Fisher – Director of Minnesota Design Center

Jeff Hintz – Tournament Director of Ryder Cup

Dean Mukasa – College of Science and Engineering, University of Minnesota

Abe Rezai – Chief Technology and Innovation Officer, H.B. Fuller

Mark Ritchie – CEO of Minnesota World's Fair Bid Committee

Heather Walch – Engineering Adhesives Dir. H.B. Fuller, Member of Super Bowl Hosting Committee

Nick Roseth – Responsible for DocuMNtery.com

Questions?

How can Expo 2023 be a catalyst for change in global health and wellness?

Ameara Mansour, Ph.D., H.B. Fuller ameara.mansour@hbfuller.com
Ashley Bremers, Thomson Reuters ashbremers@gmail.com
Ben Stusynski, Dell Technologies Ben.Stusynski@dell.com
Kirsten Preston, TrecStone Kirsten@prestonweb.com
Kristina Schatz, The Iron Yard schatzkz@comcast.net
Minnesota High Tech Association, ACE Leadership Program, 2017

Abstract: One way to ensure healthy lives and promote well-being for all ages is to initiate a global effort to engage people and resources through advancements in science, technology, engineering, and mathematics (STEM). Minnesota is a booming hub for STEM education, entrepreneurship, and established local and international companies. The purpose of this project is to highlight ways in which Expo 2023, MHTA, and Minnesota organizations can partner to drive change on universal health issues, leveraging STEM innovations.

Background

Since the first world's fair in London in 1851, every event has been awe-inspiring and wildly innovative, drawing millions of people from all over the world to imagine what the future could hold. Long after the fairs finish, city infrastructure, architectural masterpieces, and memories endure. Some well-known cultural icons, such as the Seattle Space Needle and the Eiffel Tower, originated from past fairs and are still major tourist destinations today. The United States has not hosted a world's fair in several decades, but for those who did attend them, they left lasting impressions. The 1964 New York event in particular, drew crowds from across the nation with a theme dedicated to "Peace Through Understanding". More recent exhibitions have been held in 2015 in Milan, Italy (with the theme "Feeding the Planet, Energy for Life") and recently in Astana, Kazakhstan in September 2017 (with the theme "Future Energy").[1]

Minnesota is currently a contender to host the 2023 Expo, which would create a great opportunity to engage with a global community. The proposed theme is "Healthy People, Healthy Planet". While past fairs have a rich history of entertaining and inspiring, there is a unique opportunity with this Expo to make a lasting difference in people's lives. Expo 2023, in partnership with the local community, can use this world stage as a catalyst for change on global health and wellness issues by leveraging emerging science, technology, engineering, and mathematics (STEM) advancements.

Methodology

Our team started this project by researching past world's fairs and the Bureau International des Expositions (BIE), which is an intergovernmental organization in charge of overseeing and regulating World Expos. We also met with Mark Ritchie, Minnesota World's Fair Bid Committee CEO, to understand the Expo 2023 bid team's timing and needs. After follow up discussions with Margaret Anderson Kelliher and Joan Moser, we narrowed our project to focus on how the world's fair, hosted by Minnesota, can create lasting change on issues of Health and Wellness. Engaging the local community in this effort would be the first step in this challenge; therefore, we interviewed local leaders to learn from recent large-scale event successes in Minnesota. From these conversations, we brainstormed, compiled, and prioritized proposed suggestions for the MHTA board.

Expo 2023 in Minnesota

Minnesota and the surrounding region are uniquely positioned to drive change in the context of Expo 2023, especially with the proposed focus on health and wellness. Healthy lifestyles are ingrained in the local Minnesota communities. One example is the volumes of people enjoying nature and outdoor activities in all types of weather. Forbes cited Minneapolis as one of "America's Top Healthiest Cities," stating "Minneapolis

residents breathe clean air, prioritize exercise and keep their weight down, supported by a city that was among the first to add bike trails and ban smoking in public places."[2]

The Twin Cities region has a vibrant academic and industry sector focused on innovations that impact world health. There are many companies advancing healthy living through the use of technology, including 3M, Medtronic, Pentair, and Boston Scientific. The Mayo Clinic in Rochester, Minnesota, is a world's leader in patient care and research. Minnesota education institutions are also highly influential in this area. The University of Minnesota (U of MN) is currently leading research that will help improve global health and wellness, including food and water security and the impact of energy sources on air quality. In one specific instance, U of MN students are partnering with a university in India to develop an innovative cell-phone based solution to provide information on food and water availability to areas in need.[3]

MHTA and Expo 2023

The technology-based economy of Minnesota would greatly benefit by hosting Expo 2023, and by creating an event that is a driver for global change. Expo 2023 has the potential to bring around 12 million people through the Twin Cities.[4] It will also showcase Minnesota's current industrial and academic leaders and, as a result, attract talented individuals to the area. Increasing available talent in Minnesota is critical to growing the STEM industry and an important part of MHTA's goals.

The proposed Expo 2023 theme of health and wellness is closely integrated into many of our local business's target markets. The Expo may serve as inspiration to demonstrate an innovation in health and wellness or enable researchers to learn about broader global needs that motivate new solution developments. This event provides a unique opportunity by connecting solution providers to people with a need and by supporting collaborations between participants with different perspectives on universal health issues.

Driving Global Change

Expo 2023 has a responsibility to do more than entertain. With millions of people coming to the US with diverse perspectives and needs in the area of health and wellness, the fair can drive improvements on universal health issues. One way Expo 2023 can drive change is through the promotion of STEM (science, technology, engineering, and math). Having a robust pipeline of students into STEM careers is critical to continuing improvements in health and wellness because STEM is essential to prevention, identification, and treatment of mental and physical ailments. Also, note that careers in STEM are often well-paying positions, with a great return on investment for

the college education. Encouraging more people to have careers in STEM would enable them to have financial security, which is an important part of leading a healthy life.

To foster real and lasting change, we believe that Expo 2023 needs to involve and engage the local community. Expo 2023 can leverage best practices from the teams hosting the Ryder Cup in 2016 and the Super Bowl in 2018 to engage the local region in supporting the international event. The Ryder Cup only required 4,000 direct volunteers and over 16,000 applied. Over 270 companies participated in the hospitality program (J. Hintz, personal communication, October 19, 2017). The Super Bowl committee has created a database of over 24,000 volunteers (H. Walch, personal communication, Sept 1, 2017). Following the Super Bowl, this database will be owned by Meet Minnesota. The Expo 2023 team will work with Meet Minnesota to leverage this network.

In order to drive global change, a broader community will need to be engaged at the Expo. On a worldwide scale, we need to transition from *passive* observation to *active* participation, from *individual* consumer to *collaborative* producer. We need to move from *informing* attendees to *transforming* lives. By reimaging the Expo through that lens, we will garner international and local support, and deliver community based solutions to real challenges. We will also develop lasting networks to continue the work well after the Expo experience has ended. The key to this is collaboration and leveraging emerging STEM resources.

Imagine the possibilities… We can leverage crowd-sourcing to engage with the global community. Rather than dictate the content for the expo, we source real world content through participating countries and communities, allowing them to contribute from their own cultural experience. Then, during the expo, we create spaces and forums to source appropriate and viable solutions. To encourage creating concepts from the ground up and collaboration on ideas, each area would be equipped with essential functional digital tools to capture, sort, display, and reveal ideas generated by the global community. These digital tools will also capture the most popular, feasible, and plausible solutions for execution. The digital and physical experience will be integrated.

The Expo 2023 can lead an ongoing ‘Code Jam’ to unleash the power and ignite ideas to generate scalable digital solutions around health and wellness issues.

Using the crowd-sourced information, we can create spaces focused on specific topics such as clean water, accessibility to health care/medicine, etc. These spaces can be designed to utilize shared collective knowledge and create real world community solutions. The layout of the physical space will encourage active participation, co-

creation, and collaboration. As part of the overall Expo space design, play spaces should be designed to foster creativity and collaboration and encourage world unity.

The long term effect of an event hosted in this way could be monumental. It would develop ongoing global social networks focused on key health issues and allow people to walk away with actionable concrete steps to create change. On an individual basis, Expo 2023 would provide an opportunity for people to hone in on their personal health and change their life for the better through stations that assess and address potential solutions. From an entrepreneurial perspective, we could create a world-wide forum for health and wellness entrepreneurs to connect with potential investors and get their startup ideas off the ground on a global community level.

The Expo would generate practical ideas for community implementation. In the midst of it all, Minnesota becomes an ongoing convener and communicator for the newly established networks. Expo 2023 is not a moment in time, but rather, it becomes a catalyst of ideas and action via people and digital technology.

Recommendations to MHTA Board of Directors

If Minnesota is chosen to host Expo 2023, we recommend that a STEM task force be created as a sub-committee of the Expo 2023 planning team. This group can lead engagement of the technology community locally and globally. It can help to connect the Expo 2023 team to early technology sponsors. The Board of Directors would be able to connect Expo 2023 with people in our community who would be great leaders to participate on this task force.

Acknowledgements

We appreciate those who took time to answer our questions:

- Thomas Fisher – Director of Minnesota Design Center
- Jeff Hintz – Tournament Director of Ryder Cup
- Dean Mukasa – College of Science and Engineering, University of Minnesota
- Abe Rezai – Chief Technology and Innovation Officer, H.B. Fuller
- Mark Ritchie – CEO of Minnesota World's Fair Bid Committee
- Nick Roseth – Responsible for DocuMNtery.com
- Heather Walch – Engineering Adhesives Director, H.B. Fuller, Member of Super Bowl Hosting Committee

References

1. The History of World's Fairs. (2015). Retrieved October 2017 from www.expomuseum.com/history

2. Haiken, Melanie. (2011, September 13). America's Top 25 Healthiest Cities. Retrieved September 2017, from www.forbes.com

3. Falk, Jeff. (2011, June 7). Student teams selected to pursue clean water, safe food projects in India. Retrieved October 2017 from www.cse.umn.edu/news-release

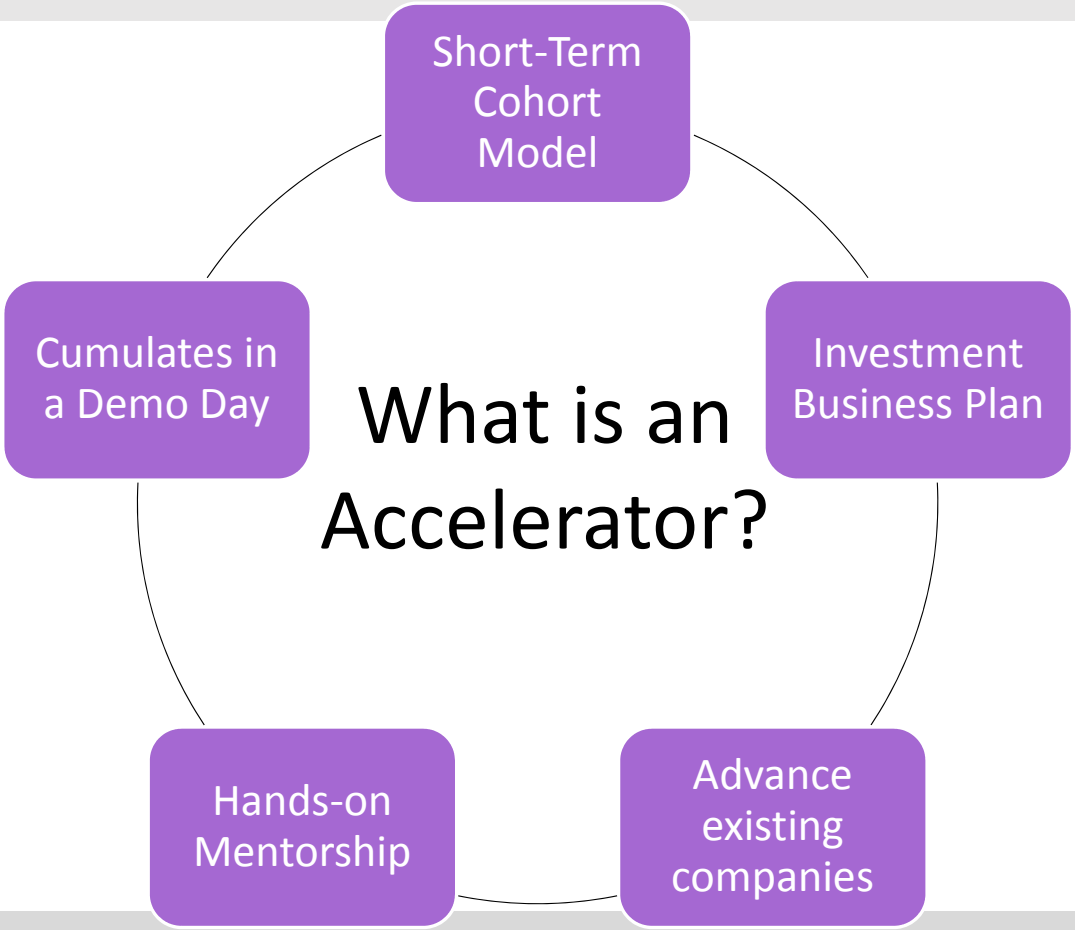
4. Healthy People Healthy Planet. Retrieved September 2017 from http://expo2023.info/theme/


Centerplate
Coney Island
Delaware North
Dodgers
LEGENDS
Kings
aramark
MSG
LIVE NATION
SMU
PHOENIX
Appetize

Accelerating the Vikings

- Doug Condon
- Alex Webb
- Ben Jennejohn
- Grant Nelson
- Seth Goodlaxson

What is an Accelerator?



Benefits

For the Vikings

Community involvement

Benefit off new products and services

Return on Investment

For the State and MHTA

Completes technology ecosystem

Increase ranking in Science and Tech

Attracts new talent and companies

For the Companies

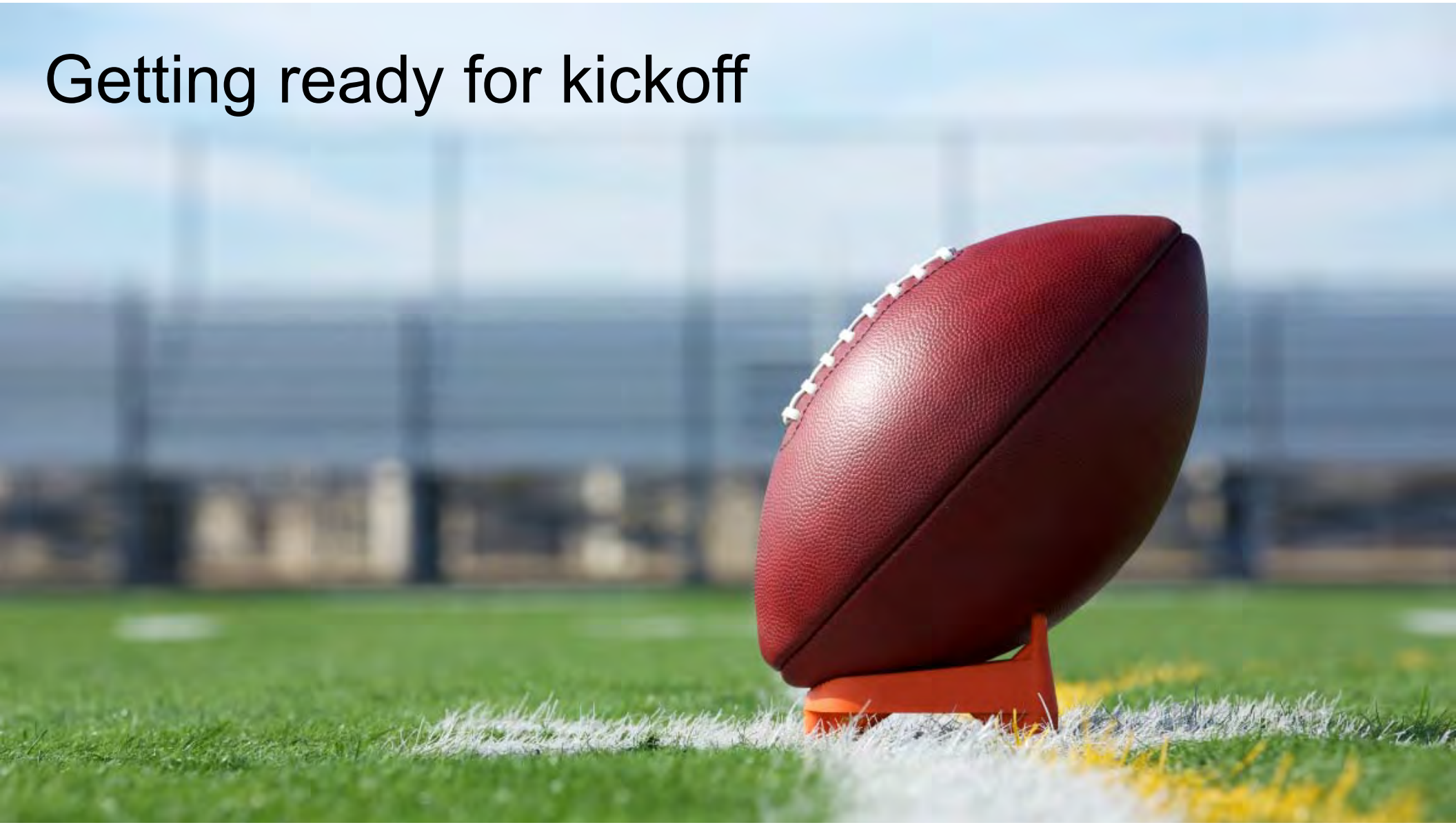
Financial impact

Work with industry-leading mentorship

Access to resources

mhta
Driving Innovation & Technology

Getting ready for kickoff



Strategic Focal Areas

Strategy	Partners	Terms
Industry Focus	Investors	Program Length
Program Benefits	Sponsors	Financial Aid
Marketing	Mentors	Ownership
Enrollment Process		

mhta
Driving Innovation & Technology

L.A. Dodgers

Strategy

Verticals within industry

Only accept ~~10~~ 5 companies

Growth

~~Start~~up stage companies

Partners

R/GA major partner

Major sponsors including VC firms, tech giants, and legal consultants

Over 50 mentors from within industry

Terms

Six-month program

Significant financial aid and fringe benefits

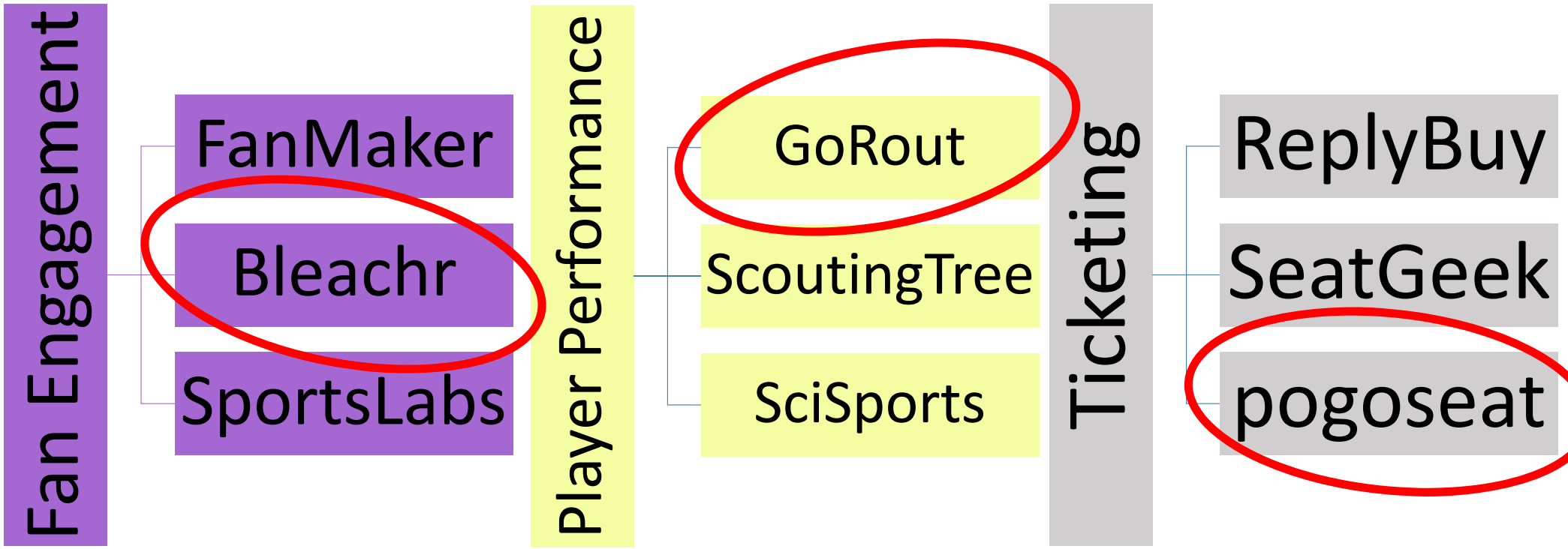
L.A. takes % ownership in each company

Selection Process - Criteria

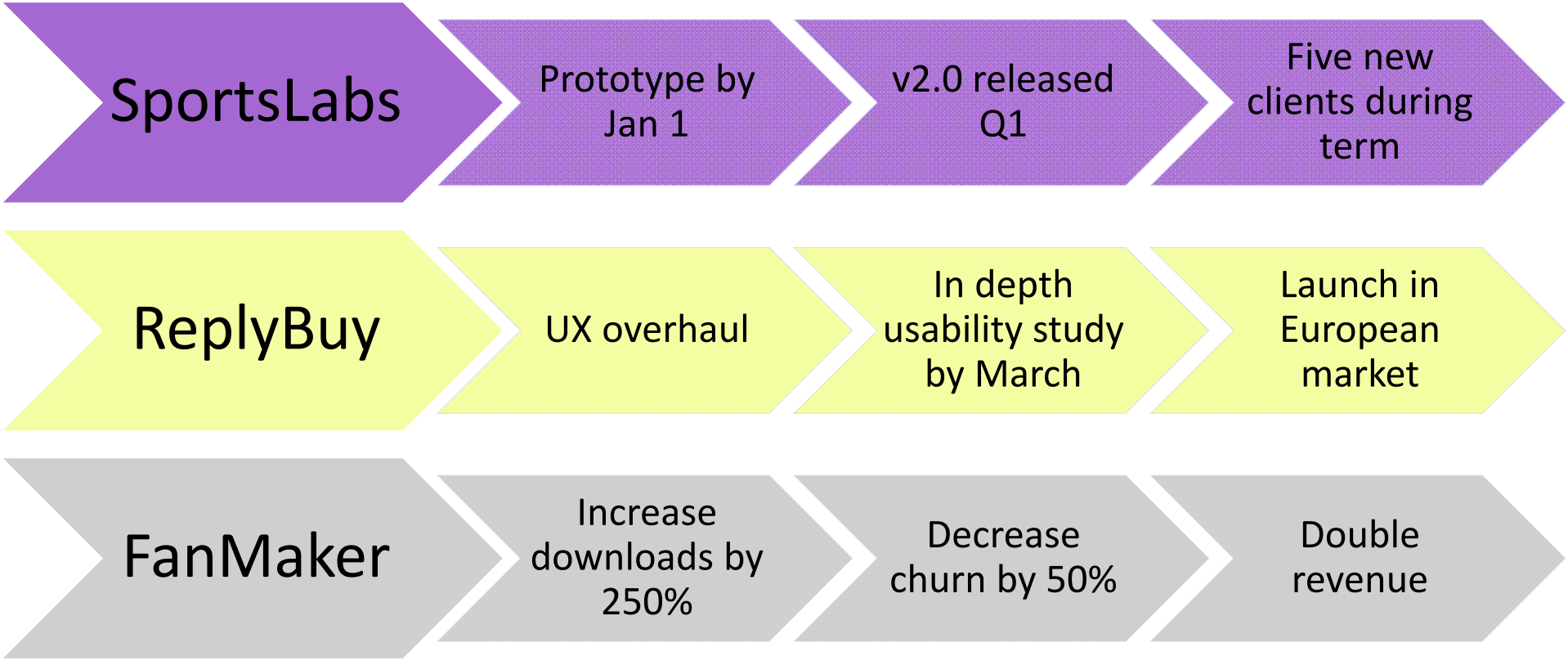
Core Criteria	Fan Engagement	Player Performance	Ticketing
Market Need	-	-	-
Expected ROI	-	-	-
Attracts Talent	-	-	-
Viability	-	-	-
Vikings Impact	-	-	-
Score	**-**	-	**-**

mhta
Driving Innovation & Technology

Market Application



Tracking Success



Touchdown!

Touchdown!

You can't score without a team

Accelerating the Vikings

Minnesota High Tech Association
Seth Goodlaxson, Grant Nelson, Ben Jennejohn, Alex Webb, Doug Condon

October 2017

Opportunity

The Vikings have a unique opportunity as they reach the culmination of years of work. Viking Lakes, the new Vikings headquarters and surrounding development, offer unprecedented ways for the Vikings to improve player's health and performance through the Twin Cities Orthopedics Performance Center, consolidate Vikings staff members into a state-of-the-art headquarters, and also extend their role in the community. Through Friday Night Lights, youth football events, and other community outreach programs they are actively looking to enrich their connection to the community, Minnesota, and the Upper Midwest. As part of this outreach, the Vikings are interested in creating a technology accelerator that can provide a competitive advantage, financial benefit, and attract talent and companies to the Twin Cities.

Background

The recent boom in startups and venture capital in America has given birth to a new player in the startup ecosystem, accelerators. Startup accelerators are programs that support early-stage, growth-driven companies through education, mentorship, and financing in a fixed-period, cohort-based setting. Within the startup sector there has been quite a bit of confusion as to what an accelerator is opposed to the three other main institutions that support startup growth. Of the nearly 700 U.S.-based accelerator programs Ian Hathaway of the Harvard Business Review has found that nearly 2 of every three "accelerators" are not in fact accelerators based on the criteria depicted in the following image:

The Four Institutions That Support Startups

	INCUBATORS	ANGEL INVESTORS	ACCELERATORS	HYBRID
Duration	1 to 5 years	Ongoing	3 to 6 months	3 months to 2 years
Cohorts	No	No	Yes	No
Business model	Rent; nonprofit	Investment	Investment; can also be nonprofit	Investment; can also be nonprofit
Selection	Noncompetitive	Competitive, ongoing	Competitive, cyclical	Competitive, ongoing
Venture stage	Early or late	Early	Early	Early
Education	Ad hoc, human resources, legal	None	Seminars	Various incubator and accelerator practices
Mentorship	Minimal, tactical	As needed by investor	Intense, by self and others	Staff expert support, some mentoring
Venture location	On-site	Off-site	On-site	On-site

SOURCE "WHAT DO ACCELERATORS DO? INSIGHTS FROM INCUBATORS AND ANGELS" BY SUSAN COHEN, 2013; ADAPTATIONS BY IAN HATHAWAY

Through our research we have found that the benefits of a technology focused startup accelerator are substantial for a multitude of reasons. For the Vikings starting an accelerator demonstrates a commitment to the local economy, the opportunity to benefit from new products or services derived from a successful program, and as participants grow into profitable businesses the equity stake would provide a financial return on investment.

