Minnesota High Tech Association (MHTA) Engagement Opportunities

2018 ACE Leadership

mhta › Driving Innovation & Technology

2018 MHTA Membership Engagement Team

Monica Novak — Medtronic

Marcelo Vieira — accenture

Rachael Mackie — BEST BUY

Yuhong Xiong — SEAGATE

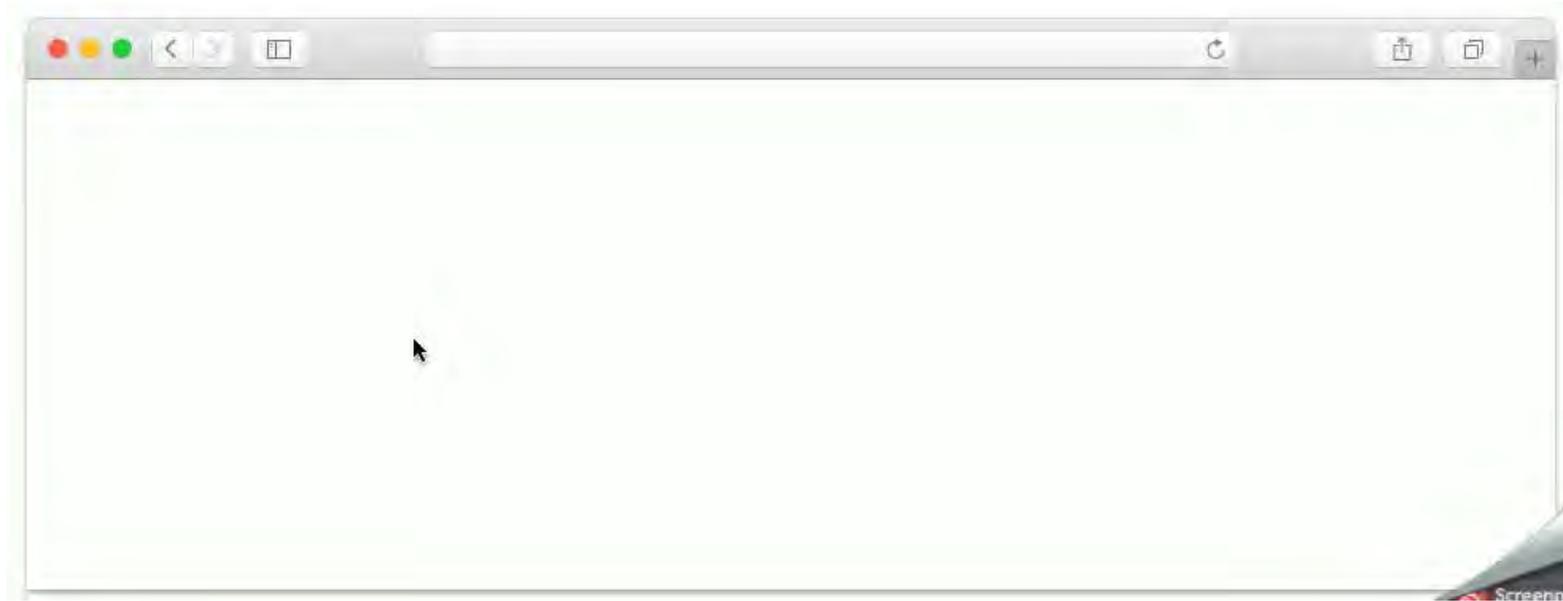Gary Kunkel — SEAGATE

Innovation   Technology   **Engagement**

When invited to join the MHTA ACE program...

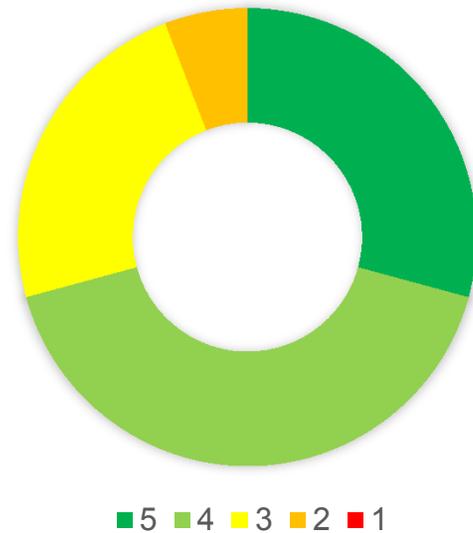**Survey to ACE participants:
What did you know about
MHTA before ACE?**

Shallow Member Engagement

People who know MHTA are likely to recommend it

Survey to ACE attendees:

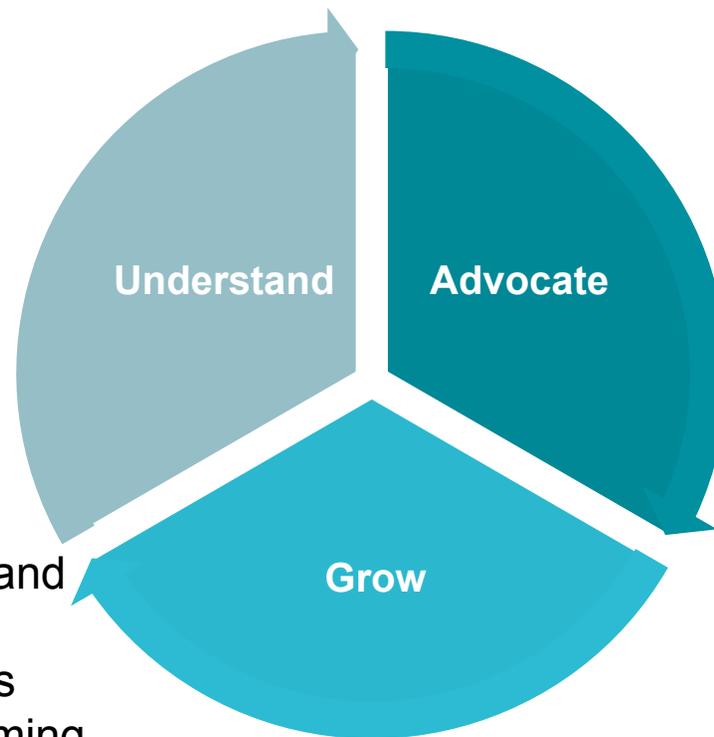How likely are you to recommend MHTA membership to others?
5 being best, 1 being least


■5 ■4 ■3 ■2 ■1

Ambassador Program
Reaching new Depths

MHTA Ambassador program

- MHTA Programs and Ambassador Training
- MHTA alignment to company goals
- Member company communication channels

Understand

Advocate

- Promote MHTA within company
- Collect and communicate VOC
- Host at MHTA events

Grow

- Build company internal and external networks
- Leadership opportunities
- Influence MHTA programing
- Potential future board member
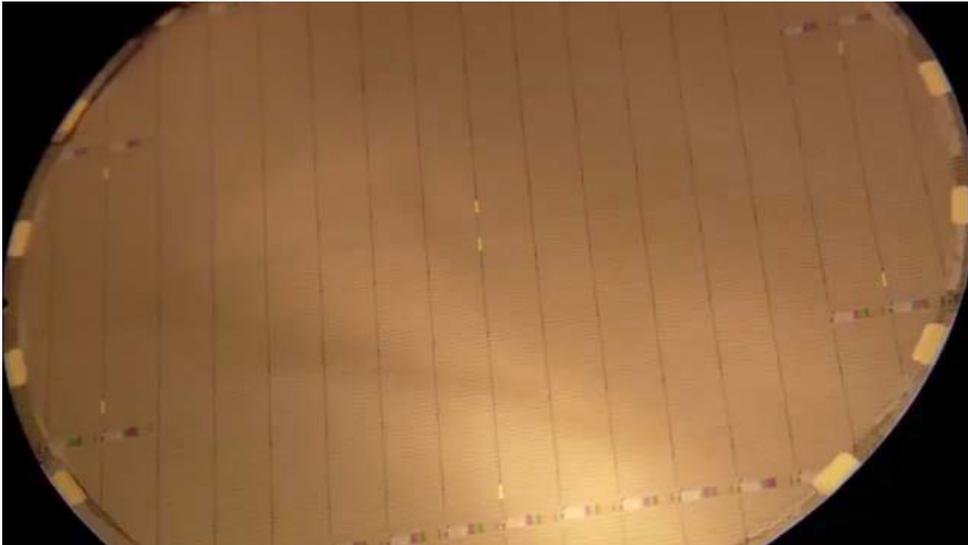
*Finalist for 2018 Advanced Manufacturing and Emerging Technologies Tekne awards

Our Story - MHTA Ambassador at Seagate

Internal Interviews

Internal Research

Achievements

Future Work
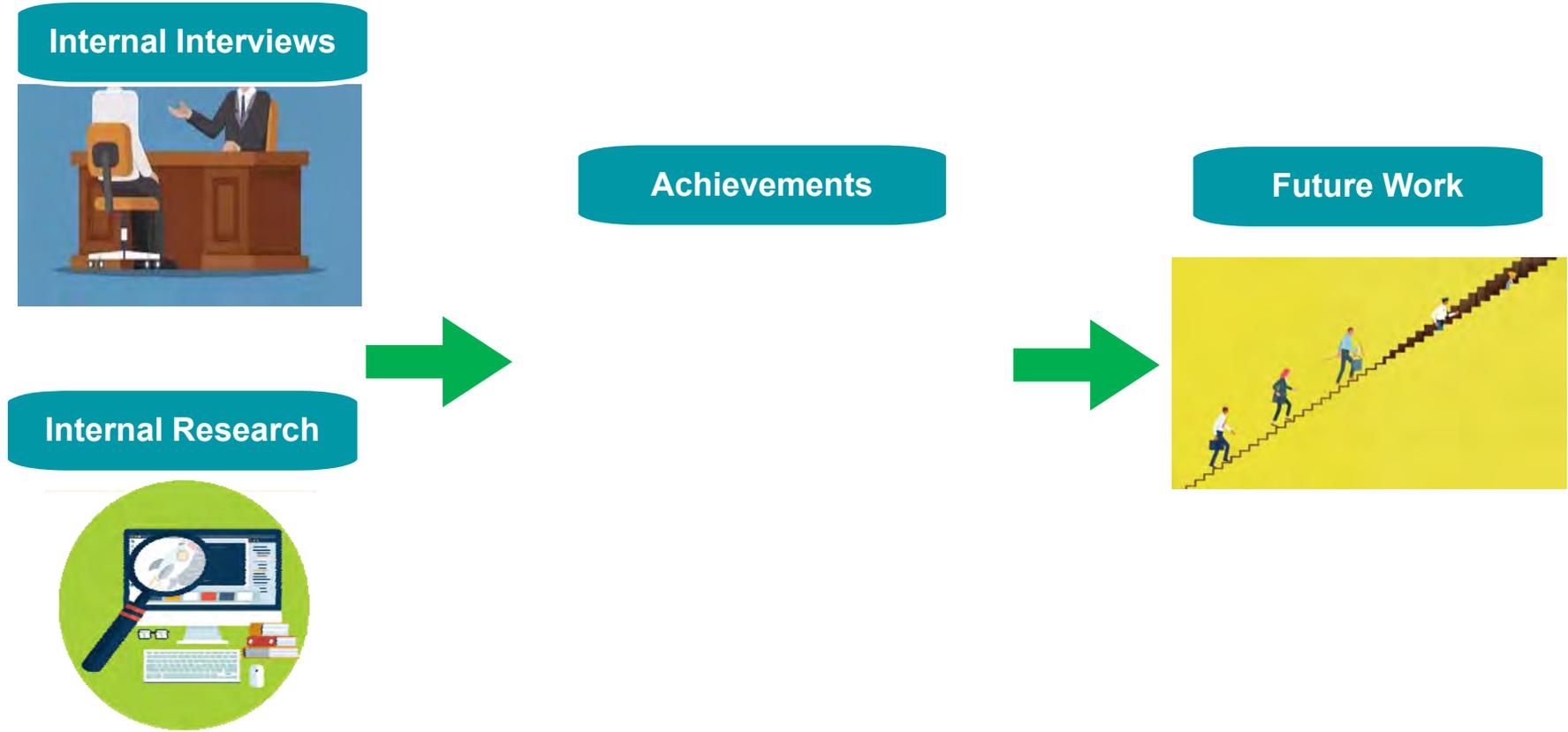
Our Story - Seagate Ambassador Communication Networks

Seagate Internal Communication

Ambassador Communication Network Model

Internal Communication

External Communication

MHTA Representative

Communication Director

Leader 1

Leader 2

Leader 3

Ambassador Company A

Ambassador Company B

MHTA Membership Director
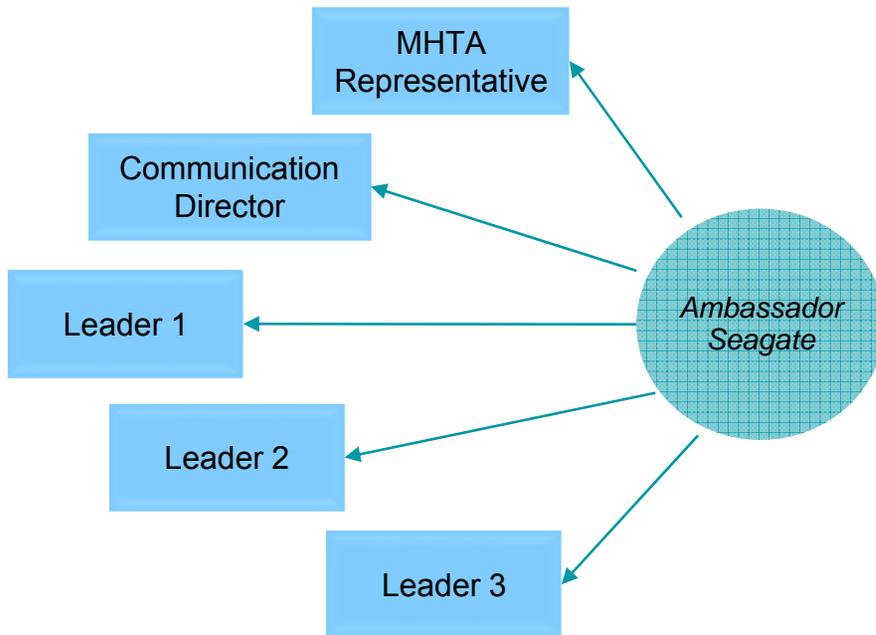
Ambassador Company C

Ambassador Company D

Potential First Round Ambassadors
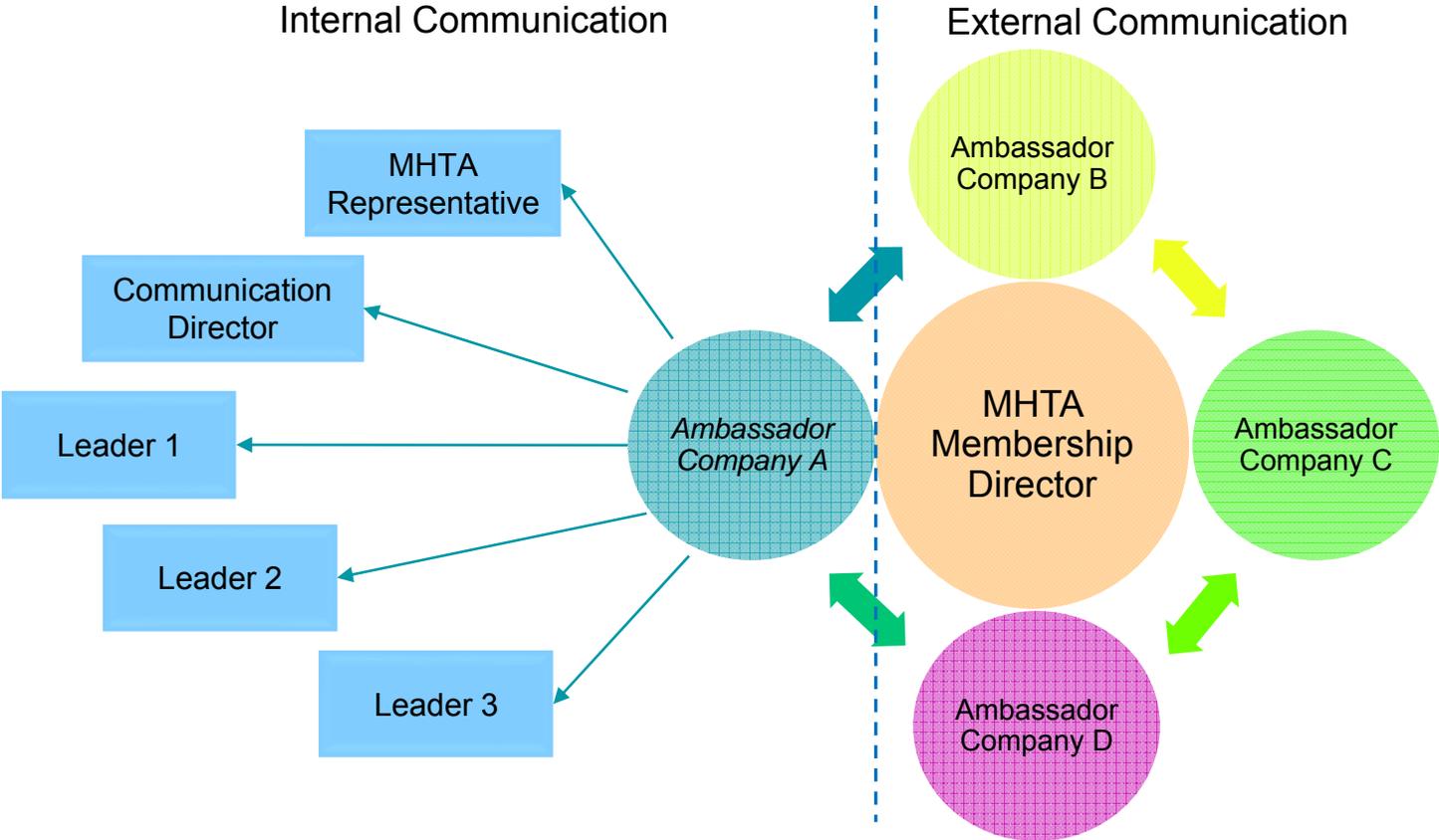
Potential candidates from 2017 and 2018 ACE training attendees survey and interviews:

- Jamison Walton – Dell
- Michael Nicholas – Associated BRC
- Tori Mandal - Thomson Reuters
- Ashley Bremers – Thomson Reuters
- Zachary Brand – Verteva
- Monica Novak – Medtronic
- Arun Natarajan – Seagate

Next Steps …

- Formalize program
- Identify, interview and select Ambassadors
- Host Ambassador orientation and training
- Engage Ambassadors at identified companies
- Organize Ambassador summit
- Schedule quarterly check-ins with MHTA Director