Companies participating would have access to resources not previously available to them. In addition to a financial investment accelerators typically provide some combination of office space, housing, marketing and branding solutions, legal services, PR services, and connections to industry leaders to assist with strategy and growth. The hands-on mentorship and educational components of accelerators will give entrepreneurs the knowledge and tools they need to develop their products or services and turn them into successful businesses.

Programs such as these that help foster the growth of tech startups bring together different pieces of a technology ecosystem. The State of Minnesota would experience an influx of new talent and companies attracted to the area as well as an opportunity for already present organizations to reach their full potential. This would help play a key role in the MHTA's vision to make Minnesota one of the country's top five technology states. Based on the Milken Institute's rankings Minnesota experienced a sizable jump from being the 12th ranked state in Science and Technology in 2014 to the number 7 ranking in 2016. That is tied for the 2nd highest increase in ranking during that time span. Improving the local technology ecosystem would add another reason to view Minnesota as a not only growing but established leader in the Science and Technology field.

Problem Statement

Creating an accelerator has many components, designing a physical space, identification of and negotiation with sponsoring partners, defining your needs as well as the needs of candidate companies and the consuming public.

Evaluating and selecting candidates for the Vikings accelerator program is arguably the most crucial step in the accelerator lifecycle. Due to the visibility and prestige of the team, the Vikings are sure to be inundated with applications. For instance, the first cohort of the ten companies in the Dodgers accelerator program was chosen from amongst approximately five hundred applications. Success is unlikely without a well-planned application and evaluation process.

Methodology

Sports technology is a surprisingly diverse field, built up of a large number of discrete verticals. Fields like Ticketing, Stadium Ops, Fan Engagement, and Fantasy Games all exist under the "sports technology" umbrella, but all offer quite distinct benefits and value propositions. Rather than casting the widest net, it's strongly recommended that the Vikings research and evaluate these different verticals, and then choose a small number of them to focus on. This might be a good time to find the general soft spots in the team's current technology portfolio, and strategically bring in companies that could strengthen that area. For example, if the trip to London surfaced some gaps in the travel planning and logistics capabilities of the business, it may make sense to choose event logistics as an area of focus.

Once a subset of possible verticals is chosen, the next step is to develop quantifiable guidelines and criteria for evaluating candidates. As shown in the presentation, this can be a simple grid of key criteria, each scored based on importance. The goal here is to have something concrete that candidates can be evaluated against, rather than a "gut feel" evaluation. In addition, it is possible to weight important criteria more heavily to more effectively represent need. This exercise will help ensure that the Vikings accelerator team has a mutual understanding of what's most important.

Developing your evaluation criteria should ideally be done well in advance, so the application submission process itself can be tailored to make evaluation easier. For example, if expected ROI is determined to be a key criterion, the application could ask questions about financials and trajectories. If market reach is determined crucial, then the application can have questions about the current deployment range and plans for expansion. This will ensure that while reviewing applications, the team has all the key information easily available.

It's also strongly recommended that the team give weight to the locality of the company. All selected companies will need to be located in Minnesota for the duration of the accelerator, and while the Vikings can certainly draw talent from an international pool of resources, there are numerous tangible benefits to selecting companies with local roots. For instance:

- There is already a wealth of talent in the Twin Cities market for sports technologies. Tech.mn has recently released its second version of their Ultimate Guide to SportsTech in Minnesota (attached as an addendum to this report) which lists thirty viable sports tech businesses. Minnesota is quickly becoming a hub for this market
    - This includes GoRout, a Rochester, MN company which last year won the NFL's First and Future startup competition, an international sports tech competition held during Super Bowl week each year

- Further cementing partnerships with state and local government, as well as corporate partners: A successful accelerator program leverages the talent of local industry and government in order to provide benefits and mentorship to the cohort. Ensuring that at least a certain percentage of the cohort are Minnesota grown companies will strengthen those relationships
- Continued benefits over time: An outstate company that locates in Minnesota for the accelerator time-frame may return to its place of origin following the program. Selecting local companies ensures that the benefits of the program stay in the region

Once evaluation criteria are quantified and application materials created, the application and review process can begin. Accepting applications only during a stated timeframe will create efficiency in the process. As applications are reviewed, they will be scored against the evaluation criteria, and a shortlist of candidates can be generated and then interviewed directly before final decisions are made, and invitations to the program are sent

Regularly Evaluate Success

Once the cohort is selected, accelerator staff should sit down with each company individually and mutually determine a set of success criteria to be tracked for the duration of the program. It's important that these details are quantifiable and specific. It's very difficult to appropriately track progress against a goal of "improve software interface", and significantly easier to track the goal "release UX updates by 6/1".

Over the course of the program, each participant should have regular update meetings where consultation can be offered from participating mentors, and progress can be checked. Accelerators are intensive programs which require frequent and focused check-ins. Anything that strays from the initial plan should be reviewed and evaluated. This isn't to say that the initial plan should be followed blindly throughout; young companies often gain critical knowledge during a project that causes them to pivot to a more successful direction. Are things changing because we're getting better, or are they changing because we're headed off-course?

If a pivot is made during the program, success criteria should be updated as well, and tracking begins against the new goals.

Case Study: Los Angeles Dodgers

Goals

- Improve overall fan experience and efficiency
- Get food to fans more quickly
- Develop interactive apps for live games when not at the stadium

Their Focus

A rising generation of fans, athletes, teams, performers, media players, and sponsors are seeking innovative technologies that span from the stadium to the streets.

The first Dodgers program helped to establish category leadership for the participating startups. The companies selected for the second program were a mix of growth-stage startups that have achieved initial product-market fit and were poised to accelerate their growth, as well as early-stage startups that were developing new technologies, products, and services.

Partnership

R/GA - https://www.rga.com/ (Digital Marketing Company)

R/GA works with household brands and potential partners for Dodgers Accelerator firms, including Beats, Equinox, Nike, Samsung and SoulCycle.

- They offer marketing strategy, brand definition, research, iOS development, and user interface design.

Program Perks

The program also provides the companies access to dozens of influential sports business, media and investment mentors, including Dodgers minority owner Magic Johnson and Lakers President Jeanie Buss as well as venture capital investors such as Arena Ventures and Upfront Ventures.

Marketing

Twitter Handle - @DodgersAccel

Facebook page –

Instagram: https://www.instagram.com/dodgersaccel/ (@dodgersaccel)

Program Sponsors

Intel

IBM Watson

Dentons- Venture Technology

GAN MEMBER

Softlayer (IBM)

Winson&Strawn LP

1st Season

Applications were submitted from around the world with 570 applicants from 31 countries. It took the team and its Accelerator partner, global digital agency R/GA, a month to select the 10 firms. The 10 Accelerator firms ranged from near-startups with good ideas needing help executing and raising cash to profitable companies looking to increase market share.

Elysian Park Ventures, created by the Dodgers' principal owners, and R/GA took a stake of about 6 percent, worth about $120,000, in each of the 10 companies. The amounts varied by company, because some were more established than others

Companies Selected:

- Appetize – Modern Point of sale, mobile ordering and inventory management platform
- Doorstat – Automated customer demographics and sentiment through video based software
- Field Level- Private social network for sports recruiting that connects coaches and helps college teams find the best athletes for their program
- FocusMotion – Tracks and translates human movement to reshape our relationship with wearable technology
- Juke- Mobile platform making fantasy sports simpler, quicker and more fun.
- Kinduct – Building the worlds most advanced human performance platform
- LeagueApps – Equipping sports organizers with the technology, resources and connections they need to succeed.
- ProDay – Mobile app that lets anyone work out the professional athletes Anytime/Anywhere
- SidePrize – Raising the stakes in your fantasy league
- Swish Analytics – A predication system for sports betting and fantasy sports

2nd Season

5 Startups were selected that had already made a mark and were looking to scale. The Dodgers and R/GA accepted fewer companies to better help the chosen firms develop their individual technologies and products through partnerships.

Companies Selected

- Greenfly -- Platforms for sourcing and managing video from high-value content creators
- Keemotion -- Automated sports video production
- ShotTracker -- Real-time analytics for basketball teams
- Renegade Brands -- A “next-gen" sports detergent specifically engineered to address stains and odors common in sports apparel and gear
- WSC Technologies -- Real-time sharing of personalized and fan-based sports videos

Notable Outcomes:

Appetize (1st Season) - Point-of-sale system won a contract for the new Vikings’ facility, U.S. Bank Stadium.

Kinduct (1st season) - Solutions for measuring health, fitness and human performance are being used at Dodger Stadium.

Shot Tracker (2nd season) - Developed three-piece wearable device — a net sensor, wrist sensor and app that allows basketball players to track shot attempts, makes, and misses.

Addendum

TECH{dot}MN

THE ULTIMATE GUIDE TO

SportsTech

IN MINNESOTA

SPONSORED BY:

FRANKLIN PARTNERS

V2 UPDATED AS OF 8/25/17

Intro

Do you recall what it was like to attend an NBA game before electronic shot clocks sat atop the backboards? Or watching football on TV before the advent of instant replay allowed us to pick apart the action? How about viewing a tennis broadcast prior to the “Hawk-Eye” tracking system and its precision 3D imaging?

It all seems so primitive now. Sports and technology have intertwined for ages, but today this fusion is really accelerating. From your neighborhood field to the big leagues, technology is changing the ways we watch, play and analyze these games we love.

Across the country, sports technology is growing from an obscure niche into a powerful industry that’s driving billions in revenue around the horn. This burgeoning vertical has developed locally over the years to reach 20 unique companies encompassed within The Ultimate Guide To SportsTech In Minnesota.

Let it serve as your window to the best and brightest prospects across the state.

Jeff Pesek
www.linkedin.com/in/jeffpesek

Table of Contents

Method

We cast a wide net in our search for companies applying information technology to sports and fitness in interesting new ways. First, we scoured the TECHdotMN database for fitting candidates and found many, including some that are quite far along in the business cycle. Then, we rounded out the roster by asking others in the local startup community, uncovering a few fledgling ventures still in their infancies.

Participating founders and executives provided detailed information on the visions and vitals that drive their business models. When it comes to who's who on the Minnesota sports tech scene, this guide covers the bases and will be updated periodically as the players change and rearrange.

This is version 2 updated as of 8/25/17

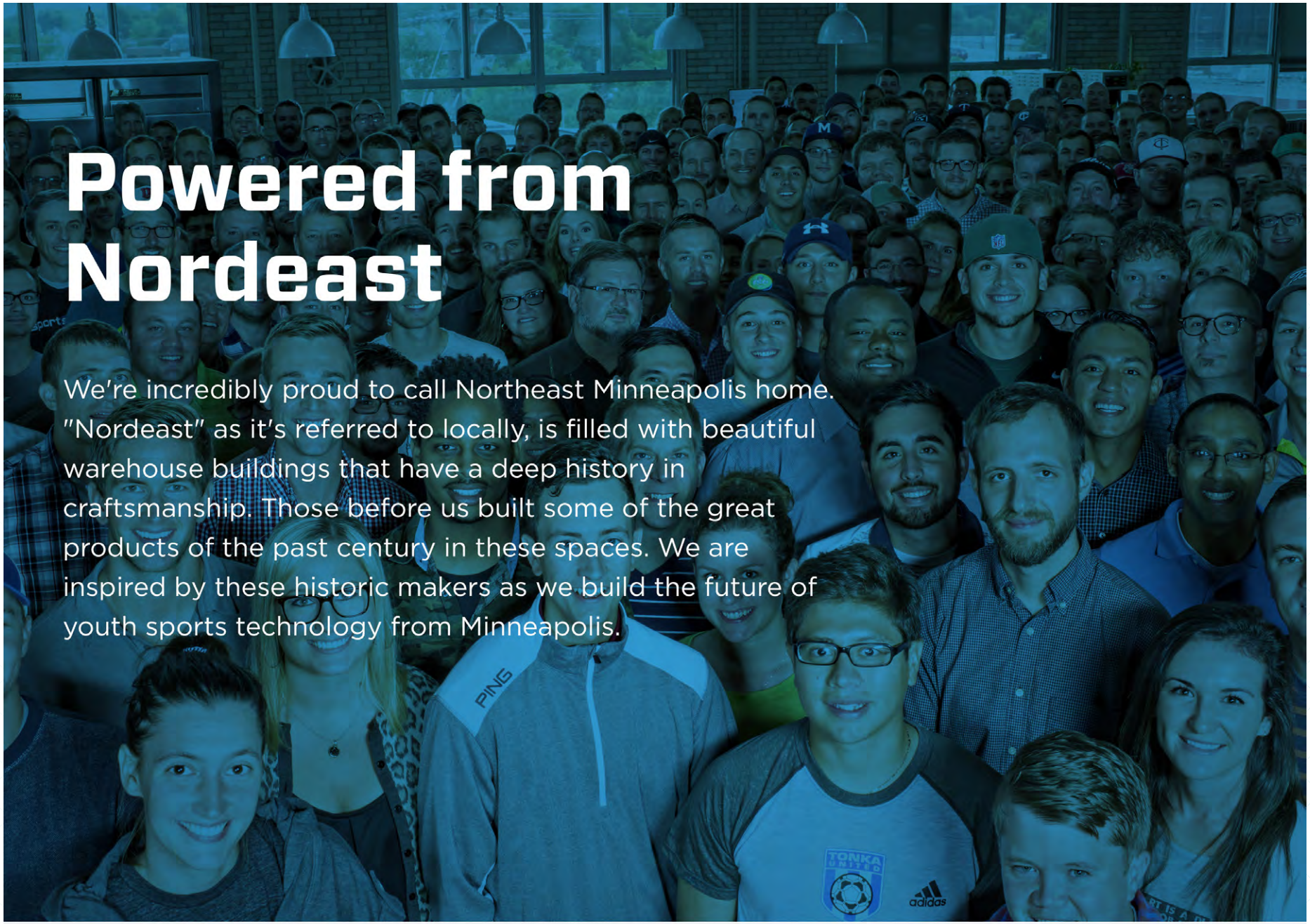
V2 UPDATED AS OF 8/25/17

Overview

COMPANY NAME	B2B, B2C, OR BOTH	SELL PRODUCT, SERVICES, OR BOTH?	HOW MANY FTE?	HOW MANY PTE?
AutoIce	Both	Product	4	5
CogReps	B2C	Both	1	1
Dexalytics	Both	Product	3	4
Dotbound	B2B	Both	2	0
Fitness on Demand	Both	Both	50	0
GoRout	B2C	Both	8	2
GymPhone	B2B	Services	21	4
Inside Edge	B2B	Both	14	40
MatBoss	Both	Product	3	3
Moxy Monitor	Both	Product	2	1
Player's Health	B2B	Product	5	7
Prep Hoops	Both	Both	7	90
Prevent Biometrics	B2B	Both	3	5

Overview

COMPANY NAME	B2B, B2C, OR BOTH	SELL PRODUCT, SERVICES, OR BOTH?	HOW MANY FTE?	HOW MANY PTE?
Sportradar US	B2B	Both	121	124
SportsEngine	Both	Product	400	40
SportsHub Technologies	Both	Both	47	0
Starting 11	B2C	Product	0	0
SubBuds Games	Both	Both	1	0
TeamGenius	B2B	Product	2	0
Tenicity	Both	Product	2	3
Th3rdshift	Both	Both	3	0
The Adventures of Super Stretch	Both	Both	1	0
TwinsDaily	Both	Product	0	12
UnderRecruited Preps	B2C	Both	0	0
VennPT	B2B	Product	0	0
Wellbeats	B2B	Product	53	2



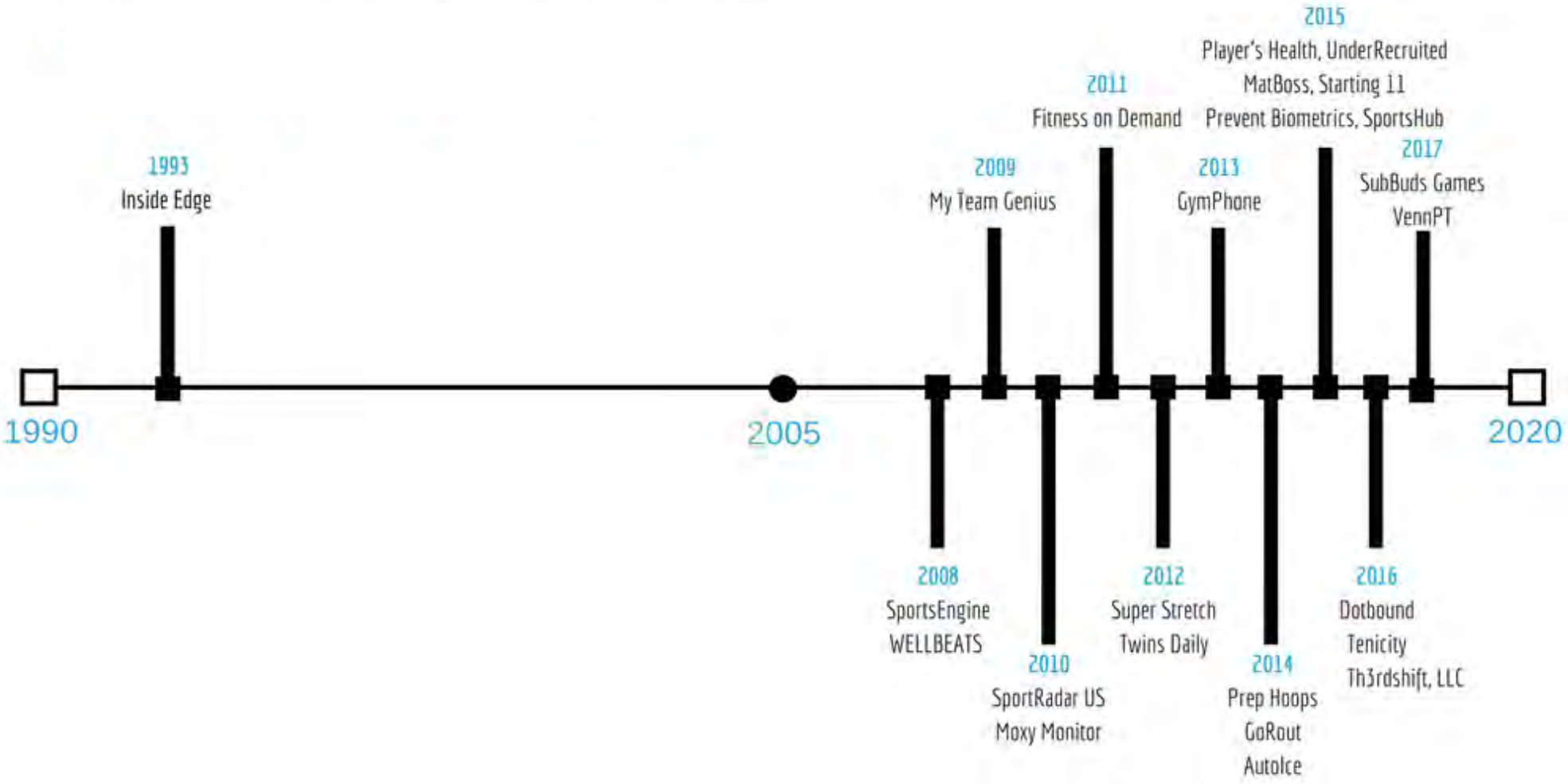
Powered from Nordeast

We're incredibly proud to call Northeast Minneapolis home. "Nordeast" as it's referred to locally, is filled with beautiful warehouse buildings that have a deep history in craftsmanship. Those before us built some of the great products of the past century in these spaces. We are inspired by these historic makers as we build the future of youth sports technology from Minneapolis.

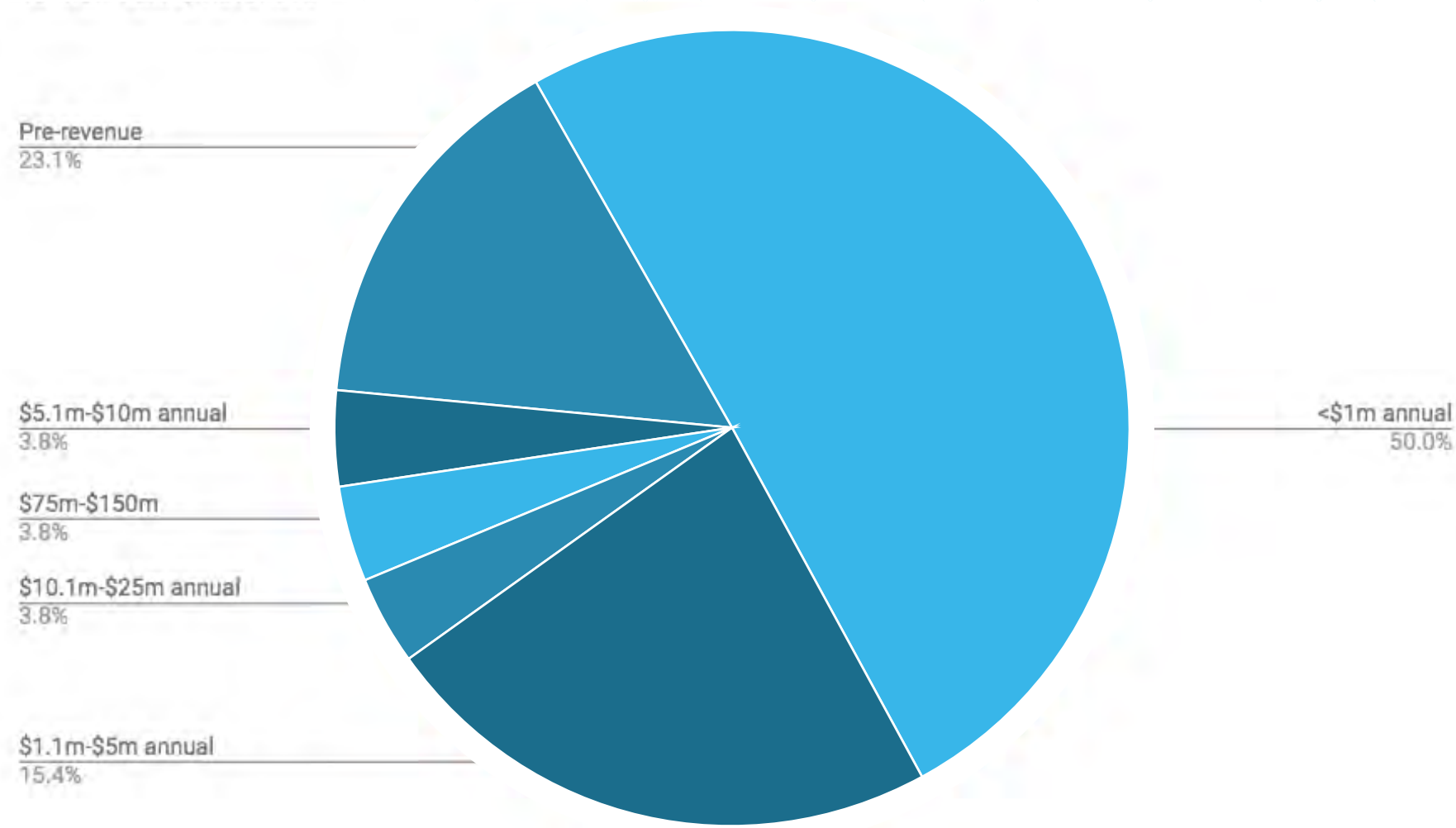
sportsengine

Play Smarter. Live More.