MINNESOTA HIGH TECH
AMBASSADOR HANDBOOK
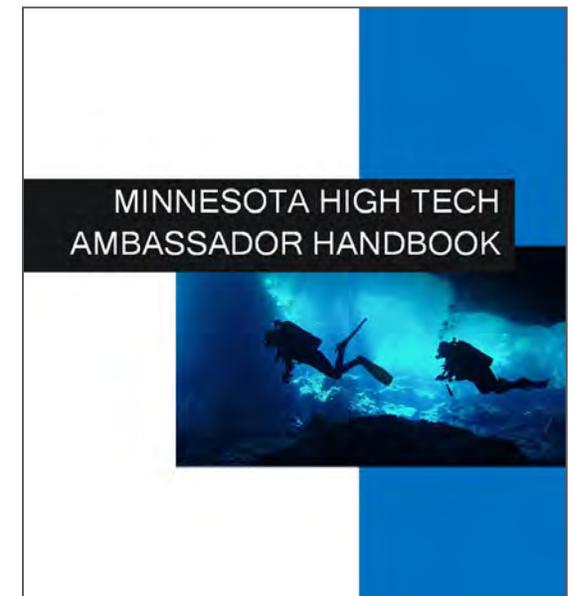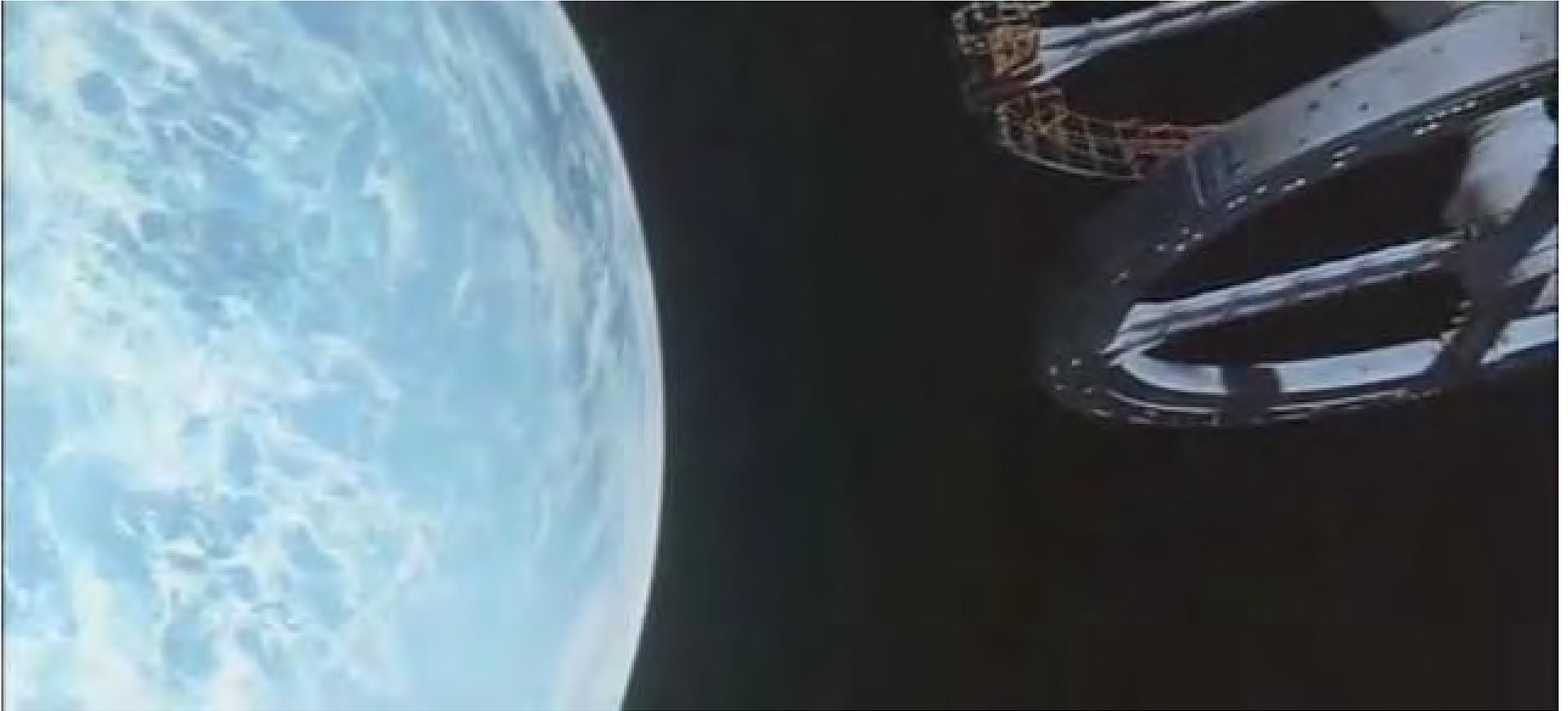
Innovation   Technology   **Engagement**

Through Minnesota High Tech **Ambassadors**   …… *big impact, low effort!*

Appendix

Additional Engagement Opportunities

MHTA Website	Tech Tuesday	Print	Social Media
• Redesign MHTA website to make it more appealing and useful to local technology companies	• Update so it is simplified, and faster to ingest • Include links to additional information	• Redesign print materials for distribution • Potential new member packet	• Increase MHTA visibility • Invite Ambassadors and members to write reviews on Google.

Engage	Innovate	Deliver

Information

Information Technology (IT)

Data Technology (Industry 4.0, IOT, AI)

MHTA guiding Minnesota businesses into the next technology revolution

MHTA Member Engagement

Project Group Members:
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MHTA Member Engagement

Purpose and Objective

There is low engagement or awareness of Minnesota High Tech Association (MHTA) from member company employees. Based on personal interviews with board members, face to face interviews with member company personal and our individualized surveys to current and past ACE Leadership participants, employees are mostly unaware of the membership or what benefits are accessible to them through MHTA.

- MHTA historically has limited numbers of key contacts, but lacks the reach to more individuals that could participate in sponsored events
- Communication to member employees is limited by their member company unless the employee has self initiated a subscription to Tech Tuesday newsletter
- MHTA has limited contacts within a company, and if the key point of contact transitions elsewhere, MHTA struggles to get a response for renewals

Based on our survey findings (Fig 1), we know that once employees are aware of MHTA they find value and are likely to recommend it. We need to drive engagement of member employees by increasing visibility of the value of being a member of MHTA. If we can identify trends to retain and engage members, we will increase customer ideas and feedback to act on which in turn will foster sustainable growth of the MHTA program.

Fig 1

How likely are you to recommend MHTA Membership to others? 5 being best, 1 being least.

Answered: 20   Skipped: 0
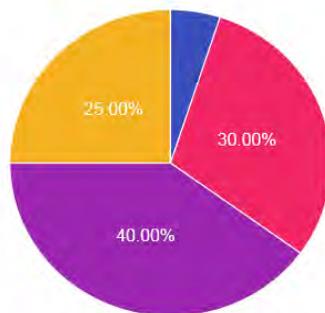
- 1
- 2
- 3
- 4
- 5

Research Methodology

We initially looked at a variety of topics to determine where our focus for our project would be. Examples of the work we did to understand MHTA opportuntities included:

- Reviewed High Tech Association websites across the country including TECHNA best practices
- Reviewed the current site for MHTA and identified ideas for improvements
- Participated in new member training for North Carolina
- Interviewed Mo Shiriner and Ray Hoover from MHTA

Throughout these activities one common idea came through, which was examining how to engage the companies who already participate to share MHTA with the rest of their organizations. With this insight, we conducted a survey with the FY17 and FY18 MHTA ACE Leadership teams and held interviews with employees and leaders from current members. From this we found what our members want to see (Fig 2) and based our recommendation and strategy on how to best meet these needs.

Fig 2

Recommendations

From our research we found MHTA needs to continue development of communication tools, user touchpoints, voice-of-customer business processes and member-driven programs to create a strong science and technology sector in Minnesota. To accomplish this need we have identified 3 scope areas.

1. Ambassador Program
2. Communication Strategy
3. Membership Benefits

We have focused on the Ambassador Program and ask for the Board's support as the program is expected to be <u>little effort with big payoff.</u>

Ambassador Program

The MHTA Ambassador program will be a volunteer activity led by members of MHTA with the goal of increasing awareness and understanding of the power and value that MHTA brings to the technology community in Minnesota. Emphasis is placed on reaching audiences who are non-participating employees of MHTA member companies.

MHTA ambassadors are employees of member companies in good standing who are passionate about their profession and who believe in the value of creating a more diverse, vibrant Tech community in Minnesota. Ambassadors can range from interns to CEOs. Our recommendation is that ACE Leadership participants become part of the applicant pool for Ambassadors when they join the program. MHTA Ambassadors will be active for one year (February through January), after which they can retire their role or continue for another term.