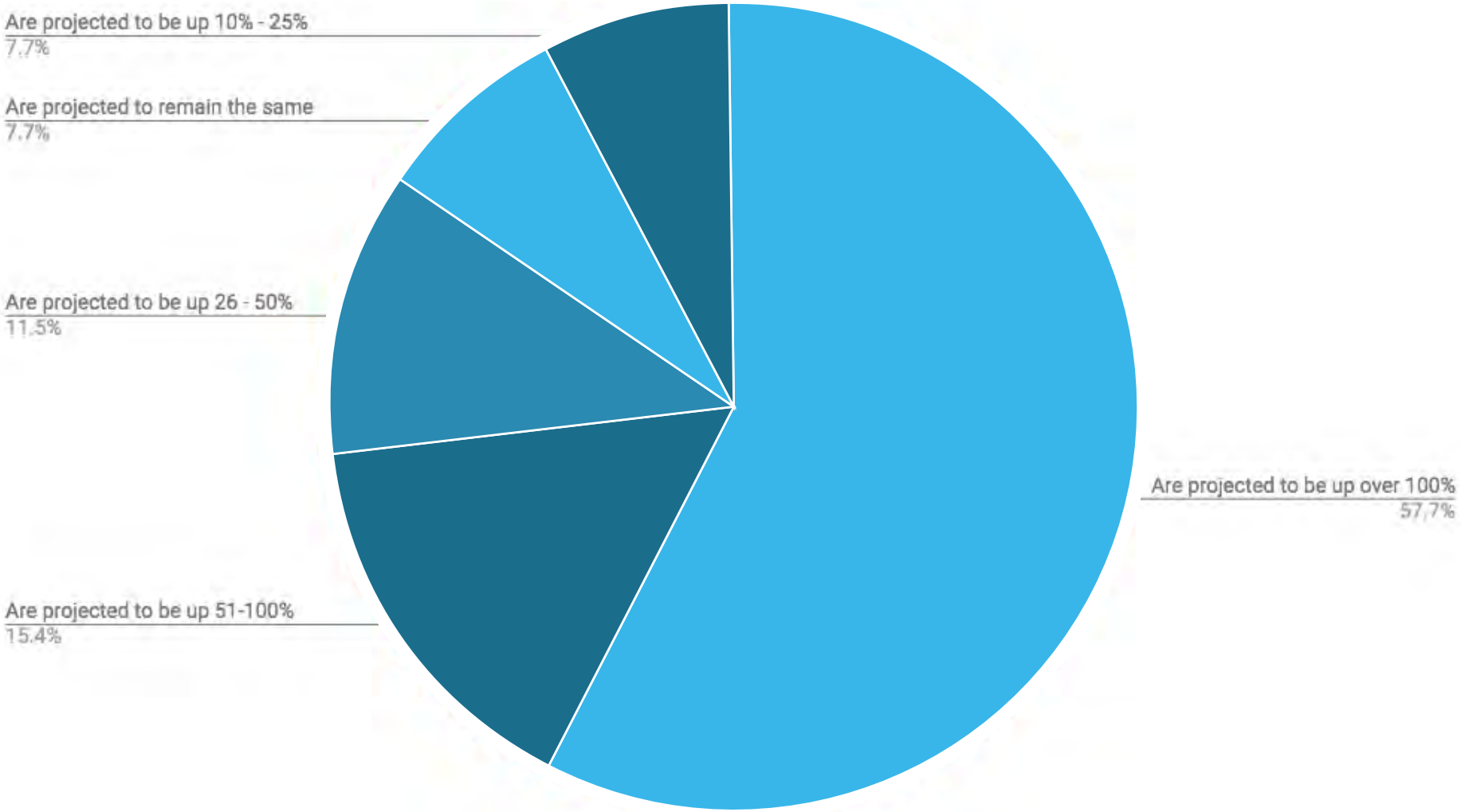
Year of formation



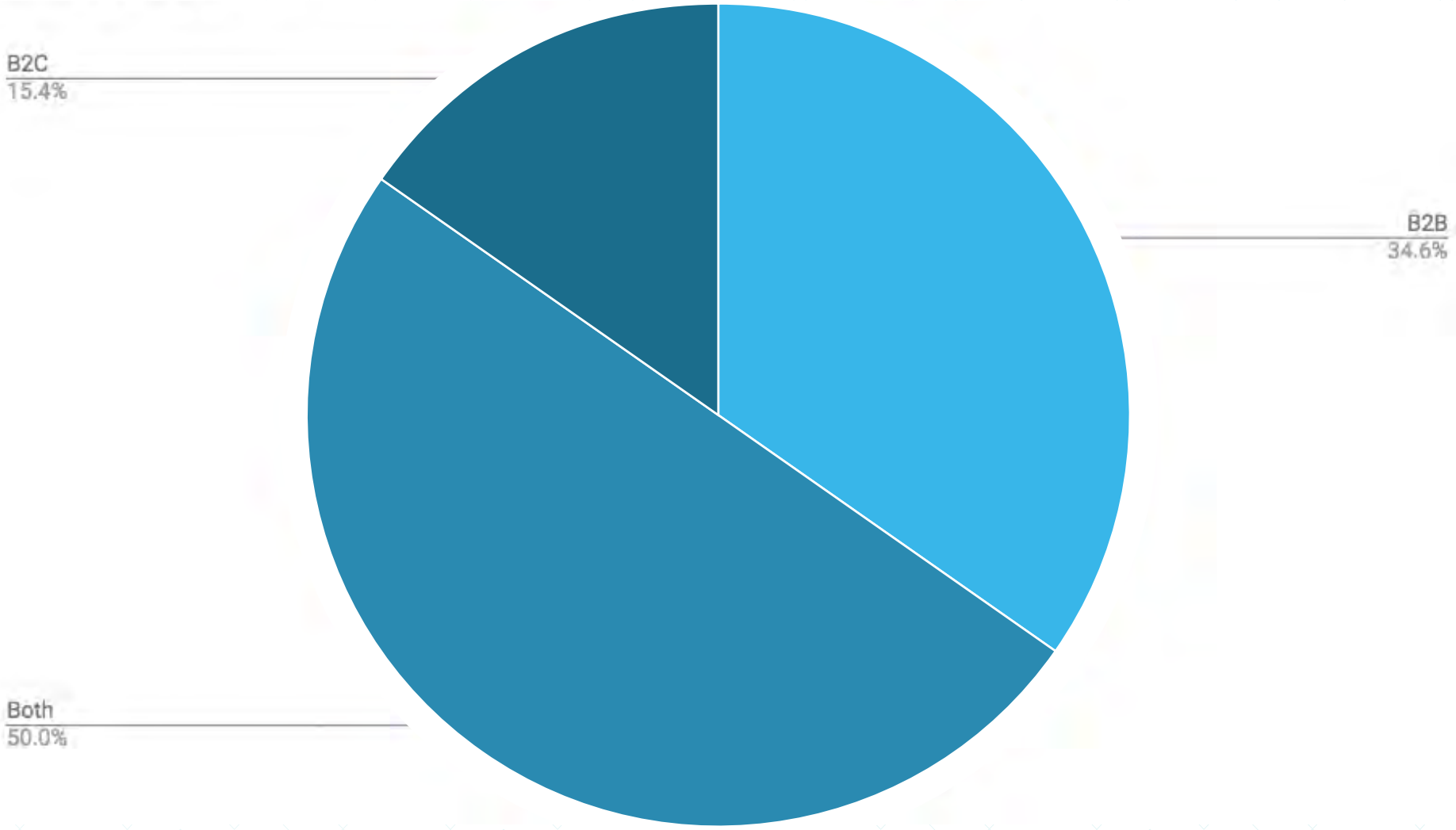
Aggregated analysis:
12 Month Trailing Revenues



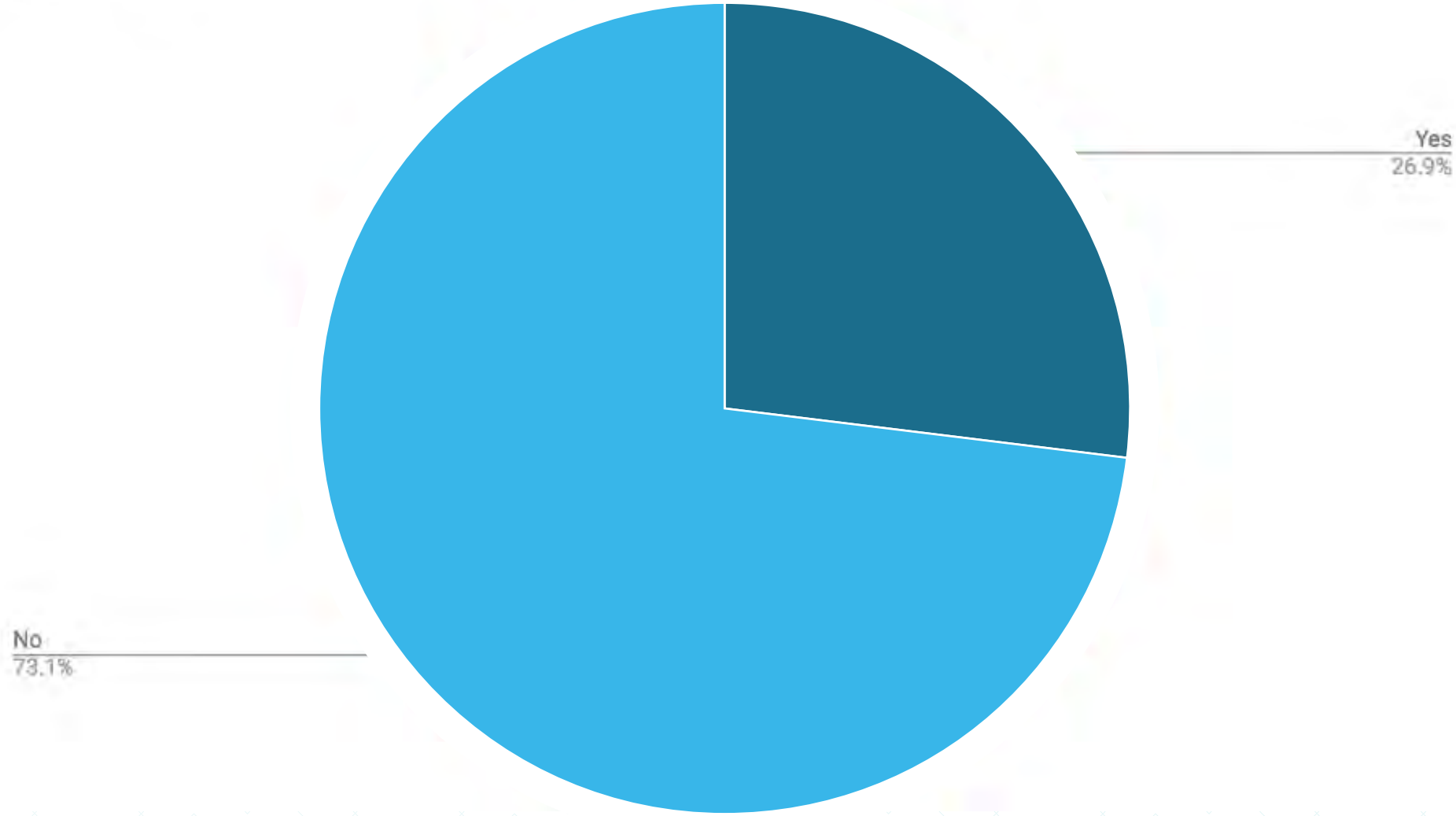
Aggregated Analysis:
12 Month Revenue Projection



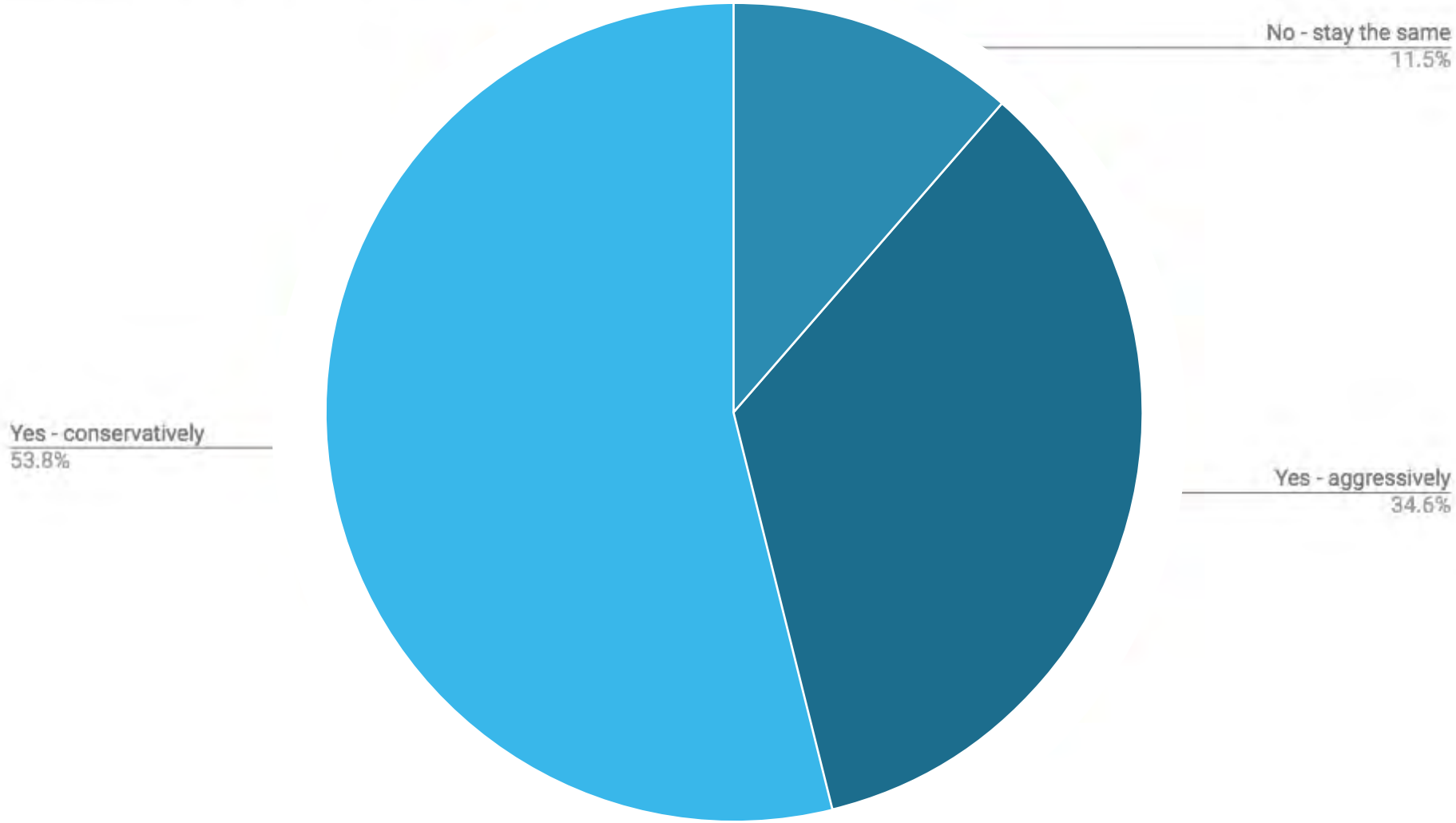
Aggregated Analysis:
Sell B2B, B2C, or Both



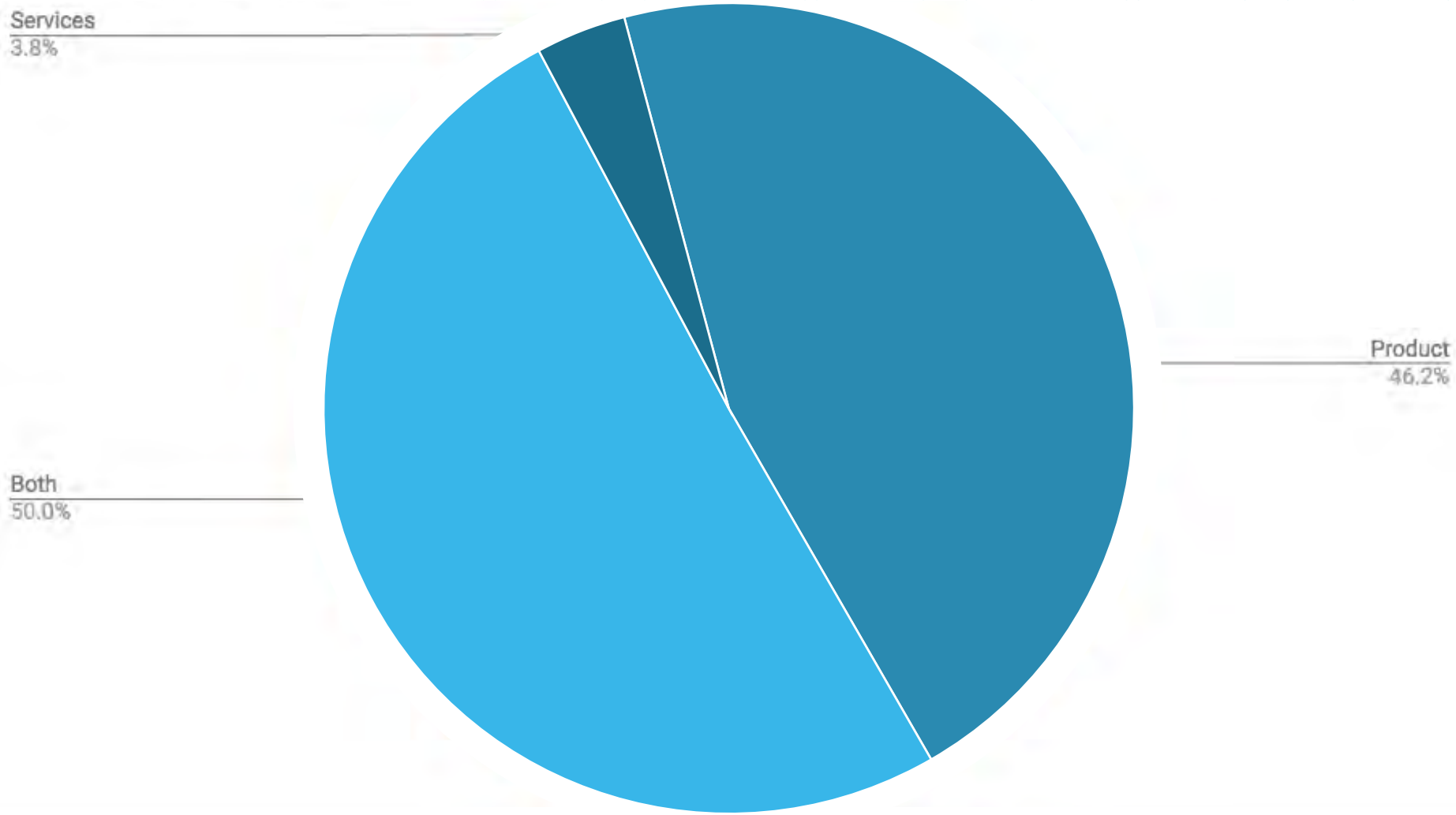
Aggregated Analysis: Fundraised?



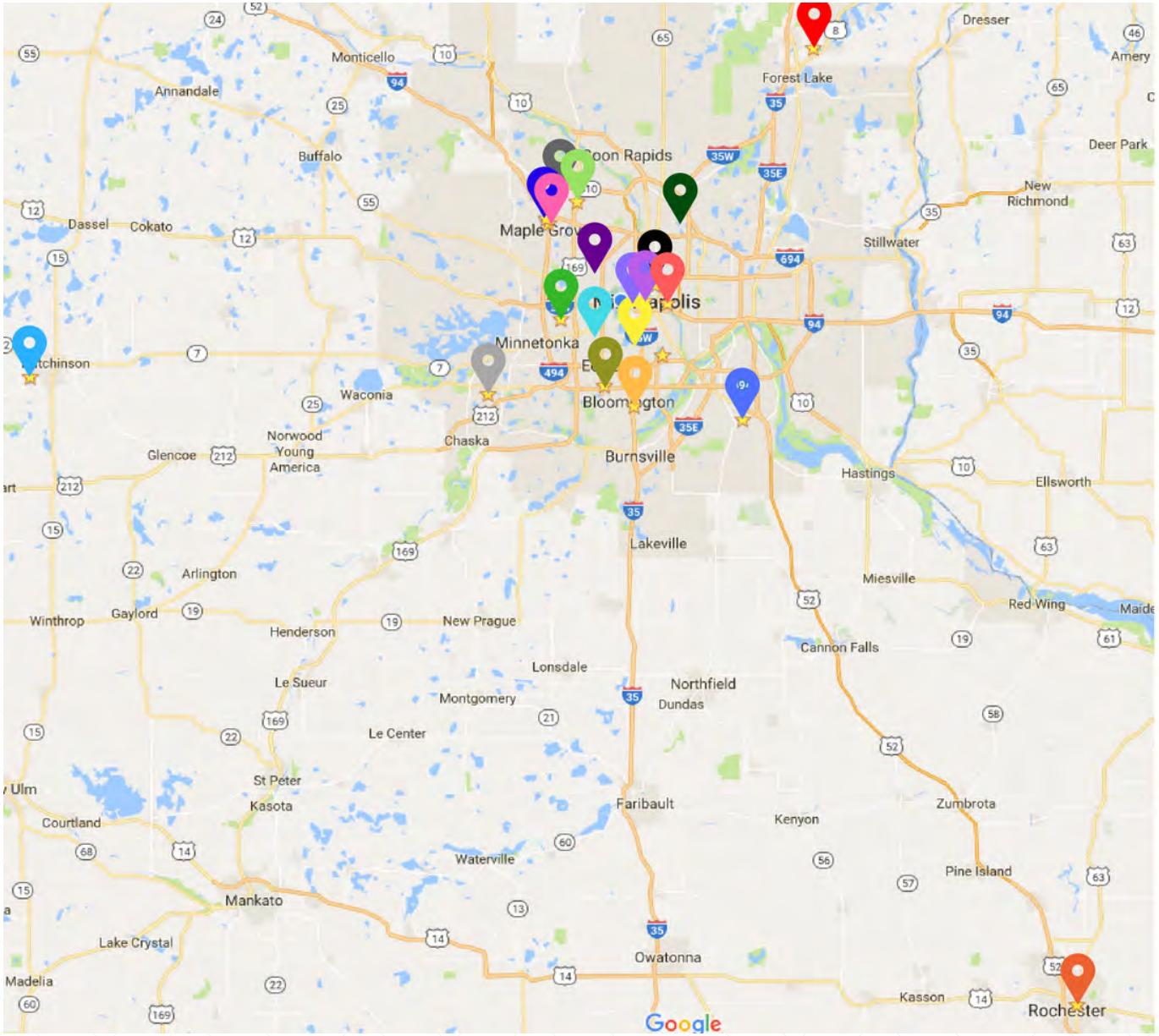
Aggregated Analysis:
12 Month Hiring Projections



Aggregated Analysis: Business/sales model



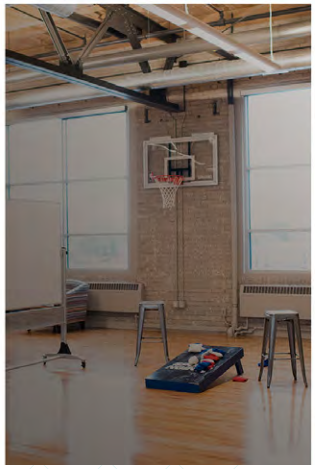
Locations

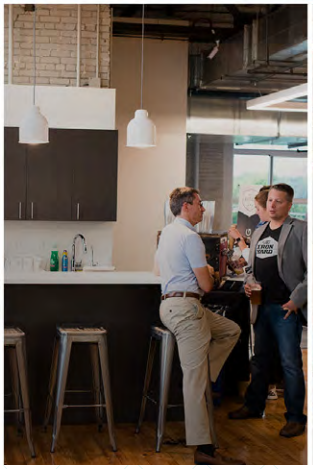


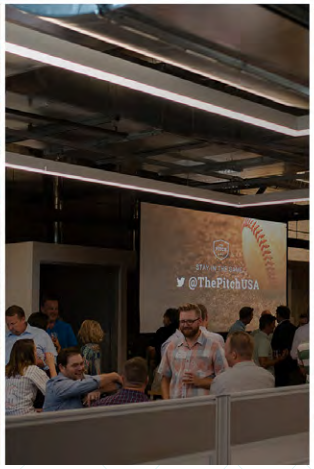
Adventures of Super Stretch
AutoIce
Dexalytics
Fitness on Demand
GoRout
GymPhone
Inside Edge
MatBoss
Moxy Monitor
MyTeamGenius
Player's Health
Prep Hoops
Prevent Biometrics
Sportradar
SportsEngine
SportsHub Technologies
Starting 11
SubBuds Games
Tenicity
Th3rdshift, LLC
Twins Daily
VennPT
WELLBEATS

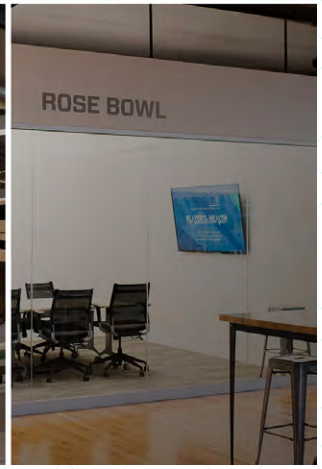
BEST-IN-CLASS AMENITIES

- Full-time Executive Director
- Secure 24/7 Access
- Super-Fast Wi-Fi
- Bottomless Fresh Coffee
- Conference Rooms
- Professional A/V Equipment
- Private Phone Booths
- Member Only Events and Workshops
- Appointed Kitchen and Lounge
- Indoor Bike Storage & Showering Facilities
- Brewery Onsite (Able Seedhouse & Brewery)









AutoIce

www.autoicescheduler.com
Founded 2014

Stephen Randall, Founder/CEO
9042 Alger Ct
Inver Grove Heights MN 55077

About

Sports schedule management solution for associations, leagues, tournaments, and facilities. We use our patent-pending algorithm to generate, analyze, and manage sports schedules. We also provide integration with several tools that allow publication of schedules to teams, referees, facilities and other impacted constituents for effective communication of team assignments and scheduled activities.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Hockey, Soccer, Basketball, Baseball, Swimming, Lacrosse, Volleyball

FUNDRAISED?
NPD

HOW MANY FTE?
4

HOW MANY PTE?
5

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

CogReps

www.cogreps.com
Founded NA

Matt Schaefgen, Co-Founder
Scott Coggins, Co-Founder
N/A

About

We turn playbooks into mobile learning games. Through the use of our games, athletes learn the concepts of the sport quicker through repetitive interactions. Coaches can control the players' interface to guide them through the game plan and get insight on their performance, allowing their practices to be more focused.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2C

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Youth Football - High School Football

FUNDRAISED?
NPD

HOW MANY FTE?
1

HOW MANY PTE?
1

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

Dexalytics

www.dexalytics.com
Founded NA

Tyler Bosch, PhD - Co-founder
Donald Dengel, PhD - Co-founder
McNamara Alumni Center Suite 224, 200 SE Oak St
Minneapolis MN 55414

About

Dexalytics is a SaaS company that's focused on improving every individuals understanding of their body compositions. From Athletes looking to improve their performance to individuals tracking their health, our Dexalytic's Score turns numbers into knowledge to create better information and better decisions.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Professional and collegiate sports are our primary markets.

FUNDRAISED?
Bootstrapped

HOW MANY FTE?
3

HOW MANY PTE?
4

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

Dotbound**

www.dotbound.com
Founded 2016

Peter Schultze, Co-founder / CEO
Derek Larson, Co-founder / CMO
White Bear Lake MN 55110

About

Dotbound is an online service that helps golf instructors with customer acquisition, scheduling and payments, and customer retention.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
<1m annual

WHO DO YOU SELL TO?
Golf Instruction, Personal Fitness (testing)

FUNDRAISED?
Bootstrapped

HOW MANY FTE?
2

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

** = new addition to this version

NPD = Not Publicly Disclosed

Fitness on Demand (Wholesale Fitness Supply, LLC)

www.fitnessondemand247.com
Founded 2011

Peter Taunton, CEO
1630 Lake Drive West
Chanhassen MN 55317

About

Fitness On Demand™ is a Minnesota-based market-leading developer of virtual group fitness products. Their innovative video delivery systems offer robust content and flexible audiovisual integration, along with a comprehensive web management tool that enables any facility to instantly offer group fitness classes at the touch of a screen. With the release of a new mobile app in February, Fitness On Demand™ is making it even easier for facilities to engage their users while giving them the connectivity and instant access they desire.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Health Clubs, Community Centers, Schools, Parks & Recreation

FUNDRAISED?
NPD

HOW MANY FTE?
50

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

GoRout (Repetix, LLC)

www.gorout.com
Founded 2014

Mike Rolih, founder and CEO
4 3rd Street SW, Suite 201
Rochester MN, 55902

About

GoRout is the only on-field playmaking technology that combines intelligent software and on-field wearable products to enhance practice for high school, college, and professional football teams. Currently, teams in the Atlantic Coast Conference (ACC), American Athletic Conference (AAC), Canadian Football League (CFL), SunBelt Conference, and Big XII are using GoRout's wearable display technology.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2C

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Professional (NFL, CFL), FBS College, FCS College, High School Football Teams

FUNDRAISED?
NPD

HOW MANY FTE?
8

HOW MANY PTE?
2

ACQUISITIONS MADE?
Yes - 3

NPD = Not Publicly Disclosed

GymPhone (iCommerce Services Inc.)

www.mygymphone.com
Founded 2013

Todd Huna, CEO
Chad Capp, President
321 6th Ave SE
Osseo MN 55369

About

GymPhone is a VOIP Telephone Company with a built-in overflow answering solution. We work with Small to Medium sized fitness locations as a next generation communications platform. When paired with our Fitness Intelligence product, we have the ability to analyze the true Voice of the Customer. We don't stop at just the phone, we also work with our customer's inbound leads to help bring business to their locations. We do that directly with the gyms that we serve and also with strategic Inbound Marketing Partners.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Services

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
<1m annual

WHO DO YOU SELL TO?
Franchise Model Fitness Locations, Independent Group Training Fitness Locations (BootCamps or Crossfit, etc)

FUNDRAISED?
NPD

HOW MANY FTE?
21

HOW MANY PTE?
4

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

Inside Edge

www.inside-edge.com
Founded 1993

Randy Istre, President & CEO
Jay Donchetz, COO
Kenny Kendrena, VP Sales and Marketing
9301 Bryant Avenue South, Suite 209
Bloomington MN 55420

About

Exceptional Data, Innovative Products, and Compelling Content

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Media, clubs, and fantasy markets

FUNDRAISED?
NPD

HOW MANY FTE?
14

HOW MANY PTE?
40

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

MatBoss

www.matbossapp.com
Founded 2015

John Peterson President
Jeremy Hipps CFO
Eric Gerold CMO
Tyler Hemmesch Sales/Business Dev.
Phil Johnson Support Mgr.
Andrew Hipps Web Content

6604 Dakota Trail
Edina MN 55439

About

The MatBoss platform is comprised of two parts: An iOS-based app that records video and scoring data in REAL-TIME (no post-production work needed), plus a cloud-based backend that allows users to watch their video AND interact with it as well. Each scoring tag is linked to a specific point in the video, so users are able to find the 'good parts' without having to search manually. Users also have access to dozens of different statistical reports (individual and team) based on that scoring data.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Wrestling Teams (College, High School, Junior High, Youth Clubs)
Gymnastics and Hockey beginning in winter of 2017
Diving beginning in fall of 2017

FUNDRAISED?
NPD

HOW MANY FTE?
3

HOW MANY PTE?
3

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

Moxy Monitor (Fortiori Design, LLC)

www.moxymonitor.com
Founded 2010

Roger Schmitz – CEO

1155 West Shore Dr SW
Hutchinson, MN 55350

About

Moxy is a wearable device that measures oxygen levels in the muscles of athletes while they exercise. This helps them identify which aspects of their physiology are limiting their performance and helps guide their training to make it more effective.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
1) Endurance Sports - Cycling, Triathlon, Running, Swimming,2) Sports and Fitness,Research,3) Team Sports

FUNDRAISED?
Bootstrapped

HOW MANY FTE?
2

HOW MANY PTE?
1

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

Player's Health* (Ao1 Solutions, Inc.)

www.playershealth.com
Founded 2015

Tyrre Burks Founder/CEO
807 Broadway St NE
Minneapolis MN 55413

About

We provide an all in one health risk management platform for sports organizations. Our platform records, monitors, and quantifies behaviors as it unfolds, providing the visibility that has been missing from the youth sports industry. Player's Health reduces liability for youth athletic programs, sports leagues, sports orthopedic organizations, and coaches by entrusting "return-to-play" decision-making to the athlete's caregiver.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
The 60,000,000 Youth Sports athletes 8 -18 years of age that participate in more than 500,000 Sports Organizations

FUNDRAISED?
1.1m-5m

HOW MANY FTE?
5

HOW MANY PTE?
7

ACQUISITIONS MADE?
No

* = based on v1 data as of March, 2017

NPD = Not Publicly Disclosed

Prep Hoops (Prep Network LLC)

www.prephoops.com
Founded 2014

Nick Carroll Co-Founder
Jake Phillips Co-Founder
7006 East Fish Lake Road
Maple Grove, MN 55311

About

Prep Hoops is the comprehensive authority for high school basketball coverage and events.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
1.1m-5m annual

WHO DO YOU SELL TO?
High school basketball

FUNDRAISED?
Bootstrapped

HOW MANY FTE?
7

HOW MANY PTE?
90

ACQUISITIONS MADE?
Yes - 1

NPD = Not Publicly Disclosed

Prevent Biometrics

www.preventbiometrics.com
Founded 2015

Steve Washburn – CEO
4820 W 77th Street, Suite 115
Edina MN 55435

About

Prevent Biometrics is introducing the first highly accurate head impact monitor inside of a mouth guard to assist teams and associations with identifying players at risk of a concussion, assisting them in concussion assessment and managing their return to play. Based on the Research and patents of the Cleveland Clinic, Prevent Biometrics is the only head impact monitor with peer reviewed confirmation of high accuracy for rotational and directional force, and location of any impact to the head.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Helmeted sports that require mouth guards already: Football Hockey Lacrosse Boxing/ MMA Soccer, Rugby, Skiing, X-games, other team sports.

FUNDRAISED?
NPD

HOW MANY FTE?
3

HOW MANY PTE?
5

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

Sportradar US* (Sportradar AG)

www.sportradar.us/
Founded 2010

Carsten Koerl, Founder and Chief Executive Officer
150 South 5th Street
Minneapolis, MN 55402

About

Sportradar is a global leader in understanding and leveraging the power of sports data and digital content for its clients around the world.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Internet, mobile, media companies

FUNDRAISED?
NPD

HOW MANY FTE?
121

HOW MANY PTE?
124

ACQUISITIONS MADE?
No

* = based on v1 data as of March, 2017

NPD = Not Publicly Disclosed

SportsEngine (NBC Sports, Inc.)

www.sportsengine.com
Founded 2008

Justin Kaufenberg
Carson Kipfer
Greg Blasko
807 Broadway ST NE Suite 300
Minneapolis MN 55413

About

Helping the world play smarter and live more, SportsEngine is the leading provider of sport life management web software and mobile applications for youth, amateur, and professional sports. Powering more than 650,000 sports teams, leagues, clubs, and associations, SportsEngine features a complete suite of easy-to-use tools that help sports organizations manage, connect, and communicate with a diverse range of stakeholders, including athletes, parents, administrators, coaches, referees, scouts, volunteers, fans, journalists, and sponsors.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
We sell to all sports organization types from NGBs to Youth Sports Organizations.

FUNDRAISED?
NPD

HOW MANY FTE?
400

HOW MANY PTE?
40

ACQUISITIONS MADE?
Yes - 7

NPD = Not Publicly Disclosed

SportsHub Technologies**

www.sportshubtech.com
Founded 2015

Rob Phythian, CEO
Chris Nicholas, COO
323 Washington Ave N Suite 320
Minneapolis MN 55401

About

SportsHub owns and operates real money fantasy sports gaming sites for both season long and daily fantasy sports players. SportsHub also specializes in helping sports media companies and retail brands develop strategies to drive deep customer engagement through custom games and mobile applications.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Consumer (Daily Fantasy Sports, Season Long Fantasy Sports)
Services (Professional Sports Leagues, Major Media, Retail)

FUNDRAISED?
NPD

HOW MANY FTE?
47

HOW MANY PTE?
0

ACQUISITIONS MADE?
Yes - 4

** = new addition to this version

NPD = Not Publicly Disclosed

Starting 11

www.starting11.io/
Founded 2015

Teague Orgeman: co-founderCEO
Asish Dash, co-founder, CTO
Amanda Heyman, co-founder, CMO and General Counsel
Mike Arney, co-founder, CXO
Thomas Bruan, co-founder, COO
Curt Baker, co-founder
3109 W. 50th St., Suite 228 - Minneapolis MN 55410

About

Starting 11 is in the business of engaging soccer fans more deeply with the sport and with each other. The company's first offering is a soccer-specific fantasy app for iOS and Android featuring both daily and multi-week contests tailored to soccer sensibilities. We are launching on August 1 with contests for the Premier League available to users in the United States, Canada, and the United Kingdom. In the latter part of 2017, we will be expanding our business by adding more leagues, contests, and companion products (including "Sweeper by Starting 11," a game-based, curated soccer news aggregator) designed to bring an authentic, engaging, and real-time fantasy experience to fans of the world's most popular sport.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2C

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Soccer fans, fantasy sports players

FUNDRAISED?
NPD

HOW MANY FTE?
0

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

SubBuds Games

www.subbudsgames.com
Founded 2017

Tyson Jahn, Founder & CEO
13607 74th Avenue North
Maple Grove MN 55311

About

SubBuds Games is a way for individuals to stay active, meet new people and play sports for free without long-term commitments. Our website is a tool for all users, regardless of gender, age and fitness level. Our goal is to get people together, get moving and experiencing what their community has to offer. SubBuds Games offers instant access to sporting events and fitness activities going on at this very moment. And by having the widest variety of these events and activities available to our users, they have the opportunity to sub on sports teams in need and create pick-up games.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Sporting goods retailers, restaurants/ bars and health promotion businesses will advertise and be visible on our real-time GPS map and game feed screens. Our customers are individual users and team captains and they can download the app for free. They will see the above businesses when their current location and sporting event to be played are view on the map and game feed.

FUNDRAISED?
NPD

HOW MANY FTE?
1

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

TeamGenius (MyTeamGenius, LLC)

www.myteamgenius.com
Founded 2017

Todd Larson, CEO.
Chris Knutson, CRO
321 6th Ave SE
Osseo MN 55369

About

TeamGenius is an athlete assessment platform, designed for youth sports organizations, that replaces the clumsy, time-consuming paper assessment process with a mobile app for easy scoring and instant, accurate results online. TeamGenius provides organizations with management tools and scoring algorithms to better place players on appropriate teams, provide helpful and encouraging feedback to players and parents, and save volunteers time and energy.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Youth sports, Private coaching and instruction, Sports camps and academies

FUNDRAISED?
NPD

HOW MANY FTE?
2

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

TENICITY™

Tenicity**

www.tenicity.com
Founded 2016

Harsh Mankad, Founder & President
Luke Wilcox, Founder
1132 Chelsea Court
New Brighton MN 55112

About

We support sport programs to maximize the potential of their athletes through a systematic and purposeful approach to game development. Our founder, Harsh Mankad is a former NCAA Singles Champion in tennis and has been a Director of a Tennis Program. Our team has deep experience, competence, and passion for supporting sport programs to better develop athletes and create greater value for their stakeholders.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Athlete Development Programs at the junior, high performance, collegiate, high school, and club level. Also, programs and/or athlete development initiatives run by state, regional, and national sport organizations.

FUNDRAISED?
Bootstrapped

HOW MANY FTE?
2

HOW MANY PTE?
3

ACQUISITIONS MADE?
No

** = new addition to this version

NPD = Not Publicly Disclosed

Th3rdshift**

http:/h3rdshift.com
Founded 2016

Matt Yoder Co-Founder/Android Developer
Eric Dorphy Co-Founder/iOS Developer
Tony Riley Co-Founder/User Experience Designer
8117 33rd Place North
Crystal MN 55427

About

Th3rdshift is developing RaceRadar which is a solution to bring precision data to athletes, spectators and race organizers during race events. Athletes wear beacons that can be detected by our mobile app, the athlete's location is reported in near-real time to other users following that athlete via our cloud system. The app will also alert the user in real time when their phone detects the Bluetooth signal from a athlete that they are following so that they don't miss an opportunity to cheer.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
Pre-revenue

WHO DO YOU SELL TO?
Running race events, bike race events, multi-sport race events (e.g. triathlons)

FUNDRAISED?
NPD

HOW MANY FTE?
3

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

** = new addition to this version

NPD = Not Publicly Disclosed

The Adventures of Super Stretch

www.adventuresofsuperstretch.com
Founded 2012

Jessica Rosenberg, Founder
11472 Telluride Trail
Minnetonka MN 55305

About

Kids have fun & get fit learning yoga poses from animated characters right out of a cartoon, storybook, and flash cards. Go start to finish or pick your pose. Super Stretch guides and offers children positive ways to relax, connect, stay centered, and pay attention through mindful movement and breathing exercises. Our mission is to bring health, mindfulness and play to children through yoga fitness and technology offering kids skills and coping mechanisms to navigate life's challenging circumstances.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
<1m annual

WHO DO YOU SELL TO?
Fitness Facilities, Health Care Centers, Schools, Yoga Studio, Personal use

FUNDRAISED?
Bootstrapped

HOW MANY FTE?
1

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

TwinsDaily** (TwinsCentric, LLC)

http:/winsdaily.com
Founded 2012

Brock Beauchamp - Co-Owner
John Bonnes, Parker Hageman - Co-Owner
Nick Nelson - Co-Owner
Seth Stohs - Co-Owner
5333 Fremont Ave. S
Minneapolis MN 55419

About

Twins Daily is a vertical media platform with content generated jointly by users, members and paid writers. A three-sided custom-developed software interface – stories, blogs and forums – creates a natural snowballing marketplace: readers come for the content, writers come for the readers, and readers naturally develop into writers. Revenue streams include advertising (10M page views in 2017), events, publications and (soon) memberships.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
Both

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Advertising, Entertainment

FUNDRAISED?
NPD

HOW MANY FTE?
0

HOW MANY PTE?
12

ACQUISITIONS MADE?
No

** = new addition to this version

NPD = Not Publicly Disclosed

UnderRecruited Preps**

www.underrecruitedprep.com
Founded 2015

Francis Kanneh (Founder)

N/A

About

The athletic recruiting process is time consuming, confusing, and very difficult if one doesn't know where to start. An online recruiting profile is very important to have college coaches view academic and athletic abilities. UnderRecruited Preps connects student-athletes to college coaches and teaches them about the athletic recruiting process.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2C

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Both

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
<1m annual

WHO DO YOU SELL TO?
Baseball, Basketball, Football, Lacrosse, Wrestling, Soccer, Softball, Track & Field, Volleyball, Hockey, Golf, Rowing, Tennis, Cross Country, Water Polo, Skiing, Swimming & Diving

FUNDRAISED?
25k-1m

HOW MANY FTE?
0

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

** = new addition to this version

NPD = Not Publicly Disclosed

VennPT

www.vennpt.com
Founded 2017

Kevin Marx Co-Founder/Engineering
Joe Barrett Co-Founder/Mobile Engineering
807 Broadway Street NE, Suite 310
Minneapolis MN 55413

About

VennPT is a simple, effective way to create and share personalized home exercise programs with your patients.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Physical Therapy, Sports Medicine, Personal Trainers, Chiropractors

FUNDRAISED?
Bootstrapped

HOW MANY FTE?
0

HOW MANY PTE?
0

ACQUISITIONS MADE?
No

NPD = Not Publicly Disclosed

Wellbeats*

www.wellbeats.com
Founded 2008

Jason Von Bank - CEO

11600 96th Ave N
Maple Grove MN 55369

About

WELLBEATS B2B2C company that produces and distributes proprietary fitness videos and programs to organizations that allow their employees and members to take control of their health. Our cloud and app based technology platform allows users to interact with our content anytime, anywhere and create personalized plans and solutions that fit their lives. With over 4 million classes delivered in all 50 states and across 19 countries, WELLBEATS continues to be the virtual fitness leader. Clients include Fortune 500 corporations, major health club chains, residential housing, recreation centers and 250+ U.S. military bases.

DOES YOUR COMPANY SELL B2B/B2C/BOTH?
B2B

DOES THE COMPANY SELL PRODUCT, SERVICES, OR BOTH?
Product

WHAT ARE YOUR COMPANY'S 12 MOS TRAILING GROSS REVENUES?
NPD

WHO DO YOU SELL TO?
Fitness Facilities, Military, Corporations, Youth Sports Associations, Schools

FUNDRAISED?
NPD

HOW MANY FTE?
53

HOW MANY PTE?
2

ACQUISITIONS MADE?
Yes - 1

* = based on v1 data as of March, 2017

NPD = Not Publicly Disclosed

EXPO 2023
USA • MINNESOTA

Sharing The Experience

Sharing The Experience

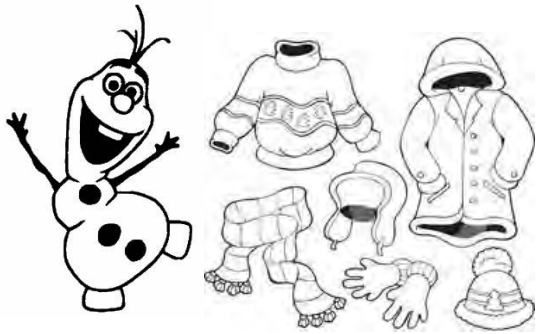
The Team

Brian Wegleitner	Unisys Corporation
Matt Pohl	ALLETE Inc
Shelley Andrew	Minnesota Twins Baseball Club

EXPO 2023
USA • MINNESOTA

Sharing The Experience

The Vision

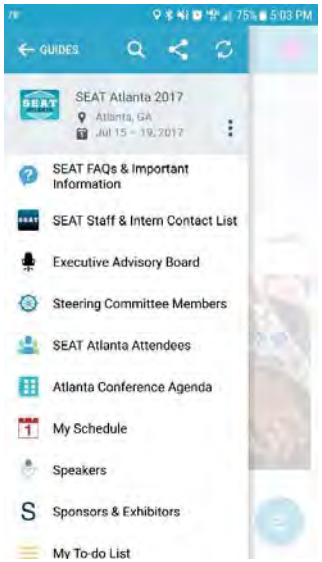


Sharing The Experience

The Research

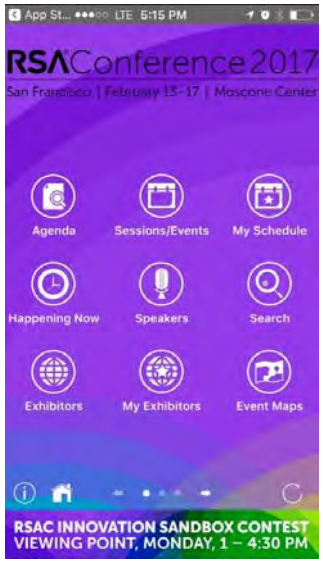
Mall of America

SEAT Consortium



MN State Fair

RSA Conference

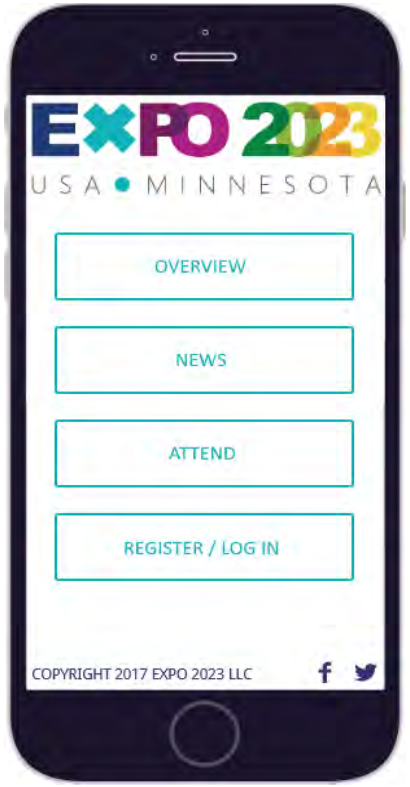


Expo 2017 Astana

Sharing The Experience

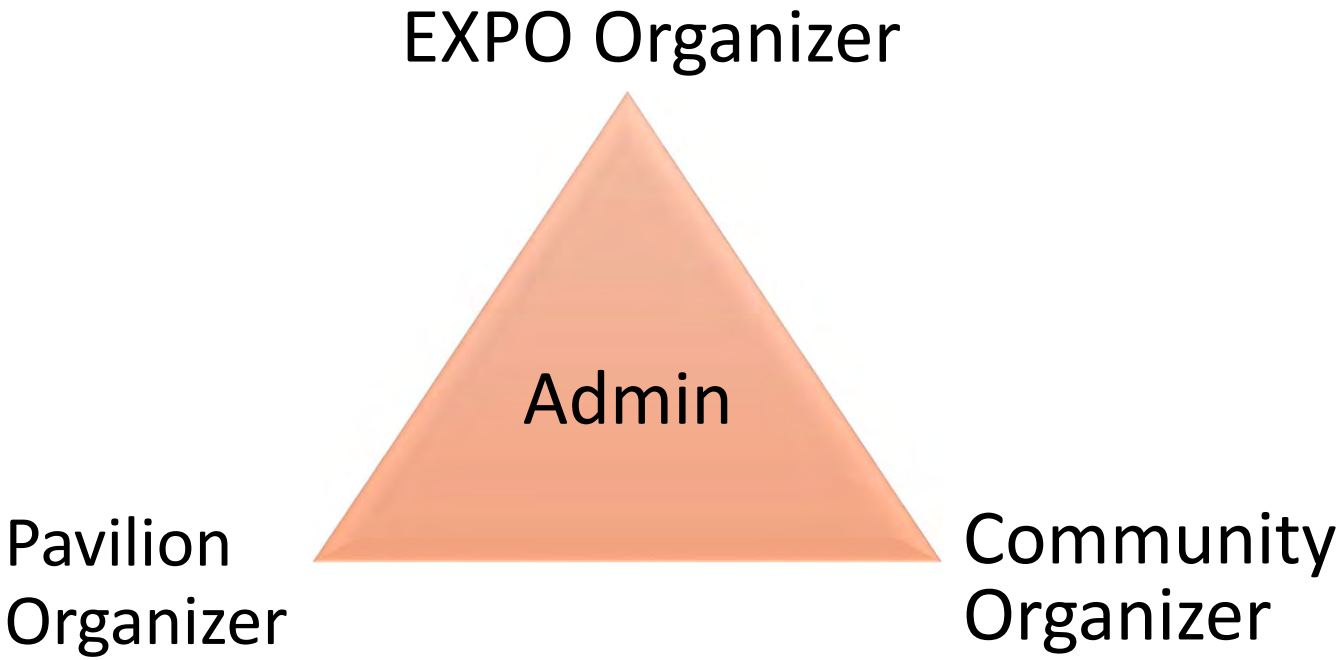
The Platform (XPO2GO)

- Highly Interactive
- Personal Itinerary
- Ticketing
- Blue Dot Navigation
- Notifications
- Search
- Augmented Reality
- Attendee Profiles



Sharing The Experience

The Administrative Interface



EXPO 2023
USA • MINNESOTA

Sharing The Experience

The Plan

EXPO 2023
USA • MINNESOTA

Sharing The Experience

Questions?

Sharing the Experience

Brian Wegleitner
Unisys Corporation
(612) 207-6280
brian.wegleitner@unisys.com

Matt Pohl
ALLETE, Inc.
(218) 723-7598
mpohl@allete.com

Shelley Andrew
Minnesota Twins Baseball Club
(701) 388-3562
shelleyandrew@twinsbaseball.com

Abstract

Minnesota is a final contender for hosting Expo 2023, also known as the World's Fair. When we are successful in our bid to host, we want to ensure attendees are provided a full experience of what Minnesota has to offer to the technology community.

In order to formalize the requirements of such a tool, we first met with Mark Ritchie, President of the Minnesota World's Fair Bid Committee, to discuss his vision for sharing the experience with the world. To further refine the requirements, we examined the technology tools used by other conventions to engage their attendees, then compared and contrasted those with the tools utilized by the Mall of America and the Minnesota State Fair.

Our findings were that we will need to share information for business, social media, logistics, and emergency management by leveraging mobile technology to culminate in an enhanced experience.

To accomplish this, we propose the MHTA, in partnership with the future Minnesota World's Fair Planning Committee, find local technology organizations with the capability to create and support a mobile application of global scale that satisfies the requirements laid out in this document.

Methodology

The chosen theme was ‘Sharing the Experience’ and to gain insight we met with Mark Ritchie, the President of the Minnesota World’s Fair Bid Committee and theme originator. His vision is to show the world what Minnesota has to offer in technology, innovation, and culture without limiting the experience to the Expo grounds.

With this in mind, we looked to mobile applications with a similar purpose to collect common features and functionality. We examined the following applications with a focus on those with a Minnesota connection:

- The Minnesota State Fair
- Mall of America (MOA)
- Expo 2017 Astana
- RSA Conference
- SEAT Conference

Our conversations with Mark, our research into existing applications, and our thoughts on additional functionality necessary to ensure a great experience led us to our formal requirements and recommendations.

Requirements

In order to successfully share the experience, we need to consider not only the user aspects of the mobile application, but also the administrative aspect of how content is made available.

Overall, we expect the following components in a modern mobile application:

- Facilitate distribution of Emergency/Safety/Security/Informative communications to participants
- Extend the Expo into cyberspace
- Geolocation for visitors relative to attractions, transportation, lodging, cuisine, and merchandise
- Augmented reality experience with incentivized participation
- Allow visitors to customize experience and receive recommendations based on interests and related attractions
- Traffic and crowd control to minimize congestion and disperse visitors
- Ability for visitors to provide ratings and feedback for vendors and attractions.

User Roles

We envision four major roles for application usage, each with appropriate actions that can be performed.

Attendee

- Register a profile by completing a questionnaire
- Connect to social media
- Search surrounding areas for events
- Register for events and purchase tickets
- Maintain a personal itinerary
- Receive notifications
    - Reminders for registered events
    - Suggested events
    - Emergency, Safety, and Security Information
- Wayfinding to events at and around the Expo
- Link to transportation, lodging, and local event pages
- Request information and get help
- Provide feedback

Expo Organizer

- Organize events on Expo grounds
- Manage Emergency, Safety and Security Information
- Authorize Community Organizer and Exhibitor accounts
- Reporting functionality

Community Organizer (chamber of commerce, sporting team, or other organization)

- Register to add local events to Expo calendar
- View calendar of events for planning
- Maintain local events

Pavilion Organizer

- Manage events, registration, and merchandise

Platform

To support the roles described above, we envision two applications. A robust mobile application for attendees, codenamed XPO2GO, and a separate interface for the administrative functions.

Mobile Application

The XPO2GO mobile application will use the most cutting edge technology available in 2023 to provide a highly interactive experience for attendees. It will be localized so regardless of language preferences, the interaction and features available are comfortable and familiar.

Given the direction that technology is headed, we expect that the application will provide an augmented reality experience when on Expo grounds. Additionally, the experience can be expanded to include those who are unable to attend in person through the incorporation of virtual reality.

Administrative Interface

With the vast amount of data involved to successfully manage the content of the experience, we expect the administrative interface to be designed for use with a full functioning device rather than focusing on mobility. The administrative interface will provide distinct functionality for each of the organizer roles.

Risks and Assumptions

We believe that there will be considerable risk related to the performance of this application due to the high projected utilization and concentration of user base. We are assuming that all infrastructure related risks will be mitigated and not impact the use of this application.

Recommendations

When Minnesota wins the bid to host Expo 2023, we recommend the MHTA partner with the Minnesota World's Fair Planning Committee. This partnership should engage a Minnesota technology company to implement the applications and showcase our technology innovation. We envision future ACE participants will reevaluate current technology offerings to determine applicability to this effort.