Expectations and Role*

An ambassador will be an active participant and advocate for MHTA. Orientation and training to outline the program and instruct participants on how to use the tools provided and leverage their professional networks will be provided by MHTA. Following the completion of their training in March, ambassadors will be expected to:

- Grow internal communications within membership companies to promote MHTA benefits and events
- Collect voice-of-customer feedback and communicate to MHTA
- Engage and collaborate with other ambassadors
- Volunteer for at least one MHTA event
- Recruit potential members/sponsorship within existing networks

*Additional responsibilities as defined by the MHTA Membership Director

A typical model of ambassador communication network is shown below:

Ambassador Communication Network Model

Internal Communication | External Communication

MHTA Representative
Communication Director
Leader 1
Leader 2
Leader 3
Ambassador Company A
MHTA Membership Director
Ambassador Company B
Ambassador Company C
Ambassador Company D
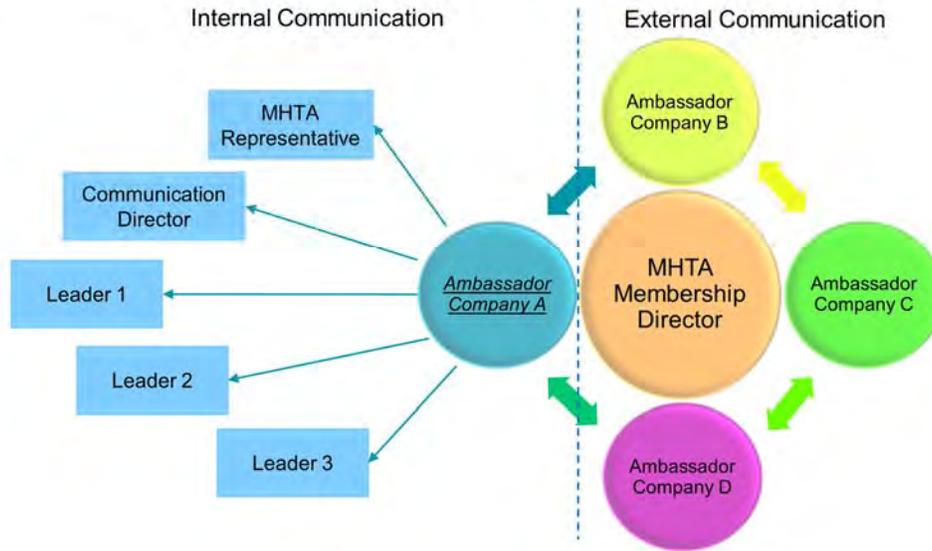
Benefits to Ambassadors

As an Ambassador investing in MHTA on their own time, the volunteer will have the following benefits:

- Expanded professional presence by networking and building strong relationships
- Recognition by MHTA member or non-member companies and their leaders
- Leadership and volunteer opportunities
- Additional influence on MHTA programs/events and the tech community in Minnesota
- Excellent addition to a resume
- Discounted tickets for MHTA events
- Recognition for the ambassador's company at one MHTA event per year
- Digital membership seal to use with an email signature, LinkedIn or on social media.

Rules

Ambassadors will conduct themselves in a professional manner when representing MHTA. If questions arise when engaging potential new or

current member companies, the Ambassador will promptly respond and include appropriate resources when needed.

Ambassador Program Action Steps and Milestones
To initiate the program, a high-level timeline for an Ambassador term will be:
- February TBD: Ambassador program presented to ACE
- February TBD: Interviews and selection of Ambassadors
- March TBD: Orientation meeting and training
- May TBD: Spring Conference introduction and program update
- Second Quarter: MHTA Director check-in
- June TBD: Ambassador Summit
- Third Quarter: MHTA Director check-in
- November: Recognition at Tekne Awards
- Fourth Quarter: MHTA Director check-in
- December TBD: Ambassador reception with MHTA Board of Directors
- December TBD: Program survey completion

To successfully begin the program the following preparations are needed:
- Present ambassador program to the ACE Leadership class to solicit volunteers.
- Develop materials, including Ambassador Handbook, to train members in the orientation meeting.
- Create consistent MHTA messaging for Ambassadors to use.
- Create an elevator pitch of what MHTA is and what the benefits are.
- Organize an Ambassador Summit to help establish and strengthen Ambassador network.

Potential First Round Ambassadors
- Jamison Walton – Dell
- Michael Nicholas – Associated BRC
- Tori Mandal - Thomson Reuters
- Ashley Bremers – Thomson Reuters
- Zachary Brand - Verteva
- Monica Novak – Medtronic

Communication Strategy
Update and revamp both digital and print membership materials to reflect branding and improve persuasion efforts.

Website

Redesign MHTA website to make it more appealing to new and potential members and to make it user friendly. Website should be responsive and simple to navigate. Website Action Items:

- Evaluate tools and methods to assist in connecting members with each other through a member portal.
- Any sustainable growth model for MHTA includes membership growth into greater Minnesota.
- Assess current accessibility and usage of membership content.
- Event calendar with ical feature.

Print

Redesign membership print materials for distribution to new members, potential members, and others. Print Action Items:

- Create a professional packet of details and information to give to potential new members that outlines what MHTA has to offer.
- List print pieces to recreate and identify needs for new pieces.
  - Validator piece (new): Use collected member experiences and reflections to communicate the value of membership to current members by designing new validator piece.
  - MHTA mission piece (recreate): simplify message and remove specific staff contact information.
  - Confirm design of new pieces and redesign of old pieces.

Tech Tuesday Newsletter

Based on survey feedback, simplification of Tech Tuesdays newsletter to increase readership (Fig 3). Recommendation to reduce word count on initial email, adding links to the full articles for the topics the reader is most interested in. By reducing the full content on the page, we are saving time to consume the subject matter in the newsletter, therefore making it more appealing to peruse the full list.

Fig 3

<u>Membership Benefits</u>
Communicate the benefits of MHTA membership with current members through digital, printed, and personal touchpoints. Improve the benefits of MHTA membership according to voice-of-customer.

- Develop a schedule to promote membership and membership benefits through regular personal communication to members.
- Collect member experiences and reflections to communicate the value of membership to current members and identify opportunities for improvement, such as:
  - More webinars focusing on latest technology or company overviews
  - Training programs and workshops with certification
  - Networking events for groups with common interests
- Invite Ambassadors and members to write reviews on Google. There are currently zero reviews or questions.
- Continue to work with MHTA Communications Director to place membership information on MHTA social media channels and Tech Tuesday emails. Information may include: reminders to renew, benefits of membership, and testimonials regarding MHTA member benefits.

Summary
Our research suggests there is opportunity to improve engagement of MHTA member company employees. Increased engagement is beneficial for increasing innovative solutions for technology challenges and improving voice-of-customer understanding supporting long term MHTA success. We recommend establishing an Ambassador Program to improve engagement. We expect the Ambassador program will be faster, deeper and more personal than other engagement methods. With MHTA board support and little effort we can significantly increase MHTA member company employee engagement.

APPENDIX

1:1 Interview Responses

Best Buy

1. What are benefits you see belonging to MHTA?

    a. Part of a community of organizations and companies that have a personal stake in furthering technologies

    b. Networking opportunities to provide visibility to how others are using technology

    c. Working with people to grow and retain talent in STEM fields

2. What should MHTA start/stop doing to engage your company?

    a. Public Relations listed as a contact – leverage them

    b. Provide elevator pitch of value of MHTA, it will help to share why does MHTA matter.

3. Who do you think does a great job engaging your organization in Tech knowledge?

    a. Big contracting companies, Accenture, McKinsey

4. What are the key events MHTA provides that you attend?

    a. Tekne – awards banquet, Spring Conference, Venture Conference – start ups and investors

5. What do you find about their e-mails valuable/helpful?

    a. Brief summary of what's coming up and why it would matter

6. How does your company connect employees to MHTA?

    a. We could be better, but we had some success with the spring conference by creating awareness and making it easy to register. Buying a block of tickets….

7. What process do you use to enable collaboration/communication with MHTA past 1 or 2 individuals? Employees?

    a. Write notes and forward events to peers and others that may be interested.

8. How would you use a membership portal to connect to other members?

a. I don't know that we would want that. It could become a recruiting tool. Utilize LinkedIn.

9. What are the main factors to determine your company membership to renew/not renew?

a. Best Buy renews to be engaged with the community

10. Are you familiar with the MHTA STEM Internship program? If so have you used it?

a. Yes but haven't used it – we already have established internship programs. May be too big.

Medtronic

1. **What are benefits you see belonging to MHTA?**

a. *As one of the Larger employer of technical scientific employees we have 9000 employees in MN. We look at this as an opportunity to connect with other companies as well as giving back to companies in sharing information. We want to teach, learn, and stay leveraged with MHTA because it's good to help the local economy.   STEM programs, helps supply chain of talent. We want MN to be high destination state for technology for New companies, innovation. Want MN to be destination positive for tax systems. Legislation, good broadband. STEM aspect. Education on. We won't have workforce if we don't leverage STEM.*

2. **What should MHTA start/stop doing to engage your company?**

a. *Nothing to stop doing. Services capabilities, and mission more applicable to a large company. Works well for small companies. How do you craft it? Material content. Turn around retweet. They need to figure out crafting and packaging to give to ambassadors to share. How does the information they use work in our environment? How do we disseminate it?*

3. **Who do you think does a great job engaging your organization in Tech knowledge?**

a. *NH-Isac, Nisac – information sharing bodies, genesysworks built their program. How do you sit down gensyswork where do we have distinctly different offerings and combine and overlap? MHTA should partner with Genesys works.*

4. **What are the key events MHTA provides that you attend?**

a. *Board meetings, legislative stuff don't do CIO forums. Spring conference, tekne awards bids and bytes. Lots of fundraising events,   balance of every events.*

5. **What do you find about their e-mail's valuable/helpful?**

   a. *skim*

6. **How does your company connect employees to MHTA?**

   a. *Pure word of mouth.*

7. **What process do you use to enable collaboration/communication with MHTA past 1 or 2 individuals? Employees?**

   a. *Likes idea of ambassador program. He doesn't have time to do that work.*

8. **How would you use a membership portal to connect to other members?**

   a. *Bad idea, wouldn't use it.*

9. **Are you familiar with the MHTA STEM Internship program?** If so have you used it?

   a. *Too big to use…small companies.*

10. **What do you think about the idea of an Ambassador program?**

    a. 1000% behind it. He forwards information but doesn't have time, would support that. Would be a great tool but the information has to come from MHTA.