ELECTRONIC SIGNAGE
FOR THE
DESTINATION MEDICAL CENTER INITIATIVE

Nick Stageberg

Dan Reilly

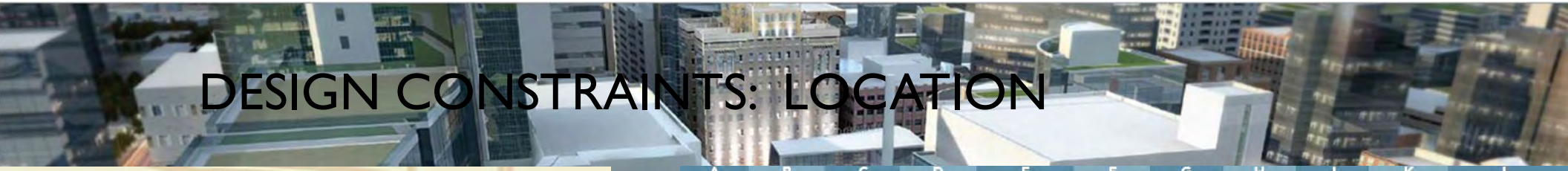
WHAT WE WILL DISCUSS

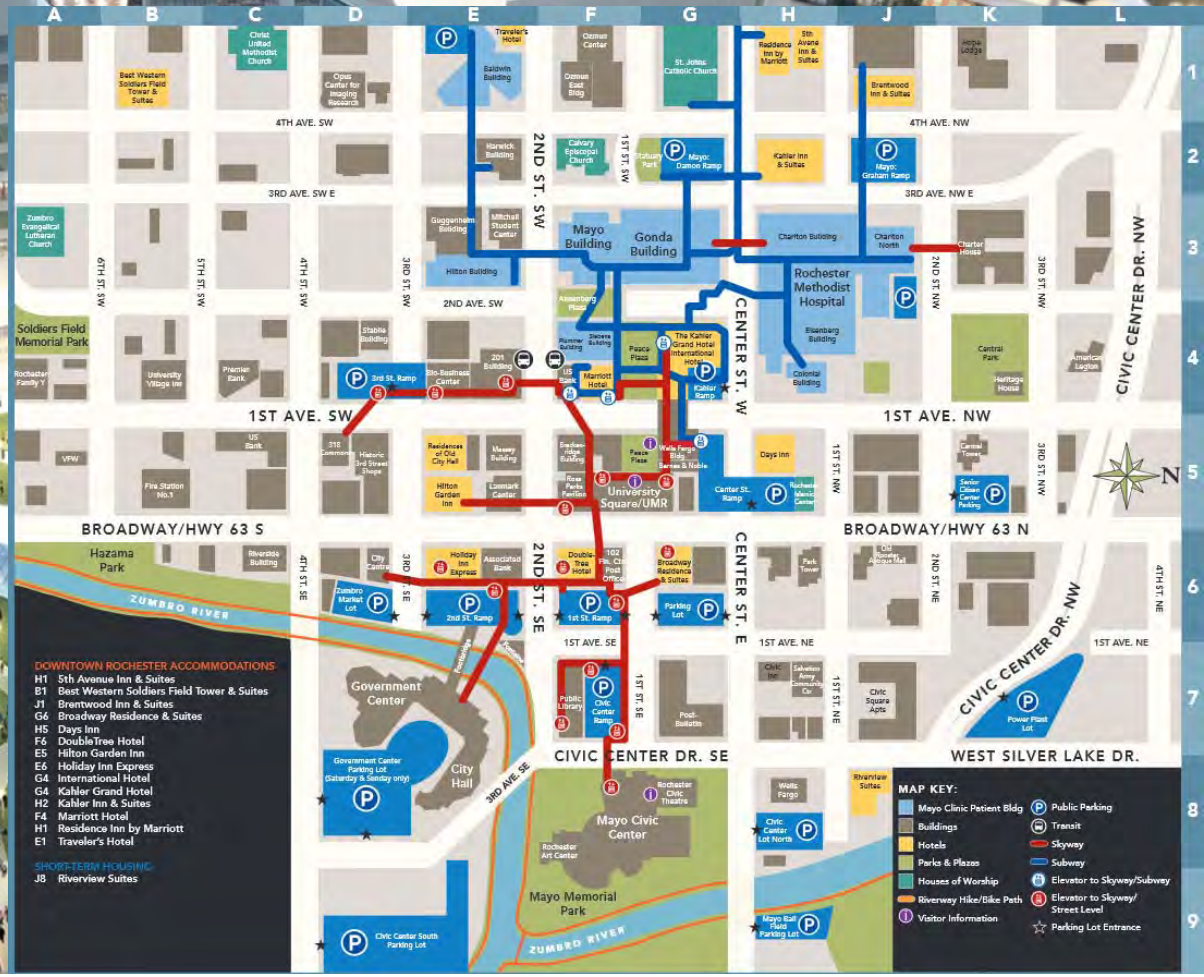
- Why does electronic signage matter?
- Design constraints
- Feature constellation
- Immediate next steps
- What it will take

DESIGN CONSTRAINTS: SIZE, INDOOR VS OUTDOOR

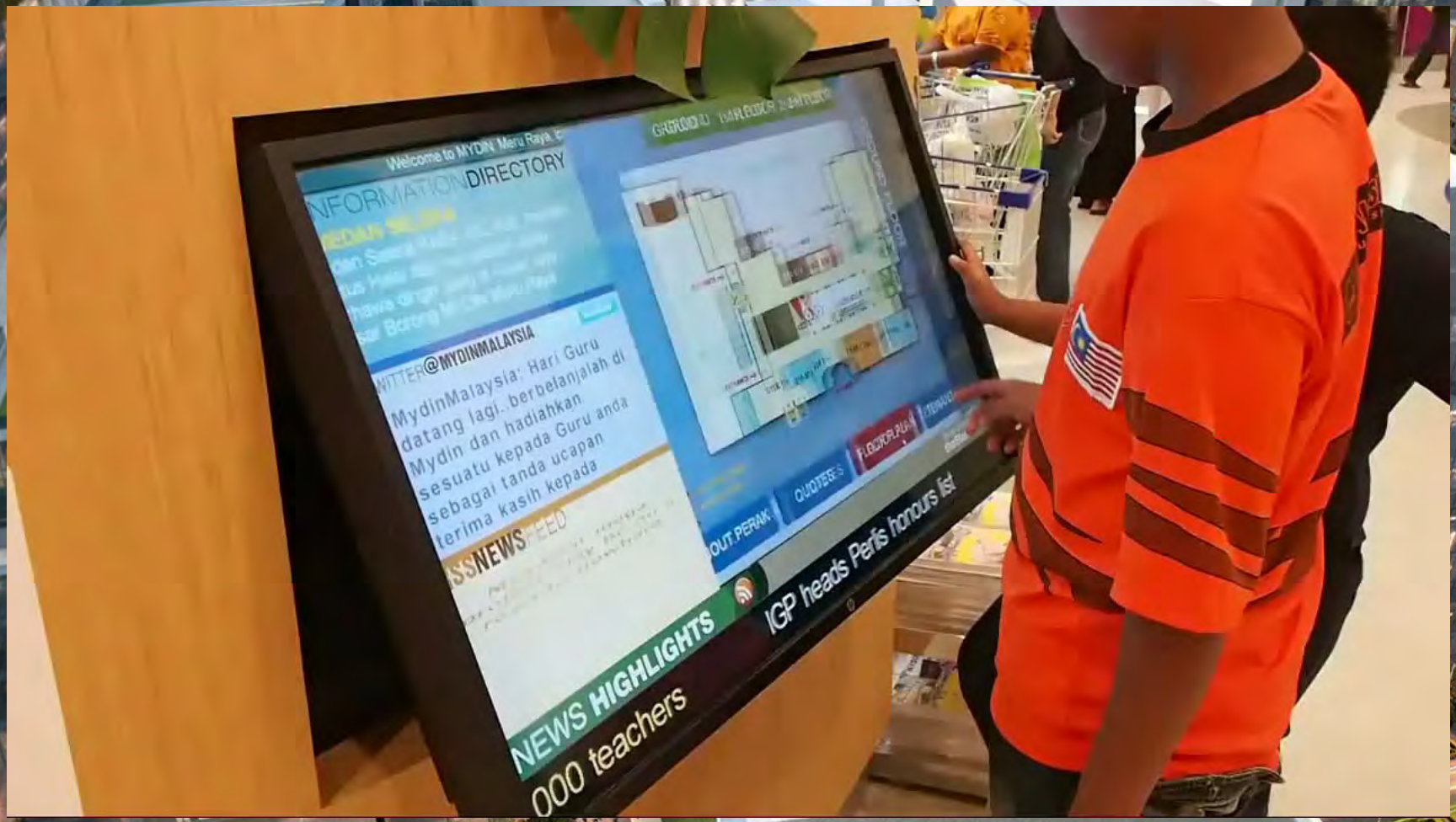

LOUISVILLE
Visitors Center
LOUISVILLE
Visitors Center

DESIGN CONSTRAINTS: LOCATION

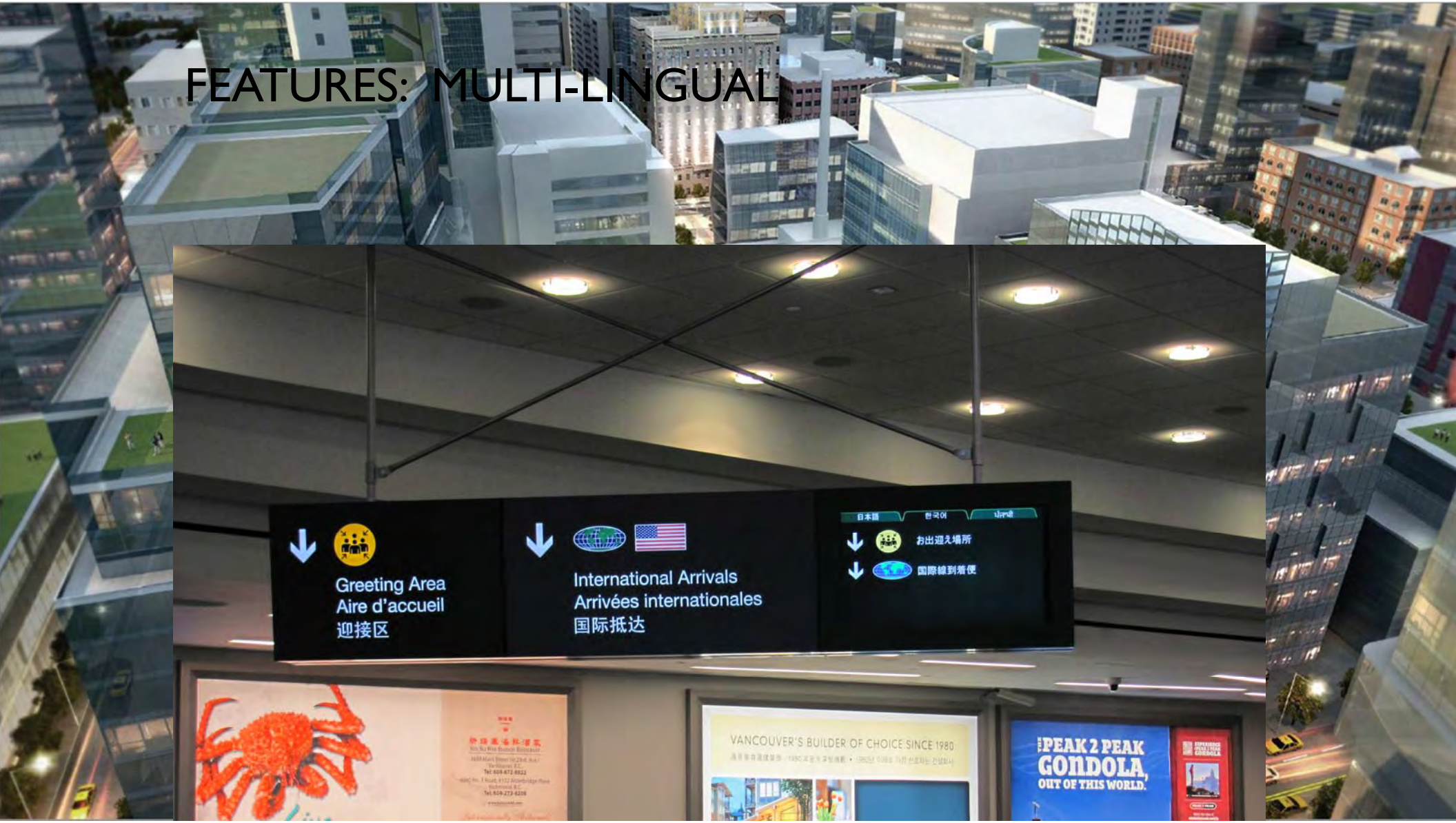




DESIGN CONSTRAINTS: INTERACTIVITY



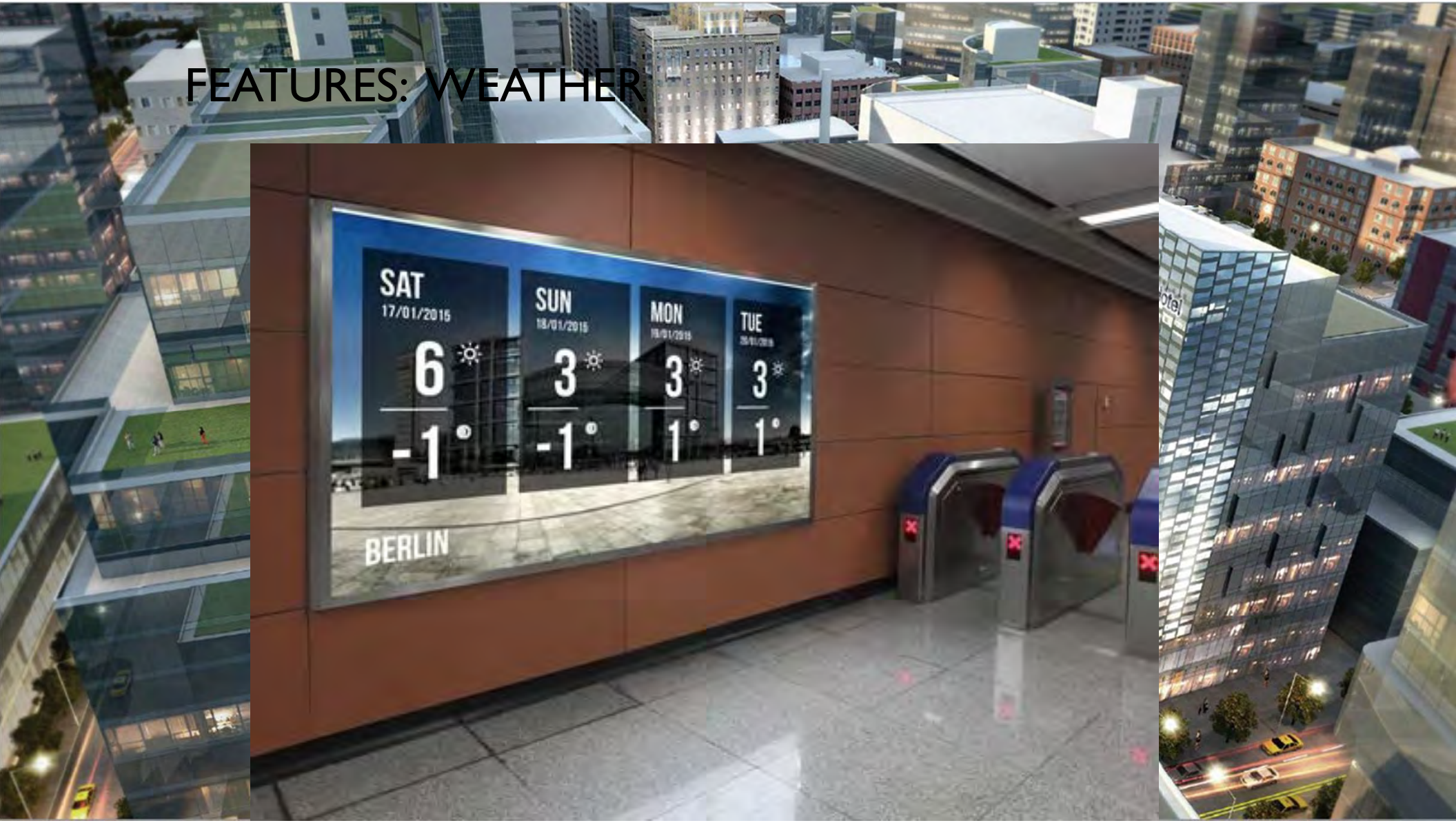
FEATURES: MULTI-LINGUAL



FEATURES: WAYFINDING

FEATURES: LINK TO MOBILE

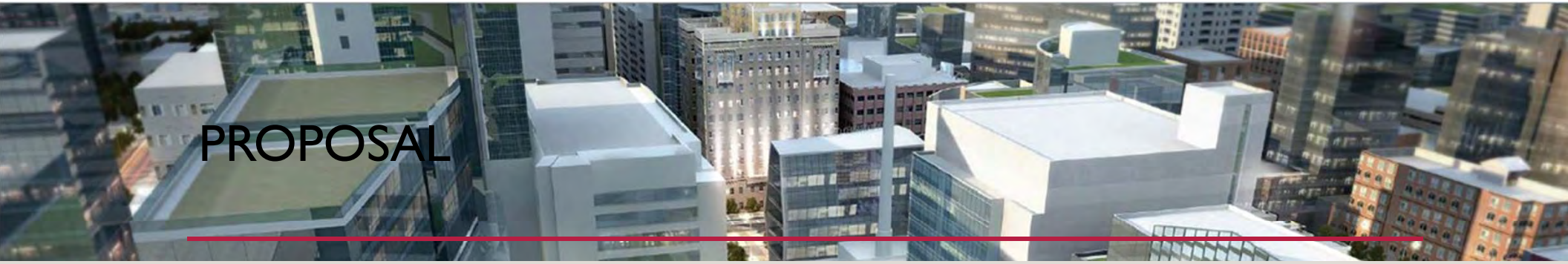
FEATURES: WEATHER



FEATURES: COMMUNITY NEWS

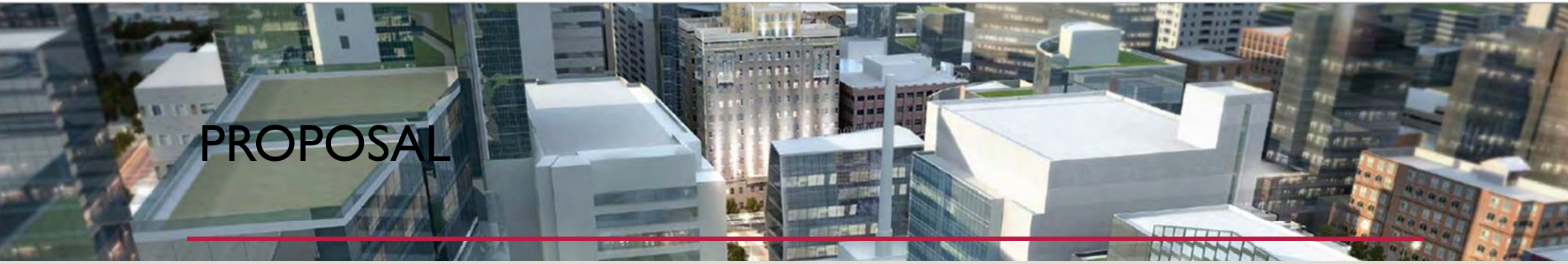
FEATURES: PUBLIC TRANSIT

FEATURES: PLACEMAKING



PROPOSAL

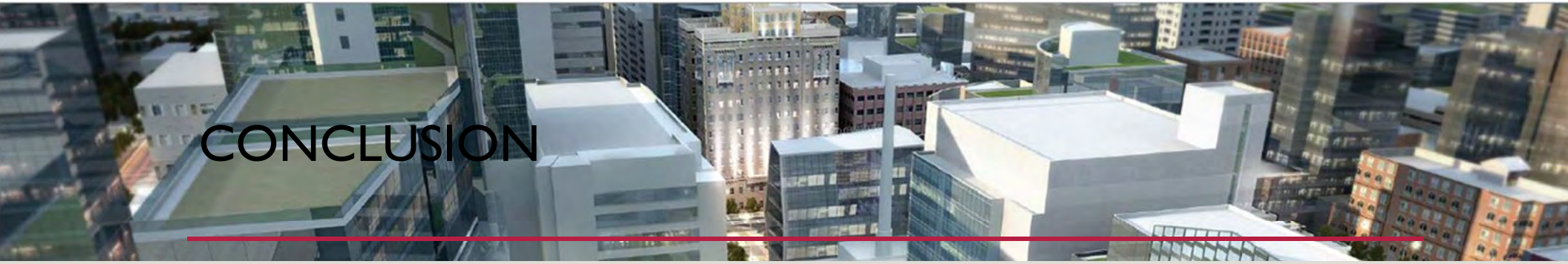
- MediaTile chosen as initial vendor
- Six month to one year proof of concept phase
  - 10 screens
- Two year larger rollout phase
- .5 FTE manage project in first year
- .25 FTE to bootstrap content in first year



PROPOSAL

- $50,000 All equipment and installation for ten screens
- $6,000 Cloud services
- $50,000 Project management
- $10,000 Utilities and maintenance
- $25,000 Content

- **$141,000 Total**



CONCLUSION

- Why does electronic signage matter?
- Design constraints
- Feature constellation
- Immediate next steps
- What it will take

Q&A

DMC Destination Medical Center

In the middle of EVERYWHERE

2017

Nick Stageberg
The Mayo Clinic
stageberg.nicholas@mayo.edu
405.535.1329

Dan Reilly
SMS Research Advisors
dreilly@smsresearch.com
701.640.5605
Nick Stageberg

ELECTRONIC SIGNAGE FOR THE DESTIATION MEDICAL CENTER INITIATIVE

Contents

Abstract

In 2013, state officials determined there was a compelling interest to authorize public investments in Rochester to help support Mayo Clinic in Rochester as a global medical destination center. One of the organizations created to accomplish this is the Destination Medical Center (DMC). Their purpose is to create the financing tools and public governance structure necessary to carry out the global destination vision.

With more than $5 billion in projected private investments over the next 20 years, DMC will provide the public financing necessary to build the public infrastructure and other projects needed to support the vision. One of the infrastructure pieces DMC believes will be necessary to enhance the experience of visitors and residence alike is signage. The explosive growth in Rochester in the past 20 years forced businesses, including the Mayo Clinic, to occupy spaces not intuitively recognizable as a place for that business. The result is considerable confusion about where to go. This growth also means that new amenities arrive in Rochester on a continual basis to meet the demand for entertainment and other activities. Additionally, there is no efficient way to communicate to the 1 million plus visitors to Rochester all the amenities available in the downtown area (the bulk of the Mayo Clinic treatment options are located downtown) during their visit. DMC determined that electronic signage may be the most effective and efficient way to communicate with visitors to the downtown area.

With that in mind, DMC tasked the MHTA ACE group to discover best practices and recommendations for implementing electronic signage in public spaces.

This report details the findings of our research, design constraints and recommendations, proposed initial features, and a detailed implementation plan, schedule, and budget.

Methodology

This report was compiled based on extensive research of current and future state for electronic signage. This included industry whitepapers, news articles, execution plan summaries, retrospectives, as well as interviews with potential vendors. Topics varied from high level content and design all the way down to concrete differences in physical equipment characteristics.

The final step in this research will be to conduct an extensive marketing research effort to determine how likely visitors, residents, and local businesses are to use the signs and their various potential features.

Purpose

For electronic signage to be successful, its design must reflect the reason for the communication and the target receiver of the communication. In this case, the DMC and ACE team determined that the primary target of electronic signage is a visitor or resident on foot in the downtown Rochester area. Since the

purpose is to communicate in a succulent and efficient manner to as many people as possible, the signs must follow these parameters:

- Clearly visible to pedestrians
- Provide useful information, like weather conditions, points of interest and community news (including public safety alerts) in multiple languages
- Located in areas with high foot traffic
- Physically and electronically secure (i.e., “hack proof”)
- Leverage technology in such a way that the signage does not become obsolete prior to the end of its useful life

Principles

The ACE and DMC team collaborated to build a set of guiding principles when designing electronic signage. They are:

- We must show that we are a culture which values technology. If you are a tech company, come here and you will be successful
- We want to implement solutions which will be relatively future proof
- We want to implement solutions which are innovative, but proven.
- Our solutions must be driven by empirically proven consumer demand

Design Constraints and Recommendations

In this section, the high-level design parameters and the recommendations for those parameters are discussed. Electronic signage can take almost any form: from a massive LED display in a stadium to an electronic menu with a touch interface at a restaurant. Each characteristic of electronic signage is examined in detail, and together they yield an optimal electronic signage solution for DMC.

Size

Because the primary target of the signage is visitors to the downtown area with the purpose of interacting with the target, the implication is a smaller form factor. This could be something as small as a 10" tablet, however those solutions offer extremely low visibility and typically need ancillary print signage to draw consumers to them. For this reason, something larger is desirable. The upper limit for size which still allows close-up interaction is approximately 55". The ~48" form factor is extremely popular for this segment, strikes a good balance between these extreme, and offers optimal price efficiency. Thus, the ACE team recommends a form factor somewhere in the 48" to 55" range, though there is flexibility on this in terms of the concrete implementation depending on the location, sight lines, and specific use case.

Interactivity

Interactivity is a crucial design consideration. Currently, relatively few electronic signage solutions in use are interactive, however that is changing rapidly. Consumers are becoming more and more accustomed to an interactive experience. They interact with touch-enabled devices ranging from their previously non-touch desktop or laptop computer to the smartphone in their pocket. Within a few years, it is expected that consumers will demand an interactive experience from electronic signage, and non-interactive electronic signage will feel out of place or strangely dated.

One of the greatest design considerations that must be met is creating a relatively future proof solution. Even if there are no plans to make the electronic signage interactive today, it must be assumed that it will be at some time in the future. Since touch displays can easily serve non-touch content, it would be wise to install touch displays everywhere from day one.

The interactivity of the electronic signage solution also informs the size design constraint as signs implicitly become less interactive the larger they are. This is further evidence of a 48" screen as the ideal, as anything larger than 55" limits interaction. , n a 48"-55" form factor, a cost increase of 30-40% can be expected to move from a non-touch to touch interface).

To be certain, interactive signage is more expensive (30% to 40% more expensive than non-interactive signage), but The ACE team believes interactive signage is the best solution for satisfying all the DMC design and content requirements.

Indoor vs outdoor

The next broad design constraint is whether the electronic signage will be located indoors or outdoors. This constraint has significant implications on the nature and function of the signage; for example, if the signage is indoor it immediately becomes useful for locating a store or office within a building, if it is outdoor it is useful for locating an entire building.

There are many considerations impacting this design constraint, however the largest is cost. Rochester has a climate dominated by extremes with winter temperatures well below zero for days or weeks at a time and summer heat over 90 degrees with very high humidity. Deploying electronic signage solutions which are ruggedized to endure these extremes is costly, roughly 10 times more expensive than comparable indoor solutions. Given similar budgets, it would have a greater impact to have ten signs indoors than one sign outdoors.

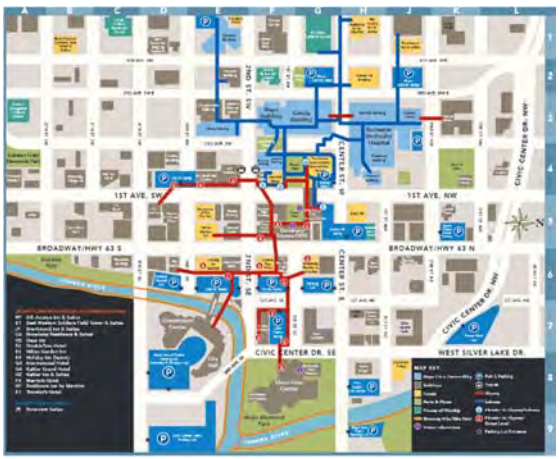
An excellent compromise in location is to place some of the indoor electronic signage in indoor areas which are readily visible outdoors. Large amounts of downtown Rochester feature glass building facades, and locating an electronic sign directly behind this façade yields many of the benefits of outdoor signage with few of the liabilities.

One critical consideration for this solution is to make certain the screen is sufficiently bright. A typical consumer grade television will feature a brightness of 300 nits. A typical commercial grade television will feature a brightness of 500 nits. A television which looks good while serving content in daylight typically needs a brightness of 2500 nits. Thus, any screens which are intended to be viewed outdoors from an indoor location must be purchased for that special purchase, separate from other indoor displays. While the largest disadvantage to this approach that it prohibits interactivity, the ACE team believes that limiting the number of these “indoor behind glass” signs will provide an excellent balance between security and interactivity. Therefore, the ACE team recommends an indoor-only electronic signage system.

Location

Amongst indoor locations there is tremendous variety and flexibility for electronic signage locations.

The ACE and DMC teams agreed that the first area to target for electronic signage is downtown, specifically



the individual DMC districts. These are far and away the highest traffic areas in Rochester, both for visitors and Rochester community members. Signage impact is about making as many unique impressions as possible, and higher traffic areas directly lead to a higher return on investment for each sign.

The ACE team recommends a single DMC locationfirst, then an entire DMC district, then the rest of downtown. This could eventually be followed by deployment to other places in Rochester deemed valuable for placemaking, such as public schools, popular indoor public places like the Rochester Rec Center, or select businesses.

Ideal locations would be traffic paths with lots of pedestrian traffic and good sight lines. These locations should also be geographically meaningful to support wayfinding and orientation, similar to directory kiosks found in large shopping malls. When a visitor or resident sees one of these sings it should be something familiar which immediately helps identify the location.

Concretely, these signs would be located in the following areas:

- Intersections in all subways and skyways downtown
- Ingress and Egress points for stairwells and escalators
- Near elevators
- Inside doorways of buildings

A significant question to answer is how to integrate the signage with Mayo Clinic infrastructure: This could influence where to locate the signs. The ACE team recommends DMC begin working with Mayo Clinic immediately to identify and secure locations that would most benefit patients and visitors to the Mayo Clinic downtown campus.

Another critical question is sign density. It is certainly possible have too many signs, but there is an ideal signage density level to forge the sense of placemaking desired and for people to frequently utilize them. This is a subjective question and worthy of study, but the ACE and DMC team agree on density parameters such that “a single sign would need to be visible from most places downtown.” This would create a presence which is persistent, but not overwhelming.

Equipment Quality

One great advantage to electronic signage is its incredible flexibility. Printing conventional sign media always requires high end equipment to get results, but many people experience electronic signage success hooking up an old PC to a consumer great flatscreen tv from a big box retailer. This is a double-edged sword however, as consumer-grade equipment not designed for this purpose can be a recipe for failure in the long run.

On the surface, consumer and commercial grade televisions may appears to be the same. However, several differences exist, from the capacitors to the power supply. Manufacturers acknowledge this directly, and state that any use beyond 4-6 hours per day will void the warranty. That warranty is often

fairly limited, and one year in duration. Commercial-grade televisions typically come with a 3-year warranty which covers 24x7 operation.

Commercial-grade televisions have numerous features consumer-grade televisions do not. The most critical feature to consider for electronic signage is portrait (vs landscape) orientation. Many electronic signage solutions require the television to support portrait orientation, something all commercial-grade and few consumer-grade screens support. Another critical feature is security. Consumer-grade televisions all support infrared remote controls, and rarely have lockouts against tampering. All Commercial televisions have features to lock out both physical control buttons as well as "IR Hackers" which may attempt to gain control of your digital display using a rogue infrared scanning and projecting device. Commercial televisions typically have much higher brightness and contrast ratios, reinforced bezels to armor the screen against damage and facilitate cooling, better and thicker glass to protect the screen, sturdier power cords—everything is built to a much higher quality standard.

Commercial-grade screens are several times more expensive than consumer-grade screens, however the latter will often yield services lives of five years or more, while the former may only last a year. The service life difference alone makes the higher cost a wash, and the other advantages

In addition to the screen, all other pieces of equipment should be high-quality equipment, ideally from the same vendor. This includes any mounting equipment, cases or armor, a kiosk enclosure, cables, and the control unit. Up-front costs may be higher, but it is important to focus on the long-run cost and the quality of the experience the consumer receives. A cheap, broken, or malfunctioning electronic display conveys a profoundly negative impression, and is much worse than nothing at all.

Future Proofing

One of the guiding principles of this solution is to leverage technology which is innovative, but proven. The corollary to this is that this solution must also be relatively future proof. Concretely, this means that the solution should still be viable a minimum of five years from now with no significant changes in hardware or software. This is no small feat in an area of technology which is constantly changing.

While televisions are increasing in size and resolution all the time, current 1080p or 4k screen offer more than enough resolution to meet the needs of the 48" electronic signage ACE recommends. It is expected that a high quality commercial-grade touch enabled television purchased today should still be viable and serviceable five years from now.

The other primary physical component to an electronic signage solution is the control box. This is essentially some form of miniaturized PC with limited memory storage. An excellent method for hedging against this moving as much functionality as possible to the cloud. All content storage, data storage, and management of both should occur in the cloud and never "inside" the sign. This will ensure serviceability five years from now.

On the software side, it is absolutely essential that the solution chosen supports hosting and rendering of standard web content. Concretely, it must support HTML5, JavaScript,and CSS. There is no way to know what web content will look like five years from now, but it is almost certain that it will use this software stack. These technologies have been dominant underpinnings of the web for two decades, and are not going away anytime soon. There are two alternatives to this which would be a considerable error. First, DMC could use a proprietary content format which is vendor-specific. Many vendors offer software to create content on their digital signage platform. It often looks and feels like Microsoft PowerPoint and is relatively capable. However, once the content is created in this proprietary format it is often difficult if not impossible to export to an open standard format. Thus, the customer is 'bought in' to the platform cannot leave. The customer can even be held hostage, paying large sums of money to have their content exported. The second alternative which would also be an error is using a proprietary content framework even if it is not vendor specific. Great examples of this would be Adobe Flash, or Microsoft Silverlight. It is extremely easy to create high quality content on these platforms; however, it is not without its disadvantages. Rendering this content often requires much more processing horsepower, local runtimes must be constantly updated and installed, and its proprietary nature often invites security issues. For these reasons, many technology leaders such as Google, Facebook, and Apple have removed them from use, and they should not be used for electronic signage in Rochester. Whatever solution is used, if it can play HTML5, JavaScript, and CSS, it will work very well for the foreseeable future.

Features

Establishing a baseline for content, features, and overall signage functionality directly informs the physical infrastructure which hosts it, and this section includes numerous ideas to that end.

Multi-lingual

Rochester receives a tremendous number of visitors every year and for many English is not their native language. A huge advantage of electronic signage is that it is easy and able to support many languages. This report recommends signs be interactive from day one, and the most basic form of interactivity is selecting an alternate language. Imagine how incredibly helpful and comforting it would be to a non-english speaking visitor to know that any interactive sign they see can help them find information they need, and get where they need to go in an language they can understand.

Weather

Rochester enjoys an extremely varied climate, and weather information is valuable at all times—to Rochester residents and especially to visitors. Electronic signage is an ideal medium for communicating this constantly changing information. It could everything from display severe weather alerts to the current temperature and forecast for the next few hours or days.

Navigation and Wayfinding

Rochester has an exceptionally robust downtown area, and it can be challenging to navigate for visitors or even Rochester natives. Traditional navigation solutions only help people get around in "one dimension"—streets, but Rochester residents and visitors must use streets, skyways, and subways to successfully navigate. Worse still, these areas often have limited reception, and visitors can be cut off from cellular communication just when they need it most.

Electronic signage is an exceptionally good medium to communicate the "three dimensional" wayfinding information needed for Rochester. They can provide location-aware directions to locations near and far in a medium which is persistently

available, usable, and familiar. Indeed, wayfinding is currently one of those most common use cases for electronic signage.

DMC is currently working on a project with Mayo for a wayfinding app which will solve many of these problems. At an absolute minimum, electronic signage can solve the biggest challenge for this app: making people aware of it and getting them to use it. Simple wayfinding notices can direct people to the download link and spread awareness. A simple point of integration could be to embed a QR code in the screen with a download link. Better still, the person could perform basic navigation on the electronic sign, and then use a QR code to scan their selected destination and current location directly into the app. The best possible case for integration would be if the two ran the same software, which should be relatively easy for a responsive HTML/JavaScript application.

Points of Interest

Rochester receives an exceptional number of visitors each year, and it can be a challenge to help them find basic amenities such as a nearby restaurant. Electronic signage could be used to direct the public to nearby services, entertainment, points of interest, etc, especially if used in conjunction with a wayfinding capability.

Community News

The Rochester community is diverse, making it difficult to keep everyone "in the loop" on community events. The digital signage system could help close this gap by presenting relevant community news, such as upcoming events like Rochesterfest and Thursdays on First.

Public Safety Announcements

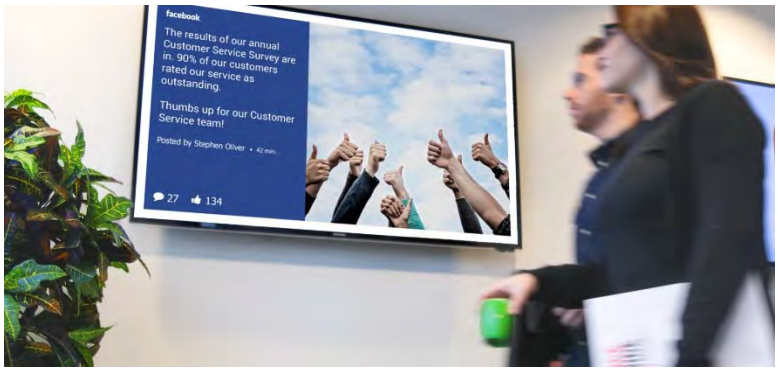
Digital signage presents a unique opportunity to improve public safety and awareness. For example, signage could display an active amber alert, silver alert, or major accident that impacts public safety.

Public Transit

Rochester has a highly rated public transit system, including a robust city bus system. Rochester City Lines already provides real-time GPS data for all of their busses which is viewable in an app on a smartphone. Electronic signage could be installed at indoor locations near the 2nd street city bus terminals which consumes this data and displays useful information such as ETAs for busses similar to the electronic signage normally seen in an airport.

Social Media

In some organizations, digital signage displays social media feeds. For example, a digital sign in front of the DMC office could display the latest photos and updates from the DMC twitter feed.



Placemaking

Digital signage offers a unique opportunity for placemaking within the different DMC districts. For example, the same wayfinding signs would be present in all DMC districts, but each district would have its own unique visual theme, fonts, etc.

Proposal

Weighing all of the factors above, a concrete proposal is detailed in this section.

Vendor

While it is entirely possible to implement a from-scratch electronic signage solution, using an established vendor with a track record of success mitigates the risks that go with an ad hoc solution. Many leading vendors were examined and interviewed, including Proviso, SkyKit, BroadSign, and MediaTile. The ACE team recommends MediaTile for this proposal because their capabilities align well with all of the required design criteria for a reasonable price.

MediaTile has experience in executing electronic signage. For example, several years ago the Texas Department of Transportation purchased 5 electronic signage displays from MediaTile for a limited proof of concept, followed by an additional 180, and are now rolling out an additional 200. Their use case is similar to Rochester's in many ways, though it covers a much larger geographic area.

MediaTile also uses a cloud-based platform which is allows non-technical users to administrate the system and build content. While it is absolutely possible to build custom software, it's also possible to drag and drop data widgets onto the screen and compose content just like a PowerPoint presentation. This low technical barrier to entry seems especially valuable for Rochester's needs.

The pricing model for MediaTile is also very clear-cut. Electronic signage installations have a reasonable up-front cost, and then a flat per-year cost of $550 for all cloud based tools and services. This entitles the customer to unlimited storage, users, training, support, content, etc. Other vendors often seem to be less transparent with a low up-front cost and then expensive software features, support, and training.

Proof of Concept

The first step in the rollout of an electronic signage solution is a proof of concept phase. The purpose of this phase is to gather as much feedback as possible from end users with a limited engagement to reduce the cost of rework or failure. For example, after deploying a small number of signs for a few months, it may be learned that the screens aren't bright enough and brighter screens are required for consumers to see them well. It's better to need to replace ten screens than a hundred. Many other lessons can be learned, relating to all of the design constraints called out above. Perhaps the signs in the skyways are rarely used, but the signs in subways often have a line. Perhaps it isn't obvious to consumers that the signs are interactive, and they need to be re-staged to make this obvious.

Approximately 10 interactive touch screens are recommended for this phase. This is enough signs to generate consumer awareness, and enough to get statistically significant amounts of user feedback, but not so many that it creates a barrier to trying something different or new. Deployment of the signs should coincide with a DMC project phase. For example, when a centerpiece of discovery square is unveiled, it should include a small number of the electronic signs.

Further Rollout

Depending on feedback from the proof of concept phase, further rollout of the electronic signs can proceed organically. Many factors would impact this. For example, if there are technical challenges in executing the first iteration of signs, resolutions to the technical issues must occur before a larger rollout occurs. Large amounts of high-quality consumer feedback could lead to many proof of concept iterations to create an amazing product, and this too would slow down a larger rollout. Perhaps the proof of concept phase is tremendously successful, and many are deployed faster than anyone could predict. The largest factor which would affect the rollout schedule is likely financing, which is addressed in the next section

Other similar efforts have seen proof of concept phases range from weeks to years. This proposal assumes a proof of concept phase lasting six months to a year, with a larger rollout occurring over two years.

Proof of Concept Cost

There are essentially two cost centers for electronic signage: equipment, and content.

The equipment cost is relatively easy to project. MediaTile is typically able to set up a single electronic sign with the following cost breakout:

$4000	55” Commercial grade touch display
$1500	26” Commercial grade touch display
$200	Freight
$600	Installation

This includes a commercial grade mount, cabling, and media player with a 3-year warranty. It is a single-price all-inclusive solution. If 10 48” screens are set up for a proof of concept stage, this would imply an up-front cost of <$50,000.

MediaTile charges $550 per year per screen for cloud services, $5,500 for ten screens for the first year.

A very significant management cost should be expected during the proof of concept stage of the project, and during times when large number of screens are being rolled out. These tasks include everything from determining where exactly a screen should be placed to coordinating logistics for MediaTile installers. These responsibilities would be sufficient to require .25 FTE during the duration of the proof of concept stage, likely being fulfilled by someone who is already engaged in another related activity for DMC. The real cost could likely be $0, but a theoretical cost of $25,000 can be estimated for these responsibilities.

There will be other small ongoing costs including electricity, data services, and maintenance. This is estimated at <$10,000 for the first year of operation.

Content costs are abstract and will vary considerably. A great deal of valuable content can be had for free. MediaTile features many drop-in widgets as part of its cloud services plan. This includes functions already identified as valuable such as the weather. Employees from the DMC office, the city of Rochester, and The Mayo Clinic could all contribute content essentially for free.

One of the most valuable content pieces could be integration with the wayfinding application. Depending on the architecture, the existing application could be ported to the electronic signage system for a relatively low cost, and its ongoing maintenance could be rolled into the maintenance cost for the app. In a harder case, a significant up-front effort could be made to integrate the two, with the goal of low or no long-term maintenance costs.

Ultimately though, high quality content is not free. Content producers such as ScreenFeed charge a monthly fee of $5-10 per screen per month to produce feeds for digital signage systems. More likely, a full-time employee whose sole job is to create and manage content would be very desirable. As the number of screens grows, the return on investment for this for full time content creation would grow, and the content cost per year per screen would fall.

For the purposes of this plan a budget of $25,000 for content for the first year is estimated. The majority of this will go towards bootstrapping automated and free content systems, not for direct content authorship.

The following cost breakdown has been identified for the proof of concept phase and first year of operation:

$50,000	All equipment and installation for ten screens
$6,000	Cloud services
$50,000	Project management
$10,000	Utilities and maintenance
$25,000	Content

Altogether, $141,000 would be a reasonable budget to bootstrap this effort. There is considerable flexibility depending on the scope and quality of the proof of concept, and this is merely a starting point for discussion. For example, as an extremely limited proof of concept it could be feasible to roll out just a few screens in particularly good locations. Existing DMC team members could produce content and manage the project, and manage all other aspects of the limited effort. This could be feasible for as little as $20,000.

Business model

There are numerous business models available to effectively fund and sustain the electronic signage effort.

The most common model is to sell advertising. This can be done in an obvious manner with full-screen advertisements rotated along with public service content such as weather information. Alternatively, businesses might pay handsomely to be listed among wayfinding destinations and for other placements

within the electronic signage system. Yet another advertising model is to have individual businesses or organization sponsor individual signs.

A common business model for electronic signage is to have a centralized source that subsidizes or completely funds the signs due to their passive benefits. There are many organizations which could be great candidates for this model including Mayo and the City of Rochester.

A less common but advantageous model that may work well for this particular use case is to sell signs to the public as a service, typically at or near cost. If the signs offer significant value, businesses would be happy to pay to have them placed in their lobby or other public areas. Large funding groups such as DMC, the City of Rochester, or Mayo can still participate, but any public place that wants to enhance its public experience can easily participate as well. For example, instead of the City of Rochester funding $100,000 per year for electronic signage, they may pay $7,000 per sign for 14 signs in places they choose. Signs can be additionally sold to Mayo, DMC, Apache Mall, IBM, Rochester Public Schools, etc. This organic model decentralizes and democratizes the system, which could allow it to grow much faster and more sustainably.

Conclusion

This document has carefully detailed why electronic signage should be an important component of the DMC initiative, and how electronic signage will improve the experience of visitors to Rochester as well as improve the lives of Rochester community members. We hope that you will seriously consider its recommendations and immediate next steps. If you have any questions, please feel free to reach out to us via the contact information on the title page. We look forward to hearing from you.

Emerging Technologies

Liz | Jamison | Maria | Mitali | Matt | Ben

10 | 27 | 2017

Expo 2023: Health and Wellness

Vision

1. Expo Funded by Sponsors
2. Leverage Emerging Technologies
3. Create Unique Visitor Experience

Vision for Sponsors

How Do We Fund Expo 2023?

Offer Sponsorship Tiers

1	Gold Sponsors Multinational Companies
2	Silver Sponsors National Companies
3	Bronze Sponsors Local Companies

Spoon and Cherry Foods

Expo Sponsor Challenges

Personalizing Experiences

Event Navigation/Orientation

Cater to Different Languages/Cultures

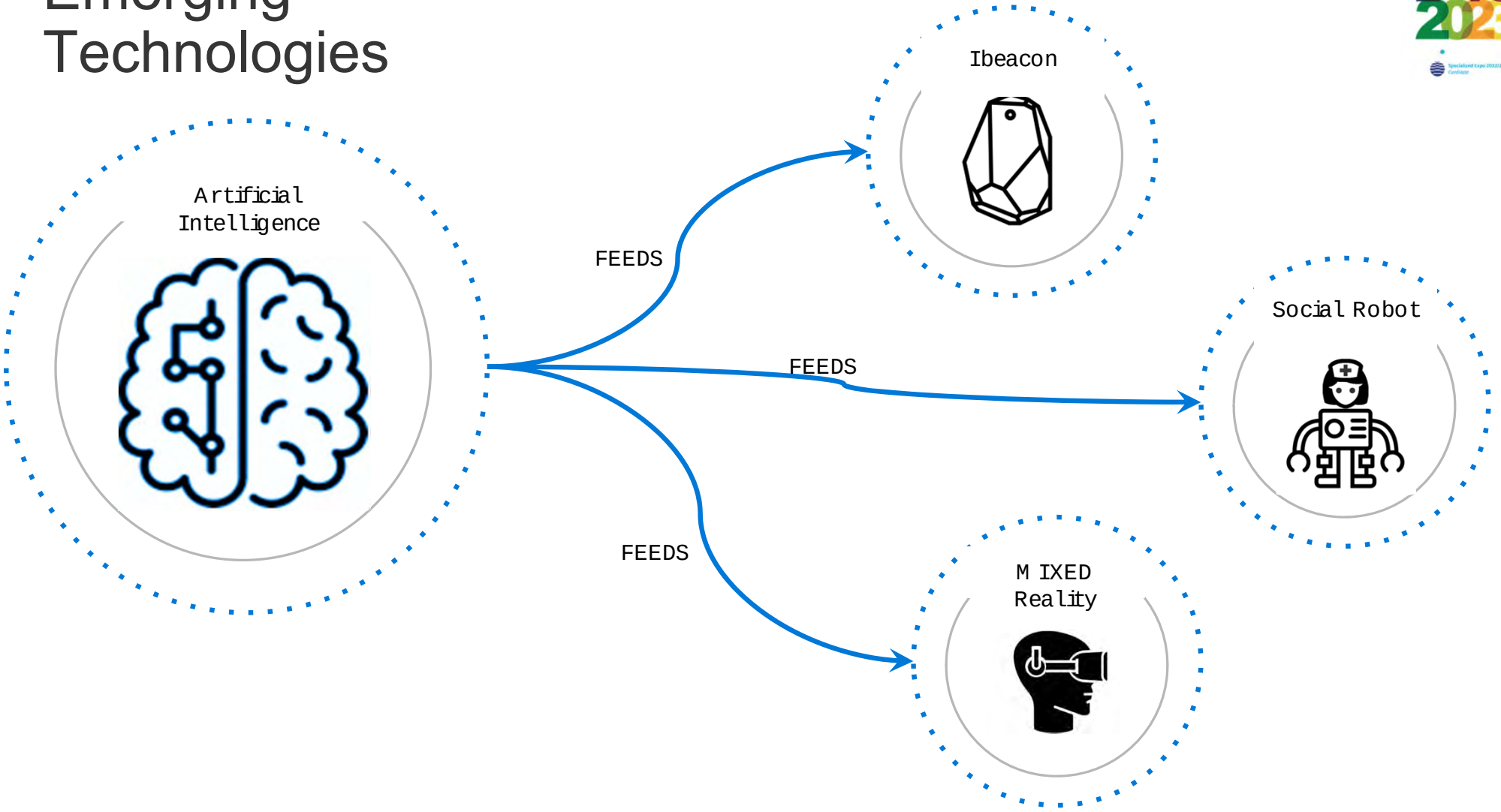
Infrastructure Support for the Technologies

Vision for Emerging Technologies

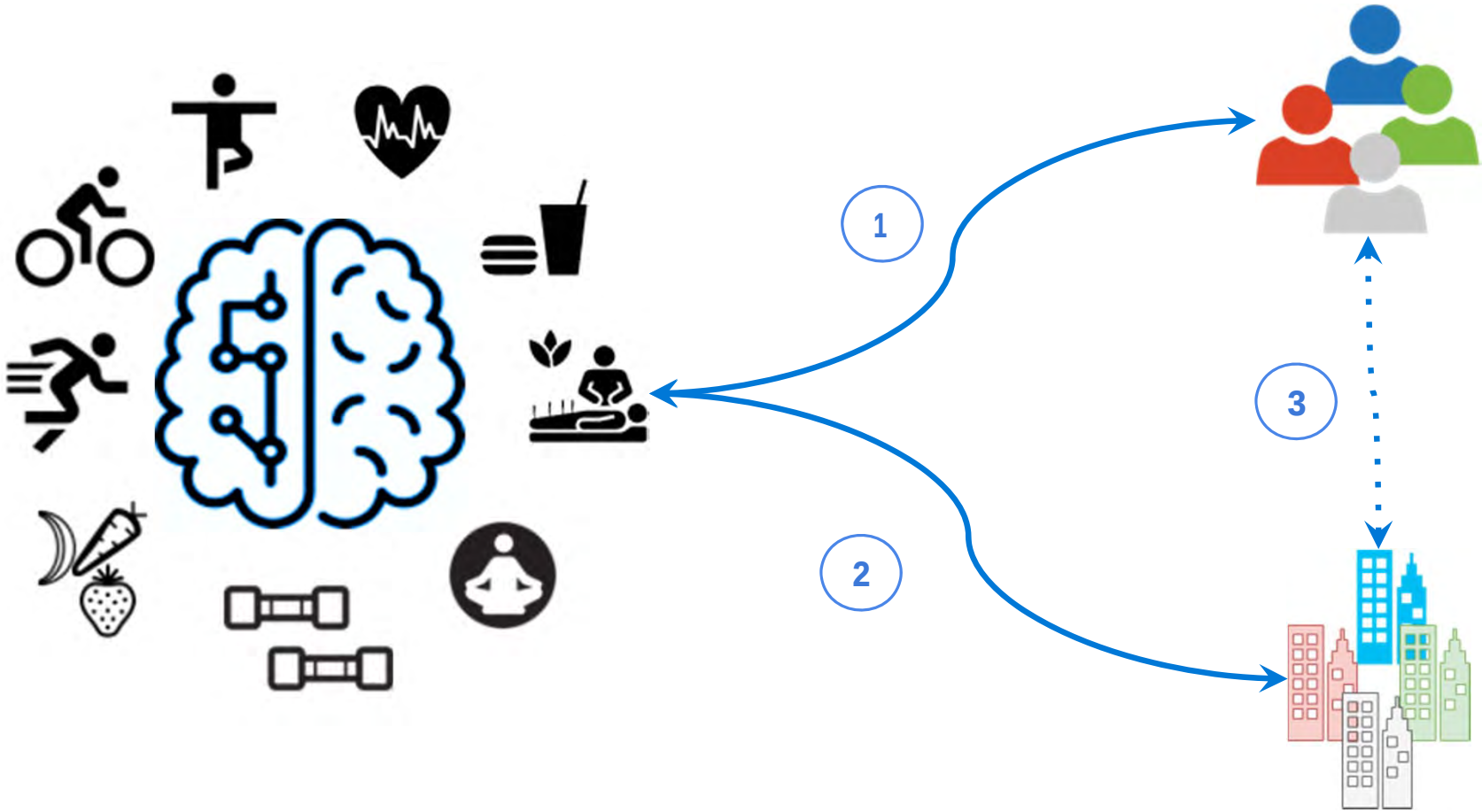
Goals

1. Technology Serve as Complementary Tool for Sponsors
2. Tools Connect Sponsors to Visitors
3. Allow Sponsors to Customize Expo Experience