Seagate

1. What are the benefits you see belonging to MHTA? What is missing from their offerings?
   a. Clear benefit – state needs to be strong. Well educated STEM employees. Encourage more students to take STEM track. Aligning with our own community engagement. Benefits both – Good quality technical candidates
   b. Raising seagate brand awareness in MN technical community. MHTA only venue he is aware of.
   c. Employee training opportunities, such as ACE
   d. Seagate benefits from legislative – high tech companies' voice is represented, when guiding legislative. More general. At part of board meetings, they review legislative agenda. Opportunity to guide lobbying.
   e. Missing:
      i. More emphasis on advanced manufacturing. Can take different forms.
      ii. How can big companies mentor and support smaller companies. Raises manufacturing capability for state – creates more STEM jobs.
      iii. Provides visibility and influence so that students know tech is more than IT and past "machine shop" manufacturing. Advanced manufacturing.
2. What should MHTA start/stop doing to engage your company?

   ACE leadership program is a great example - Please continue

   Career development opportunities – Please continue or do more.

a. More networking between companies. Some way for engineers from different companies to engage with other companies. – Eg. Tours.
b. Spring conference - agenda is set by those who show up.
c. Not everything they offer fits- eg. Venture meetings.
d. Would be good to get feedback from employees about what they want to see - ambassador program? Survey?
e. Closer collaboration with Scitech MN. Overall, closer collaboration with similar associations.
f. Why is MHTA not at STEM day at the State fair?
g. Anything to stop: doesn't have great visibility to everything going on.

3. Who do you think does a great job engaging your organization in Technology knowledge?

Theodore Ellefson is the coordinator in Seagate for MHTA related events and planning. Katie Staub in Seagate is in charge in STEM related events, like,

iv. Scitech MN

v. StarBase

4. What are the key events MHTA provides that you attend? Underline them

- <u>MHTA Tech Events</u>
- <u>Spring Conferences</u>
- Bids and Bytes
- <u>Tekne Awards</u>
- <u>Women Leading in Technology</u>
- <u>Networking Events</u> – as found painful for him. Some of this is personality. But is there an opportunity to make this "less painful" for similar personalities? < Can ambassadors help here?>
- CIO Forums
- Lunch and Learns
- Venture Conference
- ACE Leadership-n
- None
- Other (Please specify)

5. What do you find about their e-mail's (Tuesdays newsletter) valuable/helpful?

a. Doesn't receive
b. First pass look real time said it looks really useful.

6. How does your company connect employees to MHTA? Do they collect feedback from employees on their impressions of MHTA and what is that mechanism?*

a. Through emails to selected distributions depending on events

b. At manager level meetings

c. Occasionally. No systematic way to get feedback from event attendees.

7. How do you enable collaboration/communication with MHTA to a broader audience within your company?

    a. Thinks it would be really helpful for MHTA to put something together to bring into a manager meeting. Would be good for someone from MHTA to come market themselves in manager meeting of what MHTA has to offer.
    b. Harlan sends email to his distribution. Probably make sense at some point to have the emails going broader than that.
    c. More Seagate in Shakopee site members attended spring conference. Harlan pulling Ed Gage's team in because Harlan saw the conference agenda and knew what other organizations would benefit from attendance.

8. How would you use a membership portal to connect to other members?

    Collaboration for STEM activities – do you need a portal or an active community of members? Or an email distribution list?

9. What are the main factors to determine your company membership to renew/not renew?

    a. Is MHTA doing things that are aligned with what Seagate's needs are.
    b. Are they responsive? E.g majority of site is advanced manufacturing and design. If MHTA goes down IT only path during events, then after awhile it won't meet our needs.
    c. Overall financial climate of a company
    d. If MHTA is going in a direction not aligned to company – first couple years are disengaged, then they drop membership.
    e. Important for MHTA to stay closely aligned to members.
    f. Conversation happens at site membership team. Compare to overall community engagement "budget". MHTA is currently getting most funding.
    g. We spend more on ACE leadership and spring conference sponsorship than on membership.

10. What do you think about the idea of an Ambassador program?

    Likes Ambassador: How to get voice of customer.

11. How does MHTA get voice of customer feedback?

    Look at what we did from Baldrige. Having a really good voice of customer mechanism is really important for them to have.

    Working with board member in 3M to expand scope past IT

Your Dream Home!

Only 1.5M internet?

- VPN Connections:
  - Work from home
  - Continuing Education online
- Netflix
- Amazon Prime
- Home Business
- Online Video Games

Border-to-Border: Getting Minnesota Covered 100%

Brian Burth
Tim Dick
Chad Johnson
Sonal Subramanian
Marjorie Kennedy

What has happened since 2016?

Looking back at 2016

Group Presentation: Connecting Rural Minnesota

- ○ $35 Million in funding provided
  - ○ $5 Million max
- ○ 47% of Minnesotans in rural areas lacking access
- ○ Goal: By 2022, all business and homes have access
- ○ Target: 25 Mbps/3 Mbps minimum speed goals
- ○ CAF II Funds (Federal Program)

**BB1**   Burth, Brian, 9/5/2018

Border-to-Border Results

○ First four years, leveraged $110 million - 34,000 households and 5,200 business 2017

○ Border-to-Border Success Summary:
  ○ $20 million in funding available for FY17
  ○ 70 Applications submitted, $50 million in funds requested
  ○ 39 Recommended for funding / $26 million total
  ○ 9,972 Homes; 2,169 Business; 60 Community Institutes

Minnesota Border-to-Border Broadband Development Grant Program

2017 Project Awards
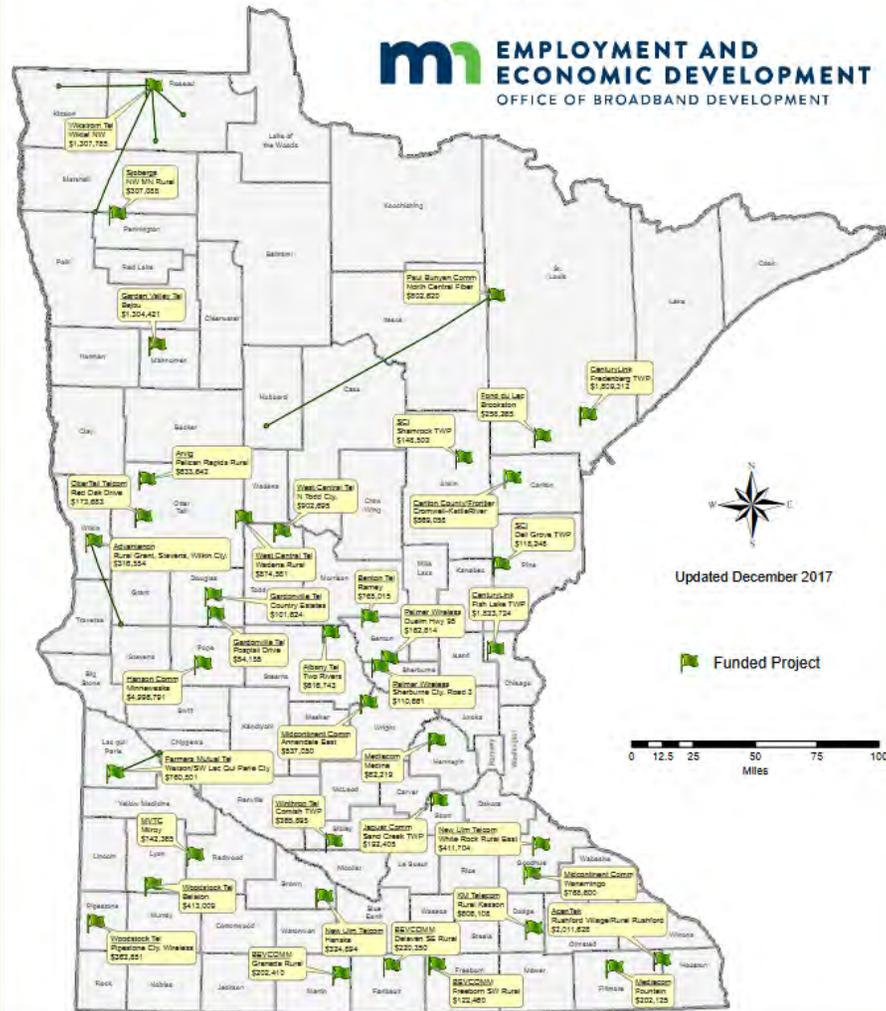
Success Stories

Kristi Westbrock

Consolidated Telecommunications
Company (CTC)

CEO/GM

Marla Yoho

Fairview Township

Clerk-Treasurer, Administration

** Success Stories from MN Office of Broadband Development Website

Success Stories Continued

- Fish Lake Township FTTH Project
  - Awarded $1.8 million by Border-to-Border
  - Fish Lake matched $569,000
  - 919 households and 7 business FTTH
  - 1 GIG Speeds

- Afton Minnesota
  - $125,000 from City of Afton / CenturyLink.
  - Used in conjunction with CAF Funds
  - 15 New High Speed Dslams Built
  - 100% of Afton now connected

2018 Funding

- Dayton vetoes' returning Chapter 201, SF 3656, the omnibus supplemental budget bill.
  - 989 page budget bill
  - 51 Policy Provision
- Dayton urged Legislator to send separate bills on Minnesotans' most urgent priorities
- Dayton pens open letter May 23, 2018 explaining and supporting facts around the veto

What are other states doing

50% of 48 states reviewed have a broadband office

- Funding From:
    - Federal Universal Service Funding (USF)
    - State General Funds
    - Governors Office
    - Special Funds

- California Advanced Broadband Services Fund (CASF) $100 Million
- Wisconsin Governor -PSC $7.0 million in broadband expansion grants in FY 2019
- Virginia - Recent legislation requires strategies to provide broadband infrastructure

- Funded Areas:
    - Adoption
    - Local Tech Planning
    - Mapping of Infrastructure
    - Broadband Technology Events
    - Technology Training

*** Figures pulled from 2017 SNG Annual Report www.sngroup.com

Technology for connecting households

- There are 68 Internet Providers listed in Minnesota
  - Fiber to the home (FTTH) – 1G
  - Coaxial – 250m
  - Fiber to the node (FTTN) – 150m
  - Copper Lines – 100M
  - Satellite – 25m (limited data)
- Wireless Connectivity
  - Cell Carriers
  - Mobile Hot Spots (5g Coming Soon!)

Minnesota Border-to-Border Broadband Development Grant Program

2017 Project Awards

Border-to-Border: Getting Minnesota Covered 100%

Brian Burth
Tim Dick
Chad Johnson
Sonal Subramanian
Marjorie Kennedy

Border to Border
Getting Minnesota Covered 100%

10.10.2018

Brian Burth
Chad Johnson
Tim Dick
Sonal Subramanian
Marjorie Kennedy

Overview

In 2016, the MHTA Group Presentation Connecting Rural Minnesota detailed the importance of bringing broadband service to all MN residents and outlined efforts underway to improve broadband availability across the state. In light of how critical these efforts are to the growth of Minnesota's technology-based economy, this presentation provides an update on progress made over the past two years.

Broadband's Impact

The number of connected devices in use is growing. A 2017 report by Gartner forecasts that 20.4 billion connected "things" will be in use worldwide by 2020[1]. These devices serve a broad range of purposes; from personal convenience and entertainment to critical, life-saving services. Broadband has become a necessary utility in a variety of fields critical to Minnesota's economic growth. High-speed connections are needed not only by traditional businesses, but home-based ones as well and a growing number of telecommuters rely upon reliable broadband to perform their jobs. Additionally, the need for broadband in agriculture continues to climb. A recent study indicates that IoT solutions are currently being used by 250,000 farmers in the U.S. mainly for livestock and cereals crops.[2] Broadband plays an important role in today's education infrastructure as well; for both K-12 and higher education and, maybe most importantly, the health of Minnesota's residents is increasingly reliant on the availability of broadband.

Once a community has access to strong, reliable broadband, real growth and innovation is possible. The Blandin Foundation determined that "When economic developers and community leaders are able to devote their time and attention to implementing innovative, tech-based economic development strategies, rather than on improving broadband access, it gives them a distinct advantage over unserved counties where local teams spend countless hours pursuing broadband deployment and struggling with limited bandwidth and unhappy residents and businesses".[3]

Looking Back

2014-2015

In 2014, Minnesota's Border-to-Border Broadband Development Grant Program which is administered by the Office of Broadband Development (OBD) began paying up to 50% of broadband costs for qualifying projects. The grants provided up to a dollar-for-dollar match on funds which could come from any private and public sources available to the applicant, including federal CAF II subsidies, not to exceed $5 million for any one project and were awarded based on a variety of criteria, including cost, community support, the number of households and community institutions impacted by the project.

2016

The grant program received $35 million in funding during the 2016 Legislative Session. The Office of Broadband Development reviewed 62 grant applications, with requests totaling $55 million. Demand continued to outpace funding. Also in 2016, the State updated its broadband speed goals – to provide broadband service of at least 25 megabits per second (Mbps) download and 3 Mbps upload (25 Mbps/3 Mbps) by 2022 and access to at least one provider of speeds of at least 100 Mbps/20 Mbps by 2026. 2016 also saw the Legislature adding a formal challenge process to the grant program[4], allowing an existing broadband provider to challenge an application if the proposed broadband deployment would overlap on the existing provider's territory or if the proposed area was one that an existing provider planned to build to within 18 months of the award announcement.

2017

The Office of Broadband Development received 70 grant applications in 2017, with requests totaling more than $50 million. Only $20 million in funding was allocated to the grant program in 2017. In November, the office announced $26.47 million in funding for 39 projects across Minnesota promising to bring broadband service to 9,973 households, 2,169 businesses and 60 community institutions.

Figure 1: Border-to-Border 2017 Project Awards

A success story from 2017 detailed in the presentation is the Fish Lake Township Fiber-to-the-Home Project. The grant program awarded $1.8 million and, in combination with Fish Lake's local match and CAF II money, 919 households, 7 businesses, and one community anchor institution saw broadband service levels improved to 1 Gbps download and 1 Gbps upload.

2018

After four years of the Border-to-Border Broadband Development Grant Program, $85.2 million in funding has been awarded, and $110 million has been leveraged in matching local and/or private investments. Broadband service has been provided to more than 34,000 households, 5,200 businesses and 300 community institutions across Minnesota.[5] Grant applications have consistently exceeded available grant funds.

By March of 2018, 90.77% of Minnesota households had access to broadband at the state speed goal of 25 megabits per second (Mbps) download and 3 Mbps upload (25 Mbps/3 Mbps) and nearly 75 percent (73.66 percent) of Minnesota households had access at the 2026 speed goal of 100 Mbps/20 Mbps.[6]

In 2018, despite bipartisan support, the grant program went unfunded. Governor Dayton vetoed the 989 budget bill containing 51 policy provisions he opposed after imploring the Legislature to send separate bills on Minnesotans' most urgent priorities.

The Minnesota Model

It's unfortunate that the Border-to-Border Development Grant Program went unfunded in 2018 because Minnesota's broadband expansion initiative is viewed as a model by at least 18 other states.

An important part of the Minnesota Model is the Office of Broadband Development. A 2017 report from the Strategic Networks Group, showed how important a dedicated broadband office is to increasing a state's broadband access and use. 50% of 48 states reviewed had a broadband office in 2016.[7]

For states with a broadband budget, primary sources of funding were Federal Universal Service Funding (USF), State General Funds, the Governor's Office, and special funds. A grant program like Minnesota's that provides a match on either local government and/or private investment for broadband infrastructure deployment in unserved and underserved areas is critical to a states broadband initiative's success.

Help from MHTA

Minnesota's Border-to-Border Broadband Development Grant Program has been a major contributor to the states efforts to make fast, reliable broadband available to all its residents. But in order to meet the states 2022 and 2026 goals your continued support is needed. We are asking that the MHTA continue to do all it can to support the Office of Broadband development and the Border-to-Border Development Grant Program.

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John Dukich MHTA Director of Public Policy & Research
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2017 Broadband Grant Recipients
https://mn.gov/deed/assets/project-summaries_tcm1045-318265.docx
2017 Broadband Funding Summary
https://mn.gov/deed/assets/funding-summary_tcm1045-318266.docx
[1]https://www.gartner.com/en/newsroom/press-releases/2017-02-07-gartner-says-8-billion-connected-things-will-be-in-use-in-2017-up-31-percent-from-2016
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[3]https://blandinfoundation.org/learn/research-rural/broadband-resources/broadband-initiative/measuring-impact-broadband-5-rural-mn-communities/
[4]https://mn.gov/deed/assets/2017-challenge-process_tcm1045-304536.pdf
[5]https://mn.gov/deed/assets/2018-bbtf-report_tcm1045-354312.pdf
[6]https://mn.gov/deed/assets/2018-bbtf-report_tcm1045-354312.pdf
[7]http://sngroup.com/50states/
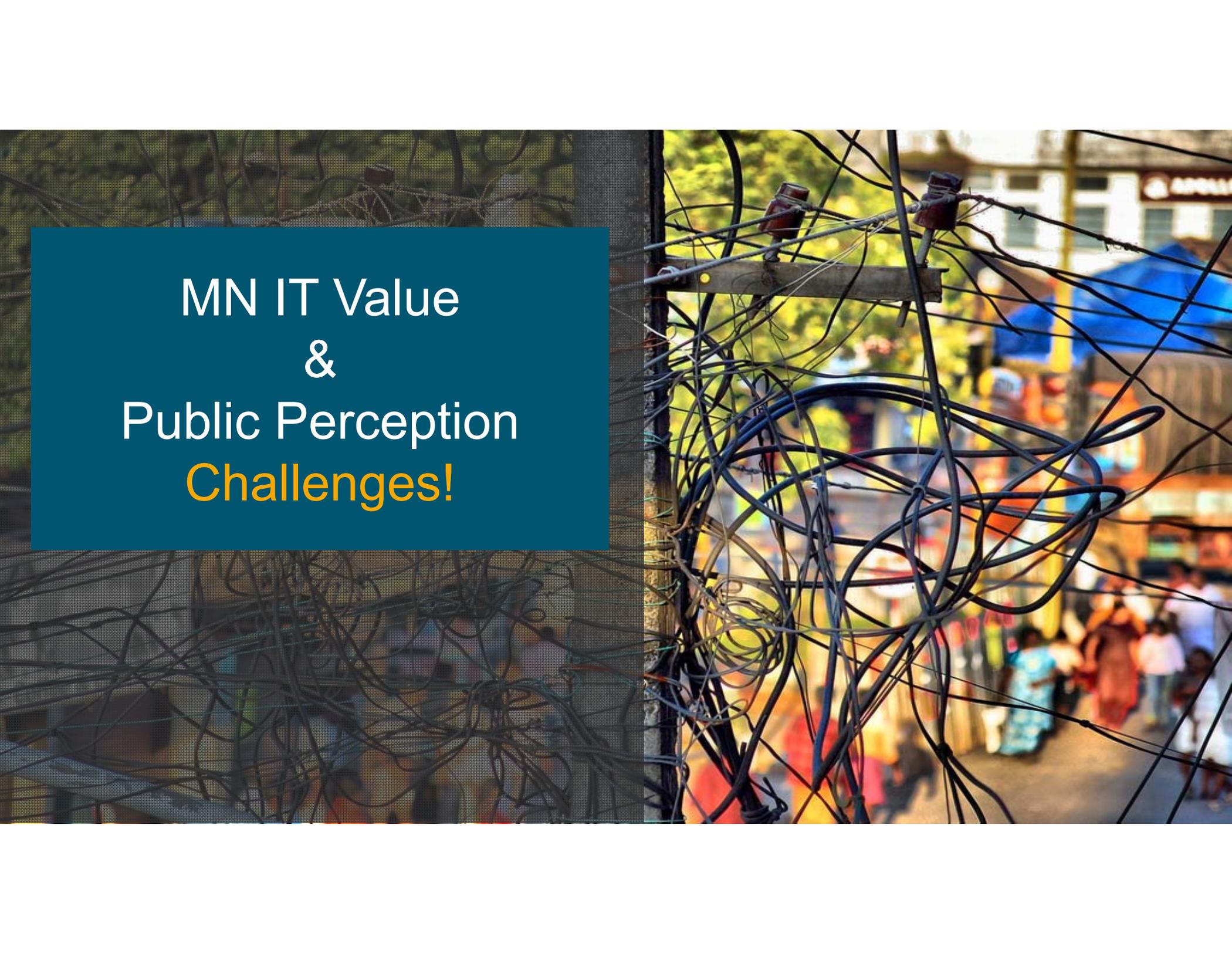
MN IT Value
&
Public Perception
Challenges!