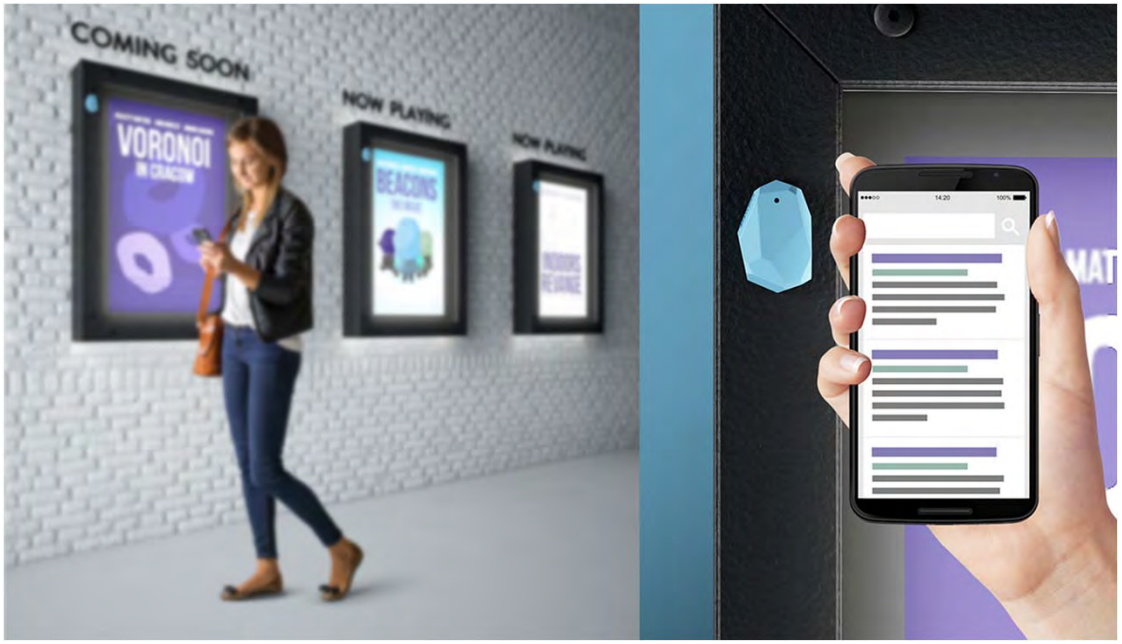
Emerging Technologies

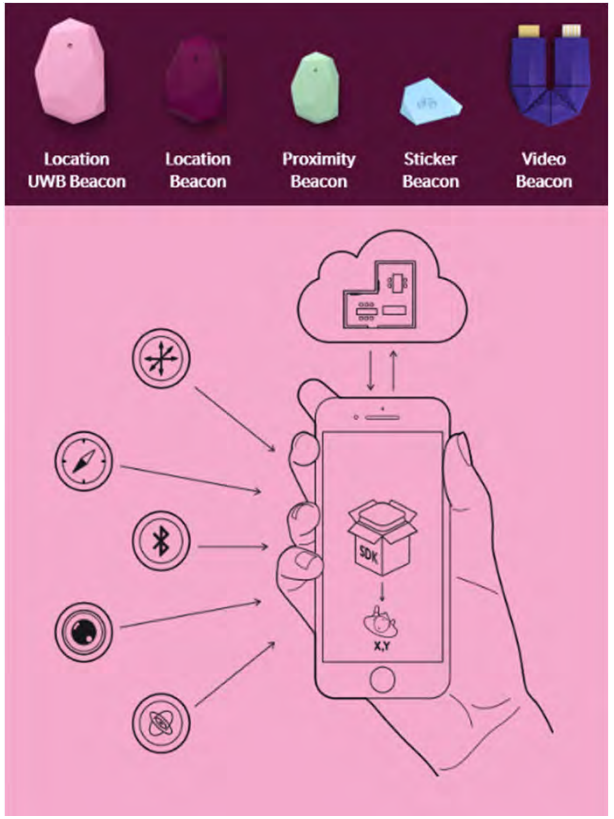


Artificial Intelligence & Data

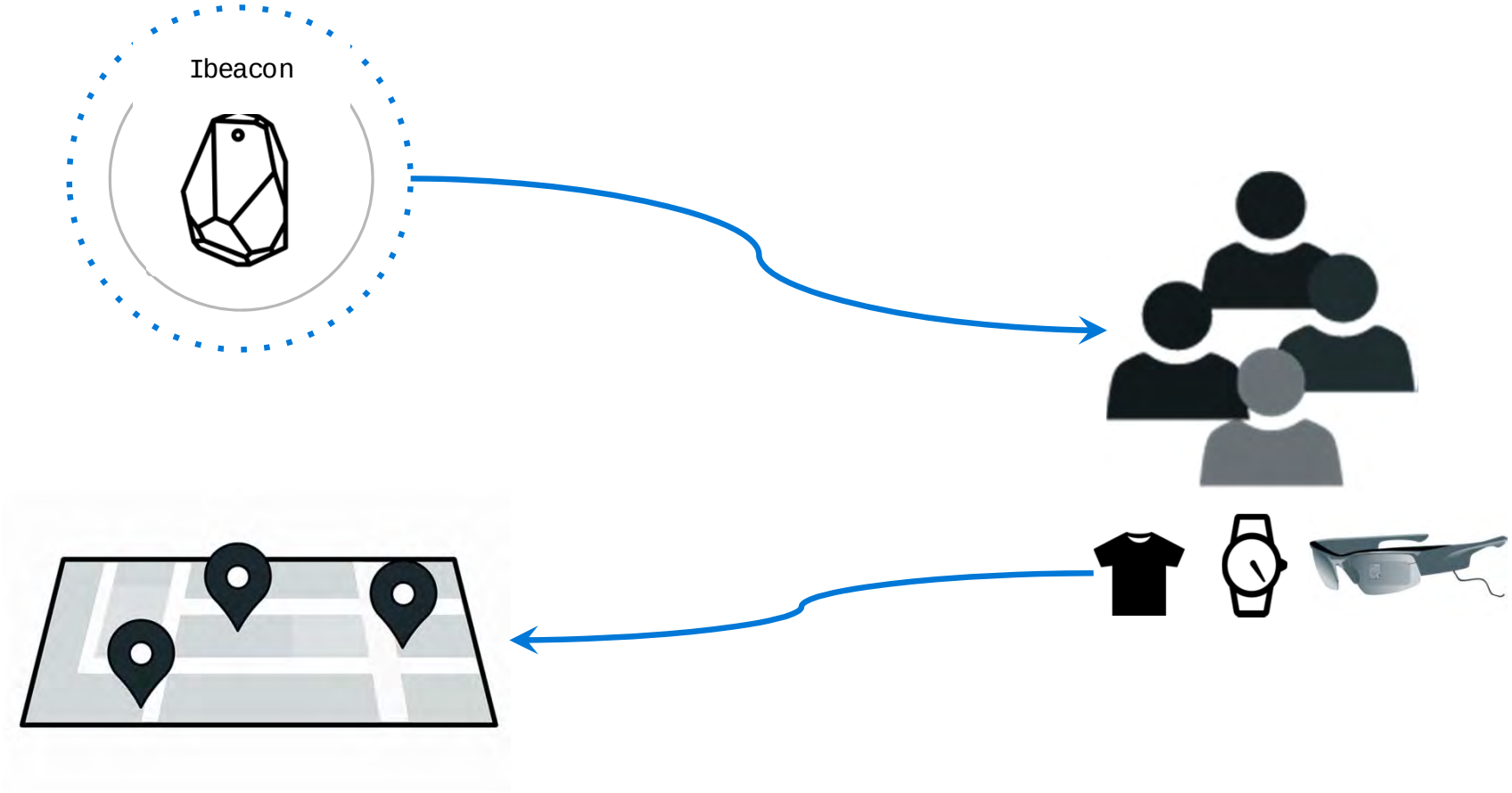


iBeacon


COMING SOON
VORONOI
NOW PLAYING
BEACONS


Location
UWB Beacon
Location
Beacon
Proximity
Beacon
Sticker
Beacon
Video
Beacon
SDK
X,Y

iBeacon

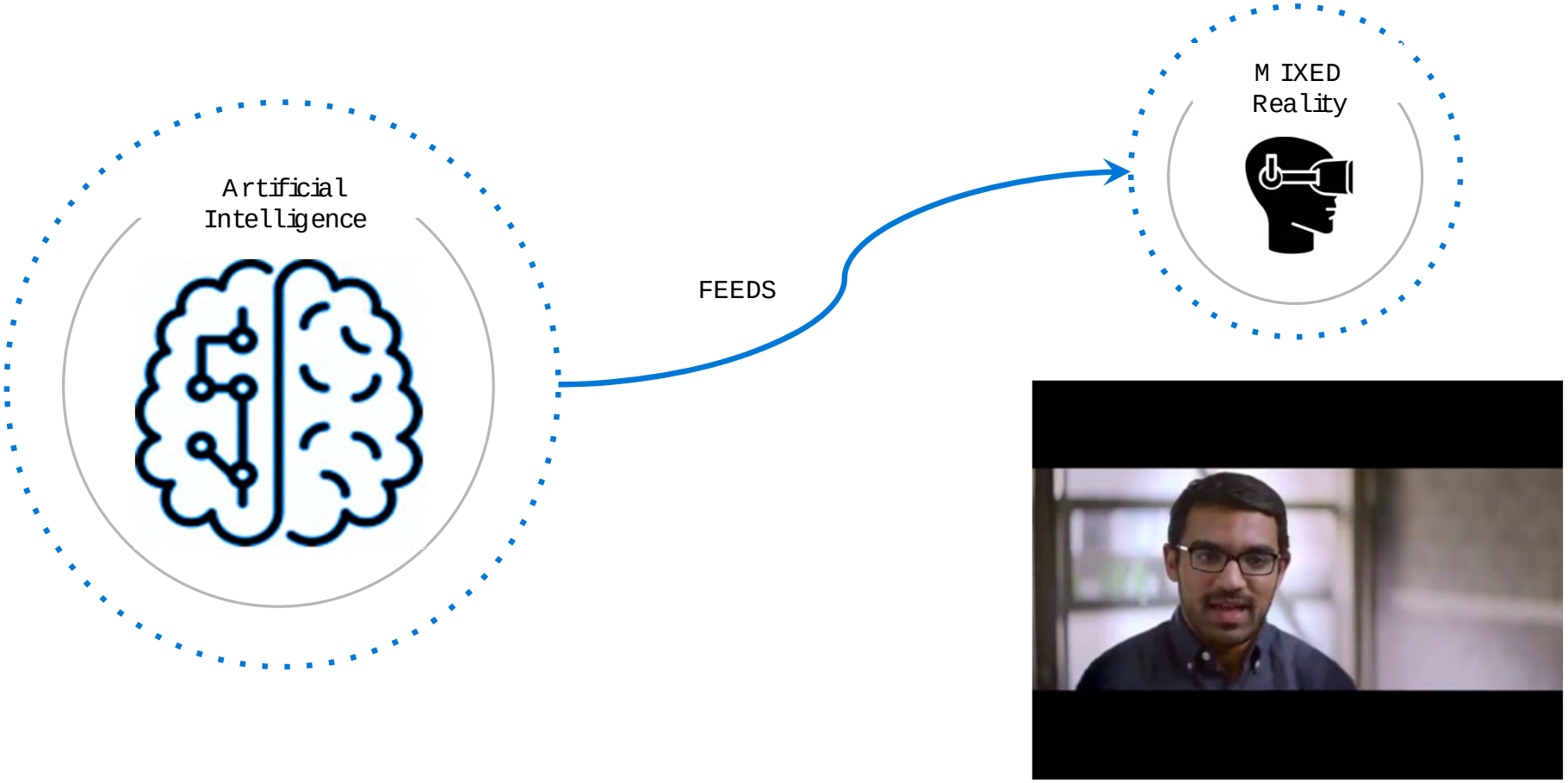


Social Robot

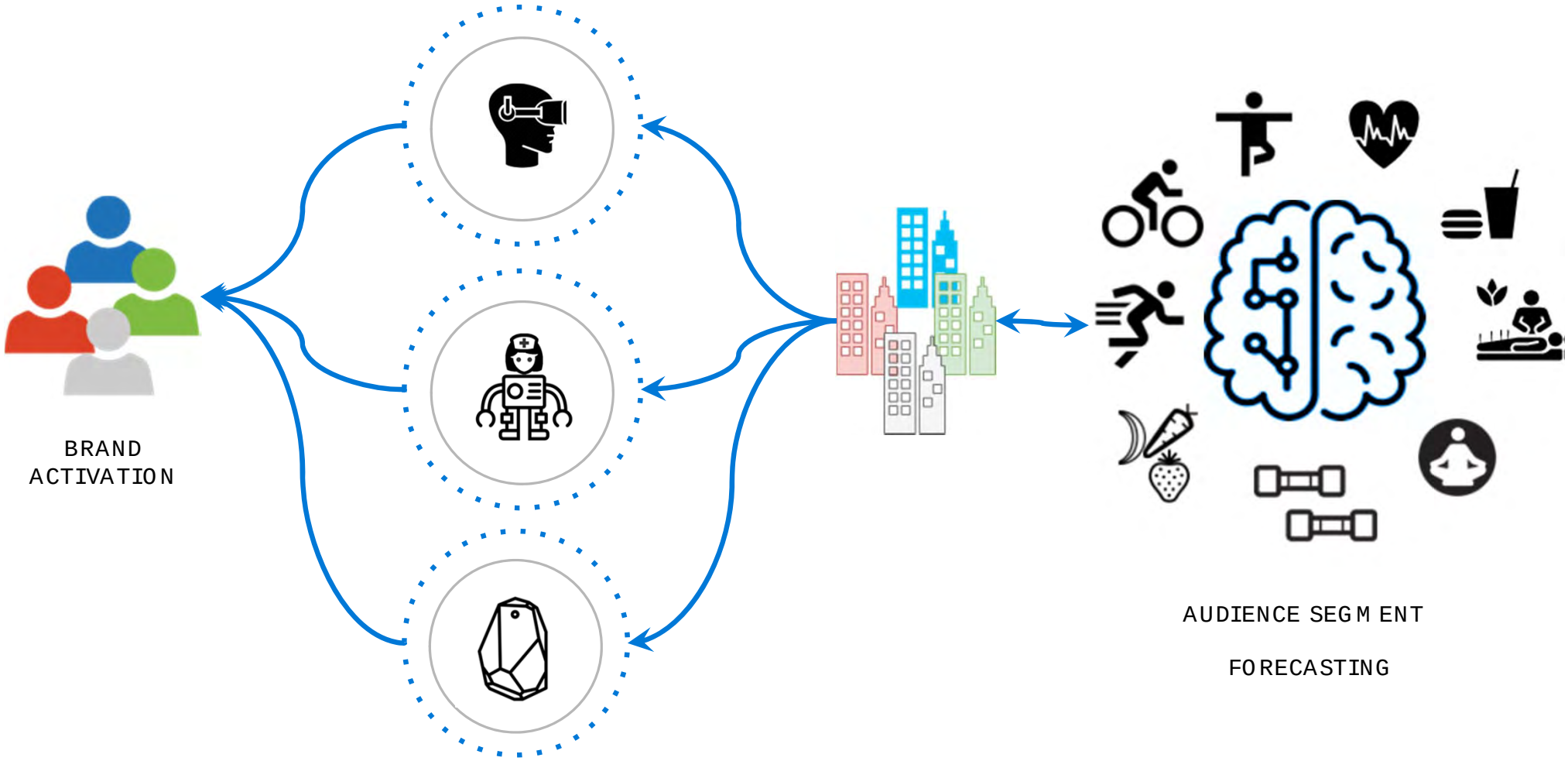
1. Navigates, Guides, & Translates

2. Eyes & Ears of Expo - The Culture Translator

Mixed Reality



How does it work?



BRAND ACTIVATION

AUDIENCE SEGMENT FORECASTING

Expo 2023: Health and Wellness

Be A Part of the Future.

Questions

EXPO 2023

USA • MINNESOTA

Specialized Expo 2022/23
Candidate

Emerging Technologies

Submitted by:

Maria Brinas-Dobrowski
Target Corp

Elizabeth Pham
PowerObjects

Jamison Walton
Dell

Matt Hill
MHTA

Mitali Mathur
Target Corp

Ben Goddard
Microsoft Corp

TABLE OF CONTENTS

Overview

This research is focus on the emerging technologies that will help for the incoming Expo 2023: Health and Wellness in Minnesota. Expo2023 is expecting to attract 10-15 million tourist to our state and generate hundreds of millions internet visitors. It will also showcase Minnesota's global leadership in a wide range of economic, social and civic arenas focusing on healthcare and wellness.

This group has identified that there will be two (2) consumers of Expo. First , is the "visitors". Visitor in this context can be tourist domestically or internationally that is interested knowing the progress or any form of information about Health and Wellness around the world. Second is what we call "sponsors". Sponsor in this context is any business organization or corporation that will help provide fund to make the Expo 2023 successful. This sponsor's target market is related to Health and Wellness theme. To understand further the emerging trends in Health and Wellness world in 2023, we made an assumption that consumers at that time are the following:

- People are more informed. The proliferation of health material available on the consumers fingertip is undeniable.
- People Want in on the Modern Lifestyle. With the modern lifestyle of being technology driven, and sedentary these post as a challenge to live a healthier lifestyle.
- People Are Interested in Holistic Health. The consumers are approaching health that includes body and mind. People are extending their options outside of regular family doctor but taking more active role in behavioral health ranging from massage, meditation and/or happiness coaching apps to corporate mental health programs for stress management.

The recommended technologies on this paper will be a complementary tool to answer the challenges for both sponsors and visitors of the Expo.

Goals

1. Emerging technologies will help and assist the variety of visitors in the Expo to have a customize and smooth experience.
    a. In-state visitors
    b. Out of state visitors
    c. Foreign visitors
    d. Visitor that requires medical assistance
2. Emerging technologies will help connect the sponsors to the 10-15 million Expo visitors.

a. They are the one who are in healthcare industries such as United Healthcare, Allina, Medtronics, Boston Scientifics.

b. They are the one who are in sports or retail and gym industries such as Nike, New Balance, Lifetime Fitness, Crossfit Center.

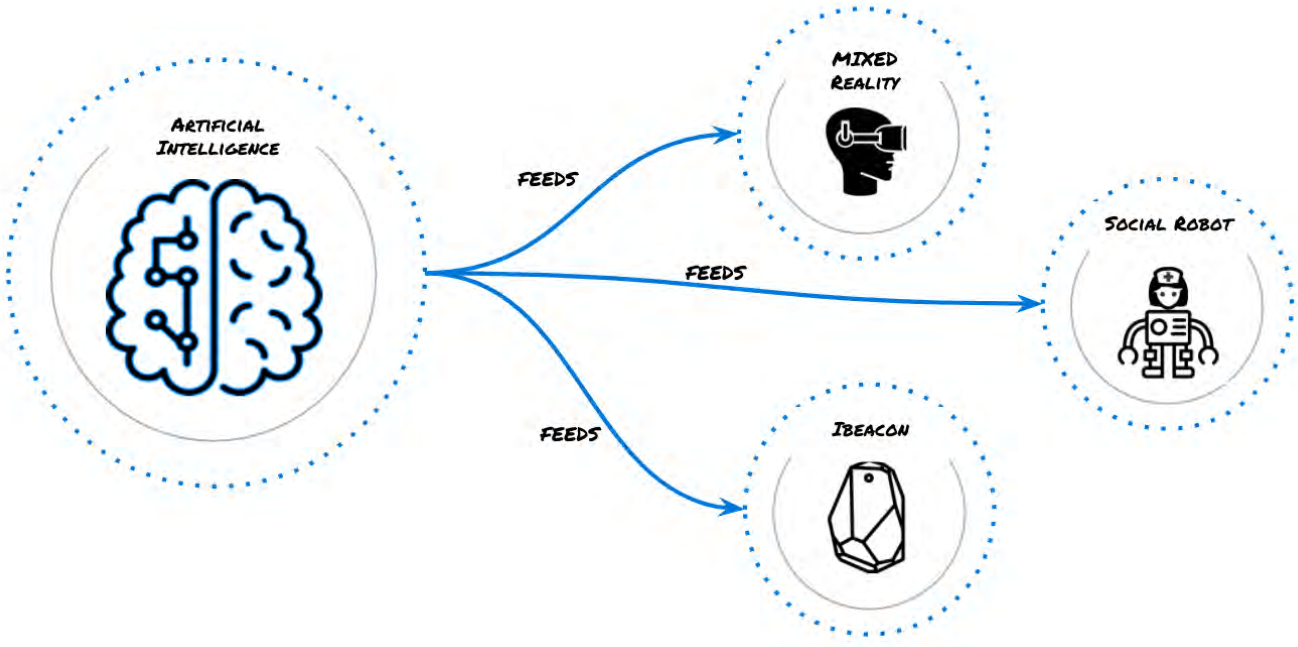
c. They are the one who are in Holistic health industries such as Yoga places.

Expo's Top Challenges

1. Language Communication
2. Navigation/Orientation
    a. Registration
    b. Vendor booth location
3. Personalize Experience to visitors from sponsors
4. Infrastructure support for the technologies

Emerging Technologies

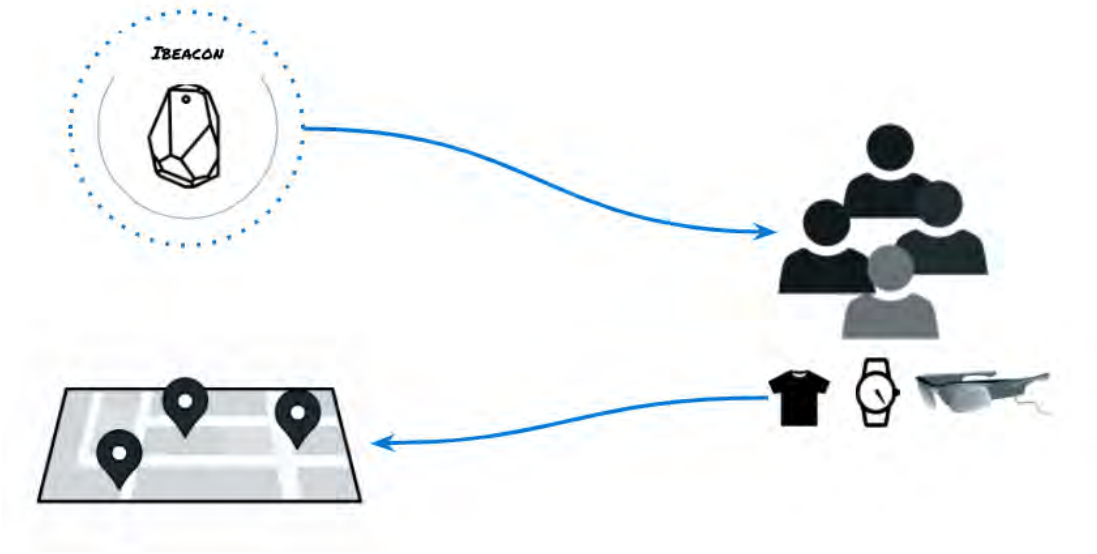
Having the Expo's goal and challenges in mind, we are recommending these technologies.



iBeacon

iBeacon and Beacon are often used interchangeably. iBeacon is the name for Apple's technology standard, which allows Mobile Apps (running on both iOS and Android devices) to listen for signals from beacons in the physical world and react accordingly. In essence, iBeacon technology allows Mobile Apps to understand their position on a micro-local scale, and deliver hyper-contextual content to users based on location. The underlying communication technology is Bluetooth Low Energy.

Using iBeacons in Expo, this will give an ability to connect Sponsors to their target market. By 2023 there will be many reputable language translation apps and wearable technologies such as watch, shirt or glasses available that can be integrated into the iBeacon that can enhance a visitor's experience. Furthermore, through iBeacons and wearable technologies - Expo will be able to create personalized experience to different visitor diversities.

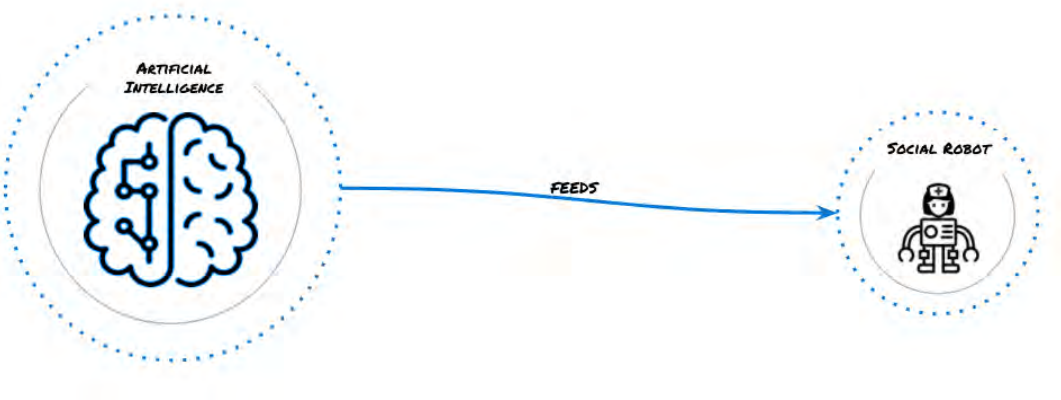


Social Robots

It is not emerging technologies if there is no robot in it. A social robot is an autonomous robot that interacts and communicates with humans or other autonomous physical agents by following social behaviors and rules attached to its role. Today, social robots are already part of the Consumer Electronics Show (CES 2017) and being used in different use cases in hospitals, college campuses as well as airports. This robots along with AI will just continue to mature and will be in our daily lives by 2023.

The healthcare and robotics have had many advancement. Many doctors and hospitals have already purchased robot systems to assist with various surgeries, so a robot precedent has been set. In caregiving industry, robots is being used for the elderly. A mobile service robot must move autonomously to gauge if the person cared for needs assistance and have the ability to initiate communication or telepresence session in case of trouble.

To enjoy the Expo experience, we can utilize the social robots in assisting our visitors based on their diversity needs. They will be in a position to do language translation, personal guides, expo navigations and connecting them to the sponsor that matters to them.



Mixed Reality

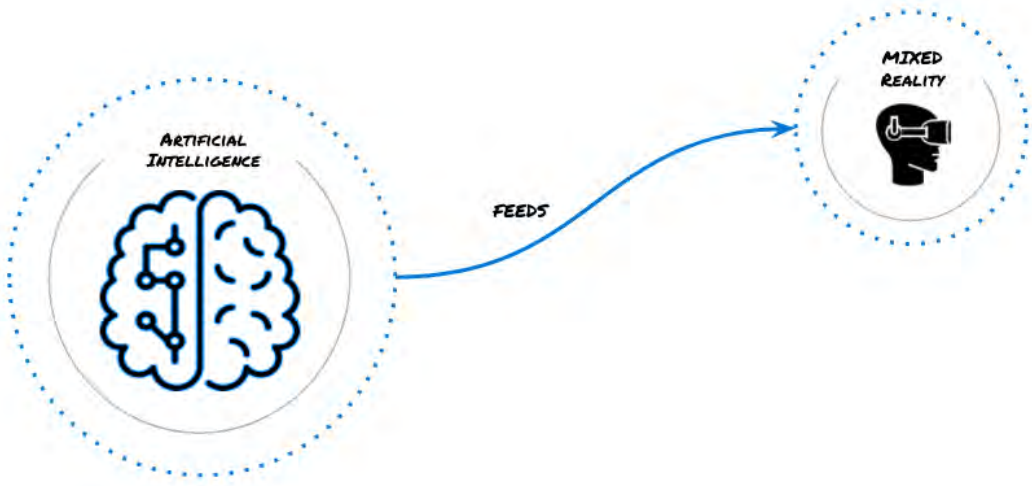
Mixed reality (MR), also known as hybrid reality means merging of real and virtual worlds to produce new environments and visualizations where physical and digital objects co-exist and interact in real time.

Microsoft's is leading the MR pathway called Microsoft Hololens. The blended version of Virtual Reality (VR) and Augmented Reality (AR) is a new platform that's designed to immerse more users in the digital experience with lower-priced and less graphically-intensive headsets. To this end, the software maker has worked with leading computer manufacturers like Acer, Asus, HP, Lenovo and Samsung to develop a more accessible head-mounted display (HMD) standard with a few ground rules.