Zach Brand,
Virteva

Megan Fleet
Davis,

Jason Neubauer,
MN Twins

April Francis,
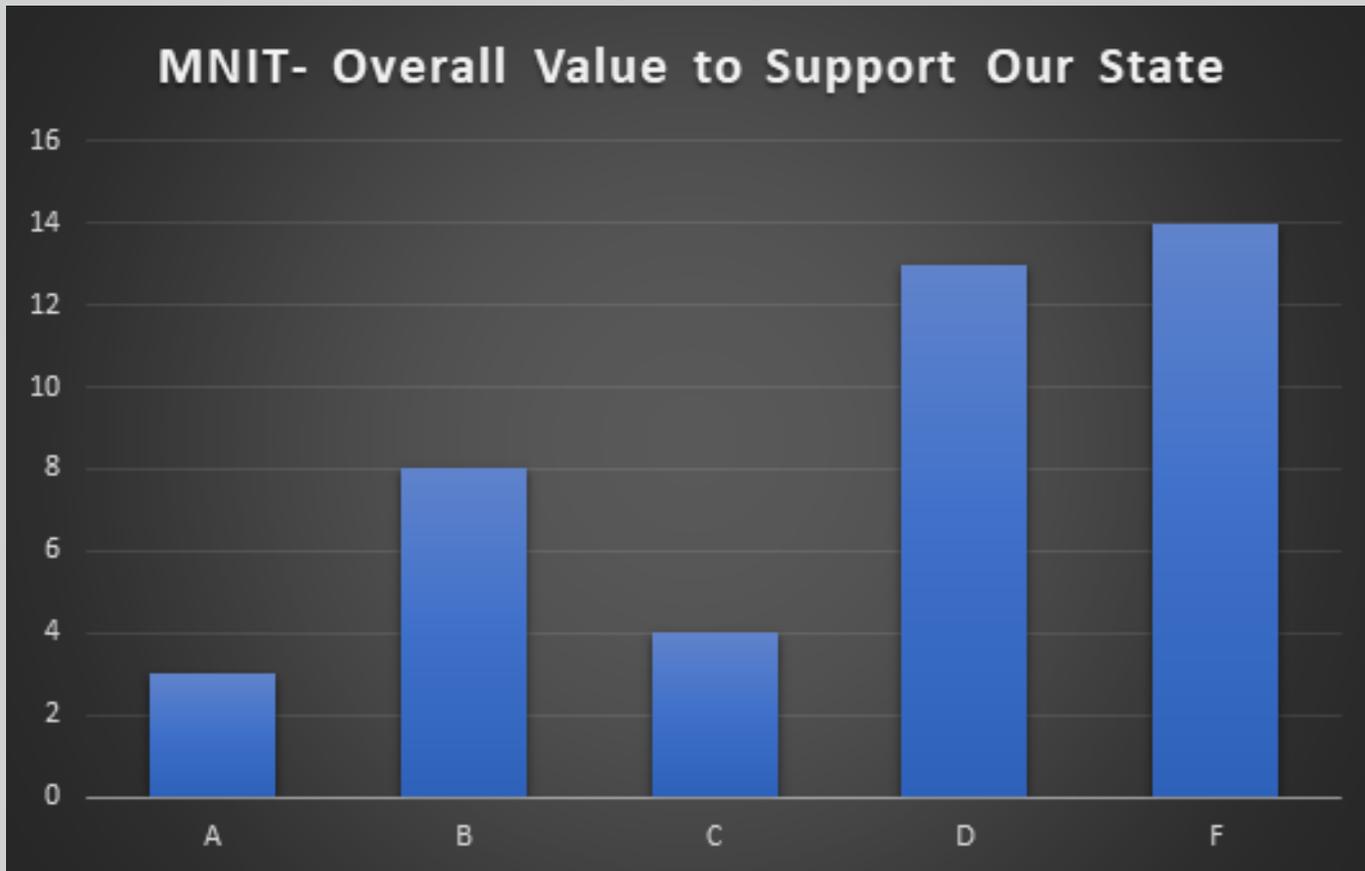Medtronic

Frank Partida,
BestBuy

How would you grade MN IT?

B+ **A-** **B+** **B+** **A-**

2010 2012 2014 2016 2018

Survey Results from Law Makers

Poor Public Perception

Positive IT Grade

BILL TO 'ABOLISH' MNIT

Some lawmakers want to blow up the state's entire
established with bipartisan support in 2011

2018 Digital States Survey Grades

A Georgia, Michigan, Missouri, Ohio, and Utah

A- California, Indiana, Minnesota, New York, North Dakota, Virginia, Washington, and Wisconsin
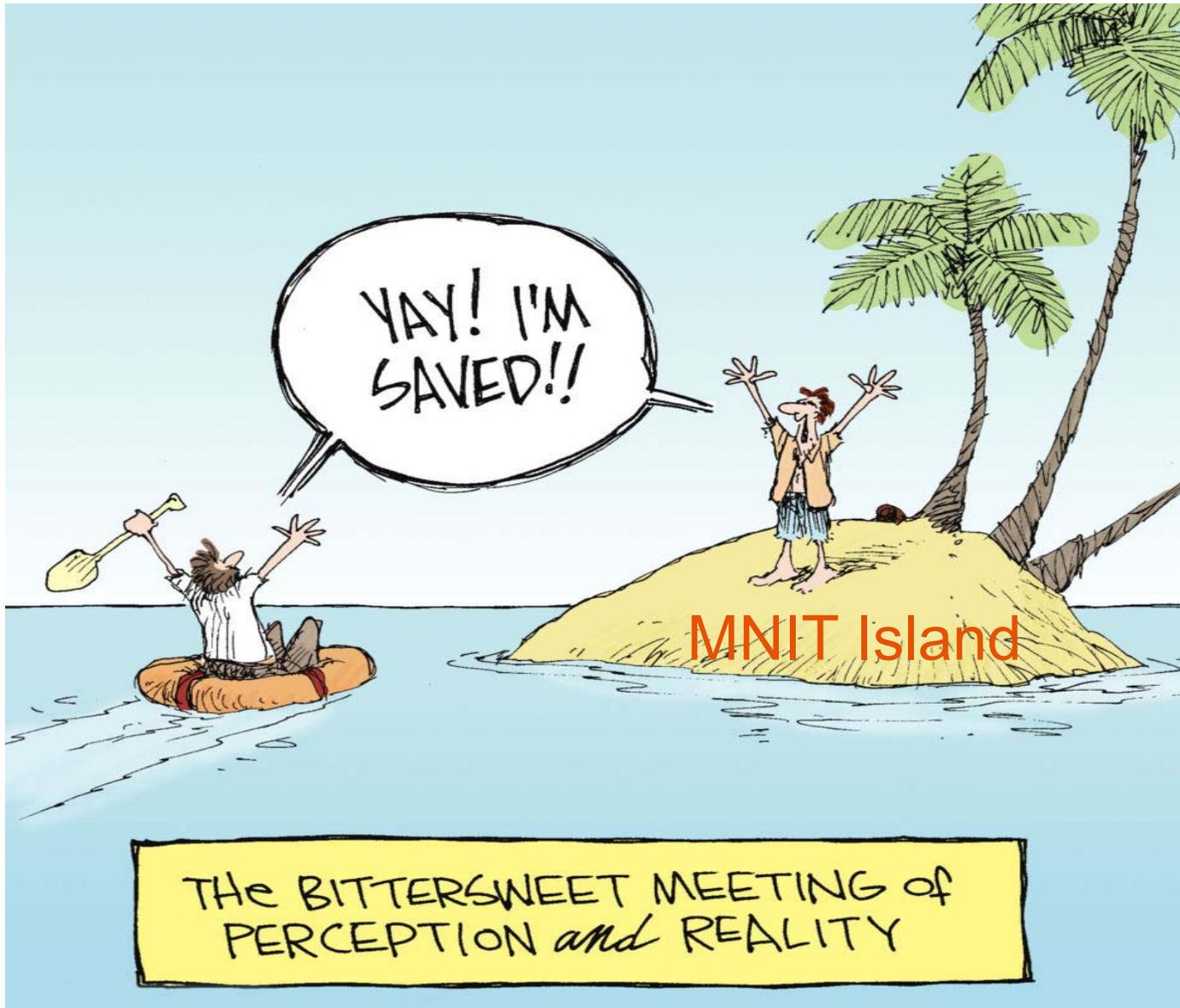
MORE THAN