HoloLens opens up radically new ways for medical education as it is able to project the human body in its full size in front of med students. Thus, the organs, veins or bones will be visible accurately in 3D, and future medical professionals will be able to analyze their shape, remember

their characteristics more vividly than it is possible when studying from a book. There are already some universities who plan to introduce the new technology: Case Western opens its new health education campus in collaboration with the Cleveland Clinic in 2019, where students won't learn anatomy from cadavers either, they'll learn it from virtual reality. Another way of making use of HoloLens is applying it in the pre-operative planning phase of operations. Physicians could plan their entire intervention using 3D holograms, where they could accurately see the spaces for making incisions and also clearly envision the consequences of their moves. There are some hospitals where HoloLens is already in use for planning surgeries.

For our sponsors, mixed reality is the new channel to market their brand and connect to their target visitors. MR is the future of advertising. This is a new platform for our sponsor to create amazing, interactive marketing campaigns that come to life like never before. The brand is no longer passive experience, there is an option of interactive user experience where the visitor is fully immersed to their product or brand. This is a sure ball for brand loyalty and in marketing term - a conversion!



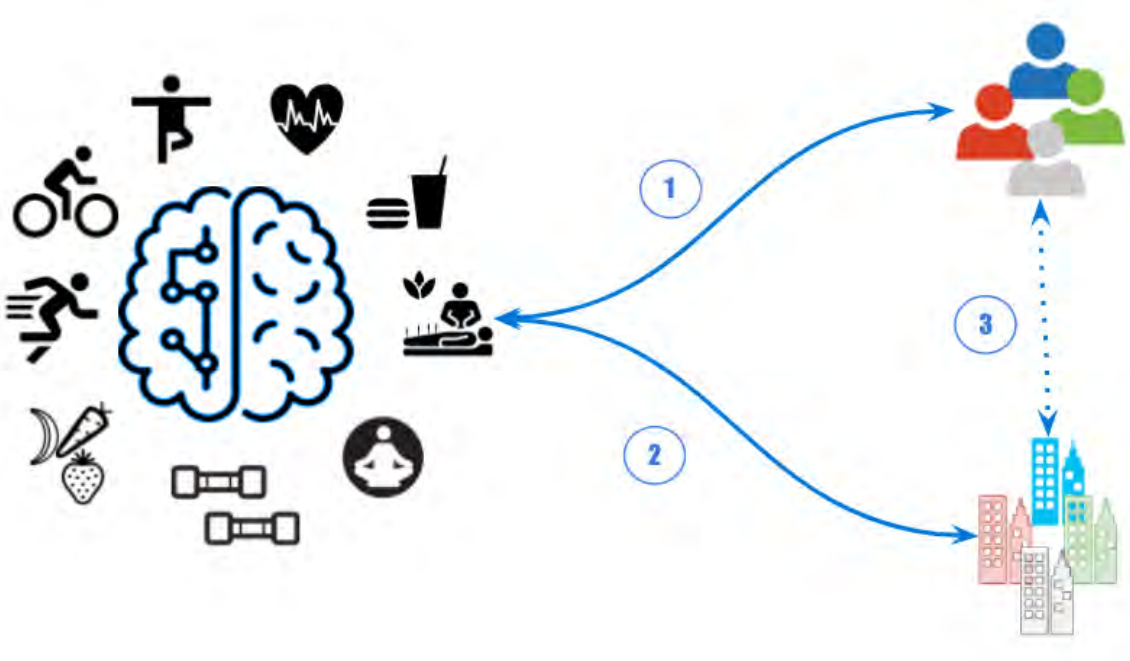
Artificial Intelligence and Big Data

With the evolution of digital capacity, more and more data is produced and stored in the digital space - in a mind blowing speed, doubling every 2 years and predicted to be 44 zettabytes, or 44 trillion gigabytes.

In today's world, example of real artificial intelligence that we interact daily are the likes of Apple Siri, Microsoft Cortana, Google's OK Google and Amazon Echo.

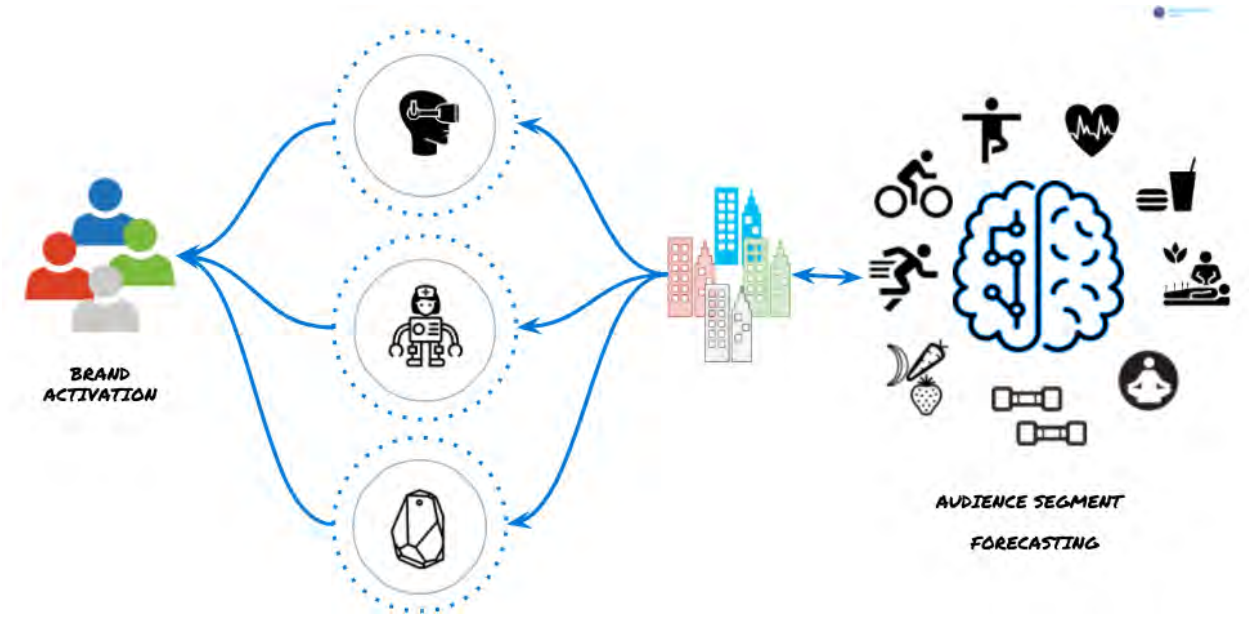
In Healthcare, the big dog in cognitive computing for healthcare is IBM Watson but the race is still open to every other companies such as Google, Dell, HP, Apple, Hitachi Data Systems, etc. The example of this works are Google Deepmind, Babylon, and Health Assistance Molly.

Open AI Ecosystem is the game. This refers to the idea of the unprecedented amount of data available, combines with advances in natural language processing and social awareness algorithms. This means application of AIs will become increasingly useful to sponsors and to customize the experience to their target visitors.



Why These Emerging Technologies?

These emerging technologies in no doubt will help our Expo visitors to have an amazing customize and smooth experience at the Expo. Unfortunately, like any other technologies today it comes with expensive cost. The potential revenue stream and return of investment that these emerging technologies is having the ability to create **brand activation** for the potential sponsors.



Brand Activation is the art of driving consumer action through brand interaction and experiences. In simple terms, the key aim of these sorts of campaigns is to get visitors to act. It's about bringing brands to life via experiences and forming long-term emotional connections that drives brand loyalty.

Recommended business model tiers are the following:

Sponsor Level	Example	Benefits
Gold Sponsors	Multinational companies like 3M, Medtronic etc.	- Biggest square foot space in prime location - Share *deterministic and probabilistic* data to Expo for about ~15 million records. See diagram below for explanation. - Provide forecasting and conversion reporting. - Leverage Expo mixed reality platform to market their brands at least 10 times/day. - Social robot will have a high priority for their brand in personalization for visitors.
Silver Sponsors	National companies like United Healthcare, Lifetime Fitness etc.	- Second to the biggest square foot space in prime location. - Share *deterministic and probabilistic* data to Expo for

		about ~5 million records. See diagram below for explanation. - Leverage Expo mixed reality platform to market their brands at least 5 times/day. - Social robot will have a normal priority for their brand in personalization for visitors.
Bronze Sponsors	Local companies like Yoga and fitness.	- Standard square foot space for their booth - Share *deterministic and probabilistic* data to Expo for about ~1 million records. See diagram below for explanation. - Leverage Expo mixed reality platform to market their brands at least 2 times/day.

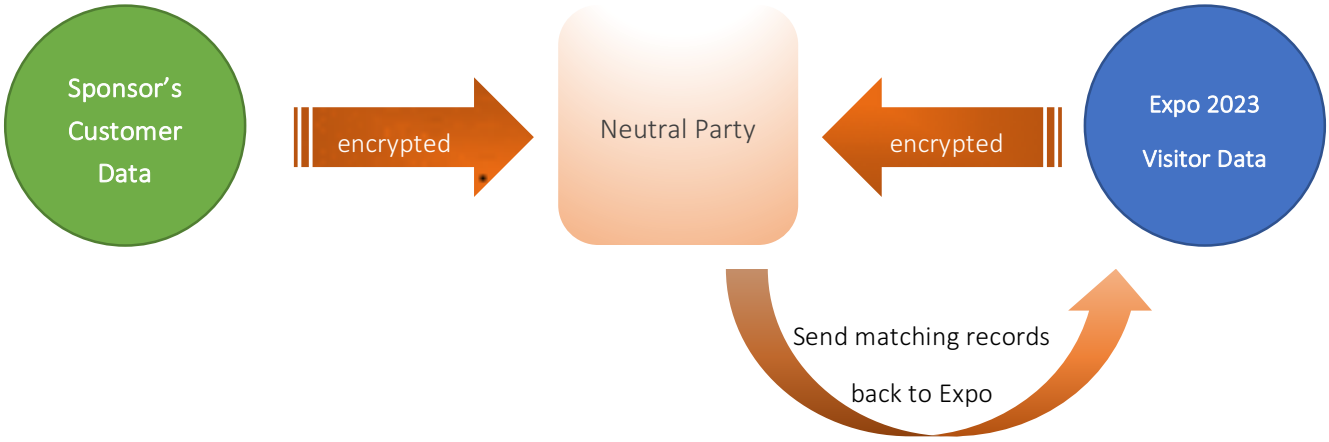
Deterministic VS Probabilistic Matching

Deterministic means unique identifiers for each record are compared to determine a match or an exact comparison is used between fields. Unique identifiers can include national IDs, system IDs, and so on. This can include system IDs, national IDs, email address and so on.

Probabilistic means several field values are compared between two records and each field is assigned a weight that indicates how closely the two field values match. The sum of the individual fields weights indicates the likelihood of a match between two records.

Data is King

Due to the vast majority of data and the advancement of Artificial Intelligence, the biggest advantage of the Expo is the ability to share the data with the different sponsors. Sharing here does **not** mean that the sponsors have to give the personal identifiable information of their customers but through hash or blockchain technology.



1. Both Sponsor and Expo will provide the encrypted identifiable information about their customer and visitor.
2. Neutral Party will then find data that matches. Neutral party is the safe ground for the data of the Sponsor and Expo to store temporarily. The reason for this is for any data that do not match both parties will not have visibility to it.
3. Neutral party will then send back any data that matches whether it is probabilistic or deterministic to Expo.
4. Now Expo can identify the visitors and target audience of the Sponsors.

Record matching model will help the Expo to assist the Sponsors and their target audience. Deterministic matching benefits model is having the ability to for cross-device tracking whether it is a mobile, or any wearable devices. While Probabilistic is identifying visitor with similar behavior and through combinations of records, aggregations and deduplication algorithm, detailed visitor profile can still be achieve from incomplete information. This will give the Sponsor's audience a more holistic experience.

Conclusion

Whenever we think about Emerging Technologies movies like IRobot (2004), Bicentennial (1999) or Starwars comes to mind. Technologies does not have to be dramatic as it seems and as a human we can make it work for us not the other way around. We started this paper for the Expo with human in mind: first, to be able to provide a smooth and customized experience for the visitors; second, to be able to connect the sponsors to their target market - we think with our emerging technologies, we have achieved that.

References:

- http://expo2023.info/overview/
- Expo Dubai 2020 -https://www.youtube.com/watch?v=MrIbBCJ0xFY
- Expo Dubai 2020- https://www.youtube.com/watch?v=tbjUuG0dObs
- https://www.freshbooks.com/blog/trends-health-wellness
- http://medicalfuturist.com/artificial-intelligence-will-redesign-healthcare/
- https://www.linkedin.com/pulse/15-applications-artificial-intelligence-marketing-robert-allen
- https://www.mysciencework.com/omniscience/artificial-intelligence-and-home-automation-putting-the-human-back-at-the-centre-of-technological-development
- https://www.emaze.com/@AWIFTRCQ/open-ai-ecosystem
- https://www.scientificamerican.com/article/open-ai-ecosystem-portends-a-personal-assistant-for-everyone/
- https://techcrunch.com/2017/02/16/oxsight-uses-augmented-reality-to-aide-the-visually-impaired/
- https://esource.expo2020dubai.ae/esop/uae-e20-host/public/attach/opportunities.pdf
- http://www.expo2020dubai.ae/en/business
- http://www.huffingtonpost.com/entry/artificial-intelligence-might-overtake-medical-and-finance-industries_us_599b201de4b0771ecb064fb6?ncid=APPLENEWS00001
- http://www.twincities.com/2017/06/14/minnesota-is-a-finalist-for-the-2023-worlds-fair-expo/
- https://en.wikipedia.org/wiki/List_of_world_expositions
- https://en.wikipedia.org/wiki/1984_Louisiana_World_Exposition - this is the last one
- https://www.youtube.com/watch?v=5PbAdHAgWA8
- https://www.youtube.com/watch?v=SKpKlh1-en0
- https://www.youtube.com/watch?v=h4M6BTYRlKQ
- https://amp-weforum-org.cdn.ampproject.org/c/amp.weforum.org/agenda/2017/07/the-smartphone-is-going-to-die-and-these-tech-companies-are-leading-the-race-to-kill-it
- https://www.spotx.tv/resources/blog/product-pulse/what-is-deterministic-and-probabilistic-data-modeling/
- http://www.techradar.com/news/windows-mixed-reality-everything-you-need-to-know
- https://docs.oracle.com/cd/E19182-01/821-0919/ref_sme-deter-probl_c/index.html

VIKINGS & STEM

Engaging the community in Science, Technology, Engineering & Math

October, 2017

Shyamala Bhat
Mayo Clinic
Program Manager

Lavanya Gundamaraju
Thomson Reuters
Manager, Technology Development

Matt Johnson
Optum
IT Director

Tori Mandal
Thomson Reuters
Manager – Tech Ops

Dan Rohda
Code42
Director, Customer Support

Barry Schiefelbein
Associated Bank
Director of IT Services


84

An EXCELLENT setting to engage children to STEM!

An EXCELLENT community outreach option for the Vikings

An EXCELLENT opportunity for MHTA to help a valued partner

Connect with the Community

Inspiration for Parents & Students

*"Those who participate in **informal science programs** and environments can become excited and interested in science… and **develop an identity** as a **science learner**."*

http://www.mncompass.org/education/stem/inspire-interest

Why prioritize K-12 STEM Initiative over other potential community outreach programs?

What do you think the Minnesota Vikings would uniquely bring to kids and STEM?


Permanent Structure with STEM program
Recurring events and/or partnerships
Singular event
STEM Appetite

Good

Gameday Vikings online experience and weekly educational STEM challenges.

Better

Extend the Vikings playground build program to the Eagan training facility. Use eco-friendly materials and outline the science behind the playground equipment.

Best

Incorporate a robust, interactive, year round STEM experience into the Eagan facility.

- Classrooms
- Technology
- Learning Programs
- Camps

ASK: Continued commitment from MHTA to capitalize on community enthusiasm

Concept Testing
Pretest options with a small cohort

- Survey
- Pilot
- Predictive Analysis

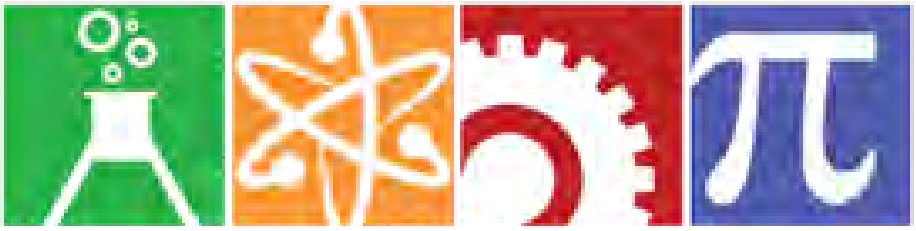
Feasibility Analysis
Blend concept testing outcome and stakeholder interest with internal indicators

Business Plan
Work the business plan through the Vikings board and administration


THANK
You For Your HARD
WORK
Vikings
THANK YOU

Vikings

&



STEM Science, Technology, Engineering, Mathematics

CREDITS

- Shyamala Bhat
  - Company: Mayo Clinic
  - E: bhat.shyamala@mayo.edu
- Lavanya Gundamaraju
  - Company: Thomson Reuters
  - E: lavanya.gundamaraju@tr.com
- Matt Johnson
  - Company: United Health Group – Optum
  - E: matthew_e_johnson@optum.com
- Tori Mandal
  - Company: Thomson Reuters
  - E: tori.mandal@tr.com
- Dan Rohda
  - Company: Code 42
  - E: dan.rohda@code42.com
- Barry Schiefelbein
  - Company: Associated BRC
  - E: barry.schiefelbein@associatedbrc.com

PROJECT ABSTRACT

To collaborate with the Vikings on options to create a destination for K-12th grade students to participate and learn about STEM related topics that pertain to sports and sporting facilities at the new Eagan Campus.

METHODOLOGY

The stakeholders on this project, aside from the Vikings, included members from various school districts, our team of six, as well as the MHTA. We feel that it is important to identify the community members as a group comprised of STEM educators, parents of children interested in STEM, and the children themselves. These voices, and their thoughts and needs, are true representatives of the primary beneficiaries of this private-public partnership.

Due to limited engagement with the Vikings, we determined the best way to target our efforts, was to identify external sources of information that would allow us to research and formulate a proposal to create the optimal output for the Vikings. In doing so, we also wanted to ensure that any final recommendation was both grounded in the community, but exploratory in presenting a wide array of options.

We focused our research on three key areas - including other National Football League (NFL) teams, available online research with STEM and it's usage and impact within schools, and finally on the people in the community.

Our initial research with NFL Teams, gave us a clear picture of what had already been done in the industry. It was interesting to note that the majority of what ends up being done is dependent on the investment by the team, but in partnership with the surrounding community. It isn't something that can be handled through a single voice - or a single NFL team.

Online resources, such as MN Compass, provided other sources of data to help justify the need for more STEM outreach for kids and their communities. This research helped us to solidify our intentions and ensure that the Vikings were heading down the right path to build relationships within their community.

Finally, our last bit of research, was to work with actual educators, children and parents, that would benefit the most from the Vikings investment. Based on their feedback, we were able to narrow down our proposed solutions to ensure that the Vikings would be investing in something that could become a staple to the community both for education as well as personal growth among youth.

NARRATIVE

Background

Minnesota has historically been a leader in innovation in the areas of agriculture and food, medical devices, manufacturing and health sciences through the use of science and technology. Over the late 20th and early 21st century, it has consolidated its position of leading the nation in being a destination for high-tech industries such as medical devices with Boston Scientific, MedTronic and St. Jude, retail technologies including Best Buy and Target, as well as Health Care including UHG and BCBS. [https://mn.gov/deed/business/locating-minnesota/industries-sectors/].

To sustain and grow this leadership and to attract new investment, Minnesota is faced squarely with the challenge of nurturing a robust and strong pipeline of workforce trained in science and technology. What better approach than to catch them young through the STEM program in schools ?

In August 2016, the Vikings announced the ground-breaking of a new headquarters and practice center at Eagan, Minnesota. "This project will not only provide a first-class training facility for our players and business environment for our staff, but it will also allow us to transform this site into an **international destination and a regional community asset**," said Vikings owner and president Mark Wilf.

The intersection of work being done by schools in furthering STEM to meet current and future demands in the state and the intent of the new Vikings venture to build a community asset was therefore the perfect storm that formed the backdrop to this project.

Public-private partnership in football and STEM

There are several instances of football teams using their "muscle" to work with schools to further partnerships at various levels. The noteworthy among those have been:

- The San Francisco 49ers along with a collection of educators, businesses, and the 49ers foundation collaborated to create the STEM Leadership Institute. The institute offers 25 different lessons to students in grades K-8 via a field trip and in-class experience. They additionally are working towards a 360 student 7-12 grade program with over 300 hours of additional learning time annually per student.[1]

[1] http://www.49ers.com/news/article-2/49ers-STEM-Leadership-Institute-Celebration-of-Scholars-and-Ribbon-Cutting/ffea8dac-9cff-4f40-bce3-c3ff3d9403d8

- The New England Patriots take STEM education to the next level by hosting field trips from Massachusetts schools whereby students take part in team-based, hands-on problem-solving challenges faced by NFL teams, including match-centric salary cap & budgeting as well as science-centric helmet building/testing modules.[2]

- The Detroit Lions, along with a charity and local business partner, teamed up to support STEM in two Detroit public schools focusing on literacy of elementary school-aged children. They supported the program by sending players to deliver books and read to the children. Additionally, they supported the effort by providing academic incentives including tickets, autographed sports memorabilia, and field trips to local educational institutions.[3]

In the limited interaction the team had with Vikings representatives, Lester Bagley, Trish Huizinga, Josh Goldenberg and Tina Holmes , it was apparent that the Vikings wanted this partnership not just be strategic but also to be enduring. Vikings leadership, they assured us, would be receptive to ideas and options outlined through exploration with the school district and community. However, they were unsure about the extent of investment or specific timelines in realizing this venture.

Impact of non-curriculum STEM-related activities in Minnesota

Minnesota Compass (http://www.mncompass.org) , a social indicator project initiated in 2008 and led by Wilder research was a secondary data source for this project. In 2013, MNCompass developed its STEM Cradle-to-Career Continuum program to "better understand the state of Minnesota's STEM continuum and to help target resources most effectively. Working with an advisory group, Minnesota Compass and Boston Scientific developed a cohesive framework for monitoring and supporting Minnesota's STEM cradle-to-career continuum." A few relevant findings[4] that were used as input to this project were :

- Opportunities to engage in STEM outside of school may be especially important for Elementary and Middle school populations. These opportunities can provide mentors, role models, and activities that spark interest and meaningful connections to STEM.

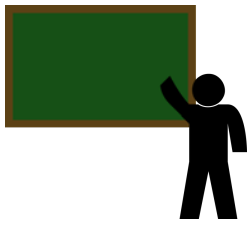
[2] http://www.patriots.com/news/2016/04/21/tackling-tech-nfl-teams-players-partners-advance-stem
[3] http://detroitk12.org/content/2014/09/23/detroit-lions-tata-technologies-launch-stem-programs-in-two-detroit-public-schools/
[4] Source : *http://www.mncompass.org/education/stem/inspire-interest*

- Many students from groups underrepresented in STEM, including girls and minority populations, internalize messages that they cannot or will not succeed in STEM as early as elementary school or middle school.
- Those who participate in informal science programs and environments can become excited and interested in science, gain science knowledge, carry out scientific processes of inquiry, reflect on science as a way of knowing, engage in scientific activities and learning practices with others, and develop an identity as a science learner.

MNCompass findings corroborated the need for Minnesota schools to partner with external partners such as sport entities.

Voice of the Community

As our next source of truth, we reached out to the community of schools, parents and children to validate these findings, understand their interest in a potential engagement with the Vikings, and to seek out new ideas of keeping school districts immersed in STEM education programs. Here are few excerpts from the conversations :

 **Parent**	The Vikings games themselves aren't usually a very "family-friendly" experience. This could be a great opportunity for parents to engage their children with the Vikings and provide for an experience that they can remember and build upon as current & future fans of the Vikings. Thoughts from one parent: "It would be neat to have some sort of interactive playground with stations that could help kids understand the physics of football… It would be a great way for the Vikings to open themselves up to a family experience…"
 **Teacher**	Some of the commentary from our interviews with STEM leadership in the 196 School District: • "A K12 STEM initiative encompasses the future of our country to support our workforce of the future… of jobs that have not been created yet. It bridges socio-economic avenues…" • "Kids that work with STEM opportunities ask how they can find multiple answers to problem-solve…" • "The Vikings have the unique opportunity of bridging STEM and sports… including facets around Physics, Math and Engineering where they apply to sports. The ability to impact our students is great, while the role-model capability they offer is tremendous. Taking a leadership role in STEM will challenge our students to be STEM scholars." • "The Vikings are such an exciting and engaging organization… They attract a lot of kids who are fans who may not be aware of the science of the game or careers involved around the game.

	There are also a lot kids who do not see themselves as athletes but love the camerawork, the math and science involved in the game."
 **Student**	Kids find the idea of engaging with the Vikings in STEM related activities as exciting and interesting - here are some of their questions: • "How they keep the players in such good shape and from getting injured." • "How do different Vikings positions train?" • "How hard is it to be an NFL player, how much do you have to practice?" • "What is is like to wear all that gear?" • "I want to see the playbook!" • "How can I become a good Quarterback!"

As evidenced above, the community received this idea with excitement and potential and were most willing to participate in furthering this idea. Recordings of these interviews will be available to the MHTA board during the presentation.

Potential Engagement Models

it will be important for the Vikings to consider each the following interrelated factors that could determine how successful a venture of this nature could be :

- Level of engagement
- Participation from and Impact to the community
- Sustainability of the investment as a "regional community asset"
- Brand equity of the Vikings

It is premature in the lifecycle of this idea to include or eliminate options. In good faith, the project team, has outlined a sliding scale of options that need to be further vetted.

Good: Online Experience

Gameday Vikings online experience and weekly educational STEM challenges.

Better: STEM Playground

Extend the Vikings playground build program to the Eagan training facility. Use eco-friendly materials and outline the science behind the playground equipment.

Best: All of the Above and More
Incorporate a robust, interactive, year round STEM experience into the Eagan facility including Classrooms, Technology, Learning Programs and Camps focused on engaging youth in STEM fields.

RECOMMENDATIONS

There is still a lot of work to be done to determine the best route for the Vikings. Based on the budget and resources available, they should be able to choose from one of the Good, Better and Best options presented above.

We sincerely believe that an investment in the community, and an investment in children and STEM, will benefit our society and the future of our state. Creating an experience that can help kids identify as STEM leaders will help to propel this city, and state, as an even stronger leader in the Technology Sector of the future.

For these reasons, we believe that the MHTA board should continue their partnership with the Vikings, conceptualize the idea, test it in a controlled marketplace before it be handed off to the Vikings. It will also be very beneficial for the board to lend their expertise and connections to incorporate a STEM related experience for youth on their new Eagan campus.