86%

Surveyed Lawmakers Identified their TOP methods of communication

#1 Face to Face Meetings

#2 Email

#3 Committee Presentations

What can we do?
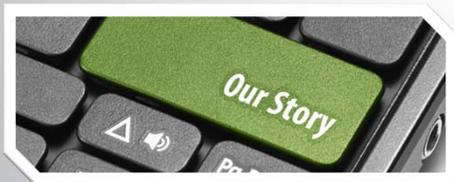
MINNESOTA
IT SERVICES

RECOMMENDED

Adopt SLA and reporting best practices of top-performing states

- Executive-level quarterly reviews

- Consistent communication to Chief Business Technology Officers, law makers, and stakeholders

- Outcome driven conversations

Broaden membership of the Technology Advisory Board

- Diversity of Industries

- Expand participant personas, ranging from Practitioner to Executive

Progress is impossible without change, and those who cannot change their minds cannot change anything.

George Bernard Shaw
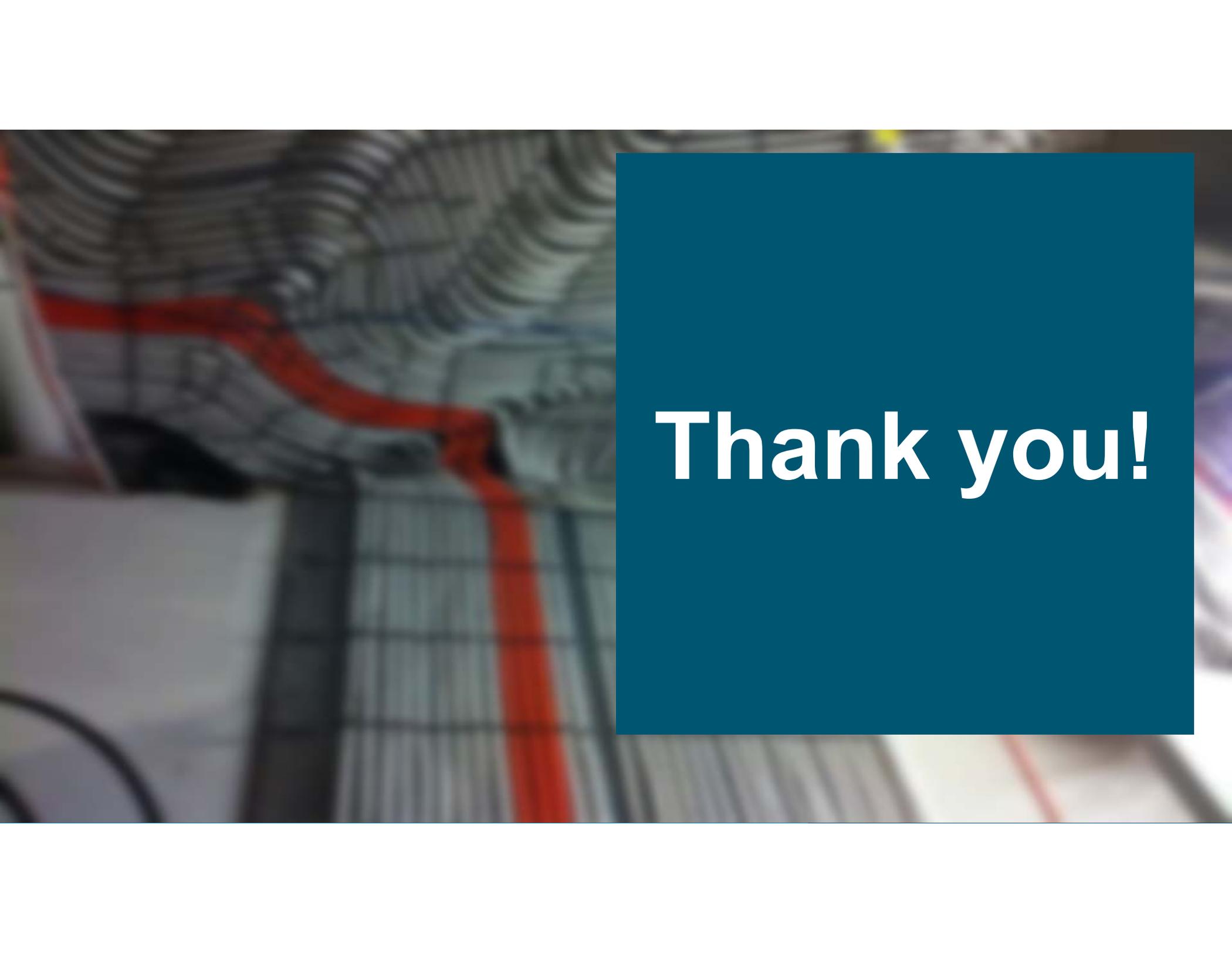
Thank you!

MNIT VALUE & PUBLIC PERCEPTION CHALLENGES

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JASON NEUBAUER – MINNESOTA TWINS - JASONNEUBAUER@TWINSBASEBALL.COM
FRANK PARTIDA – BESTBUY - FRANK.PARTIDA@BESTBUY.COM

Abstract

Minnesota IT Services (MNIT) has seen the public's perception of its ability to deliver value to the people of the state of Minnesota decline in the last couple years. The multitude of negative press surrounding the Minnesota Licensing and Registration System (MNLARS) rollout in July of 2017 has been the main source of the negativity. This project struggled to meet deadlines and budget and in-turn painted a negative picture of MNIT and its abilities to deliver on time and within budget.

In 2016 MNIT was given a B+ rating by the Center for Digital Government and an A- rating in 2018. To understand the disconnect between public perception and the real value MNIT is providing to the people of Minnesota, the objectives, priorities, and vision for the future of MNIT will be examined for this project. Understanding where communication and education can help drive confidence in MNIT and help leaders understand the overall capabilities of MNIT and not base opinions solely on a single project outcome.

MNIT VALUE & PUBLIC PERCEPTION CHALLENGES

After Governor Dayton's chief of staff Joanna Dornfeld spoke to our ACE leadership class, our team felt MNIT was misunderstood and misrepresented in terms of budget and value. Research on other state departments' budgets along with conversations with IT resources from MNIT and Utah Department of Technology Services (DTS), drove the focus of this project to center around communication and education of the value MNIT provides. We would like to investigate the relationship between the poor perception of MNIT and how that can potentially improve through education and transparency. The result could help bridge any communication gaps between IT speak and the knowledge base of our politicians around the services offered. Additionally, we will be looking into how MNIT can leverage the best practices being used daily from IT practitioners in this state.

PROBLEM STATEMENT

The Center for Digital Government has given Minnesota an A- rating in 2018 on the Digital States Survey. In addition, Minnesota as was recognized as a "Top 5" state for its Emerging Technologies/Innovation work. The Digital States Survey evaluates how each state uses technology to improve services, increase capacity, and make operations more efficient. In fact, Minnesota hasn't received a grade lower than B+ in the last 5 surveys.

YEAR	GRADE
2010	B+
2012	A-
2014	B+
2016	B+
2018	A-

Poor public perception along with negative press from projects such as MNLARS has led to a

challenge where an independent entity has given MNIT very positive scores over the past decade, yet

the negative press has resulted in a proposed bill to abolish MNIT (SF 2966).

WHY THIS IS AN ISSUE

Because law makers are misinformed or have a lack of understanding on the complexity of

MNIT projects, and experiencing a single or few bad experiences, the perception of value is negative.

Overall status and quality of work is tarnished if a single project is off-track with budget and schedule.

A negative experience with a single experience can easily change perception of the whole

organizational effort, along with a lack of understanding of how MNIT projects are executed only

breeds negativity. This creates a perception of a lack of transparency of overall competency to operate

efficiently and effectively.

A survey was sent to lawmakers to understand their perceptive value of MNIT in relation to

supporting the state's needs. A total of forty-two people responded to the question "Please grade (A-F

grade scale) these state agencies on their overall value to support our state." Figure 1 shows the

results comparing MNIT to other state agencies, with 33.33% responding with an "F" grade. This is a

drastic difference from the A- grade given through the Digital States Survey.

Please grade (A-F grade scale) these state agencies on their overall value to support our state:
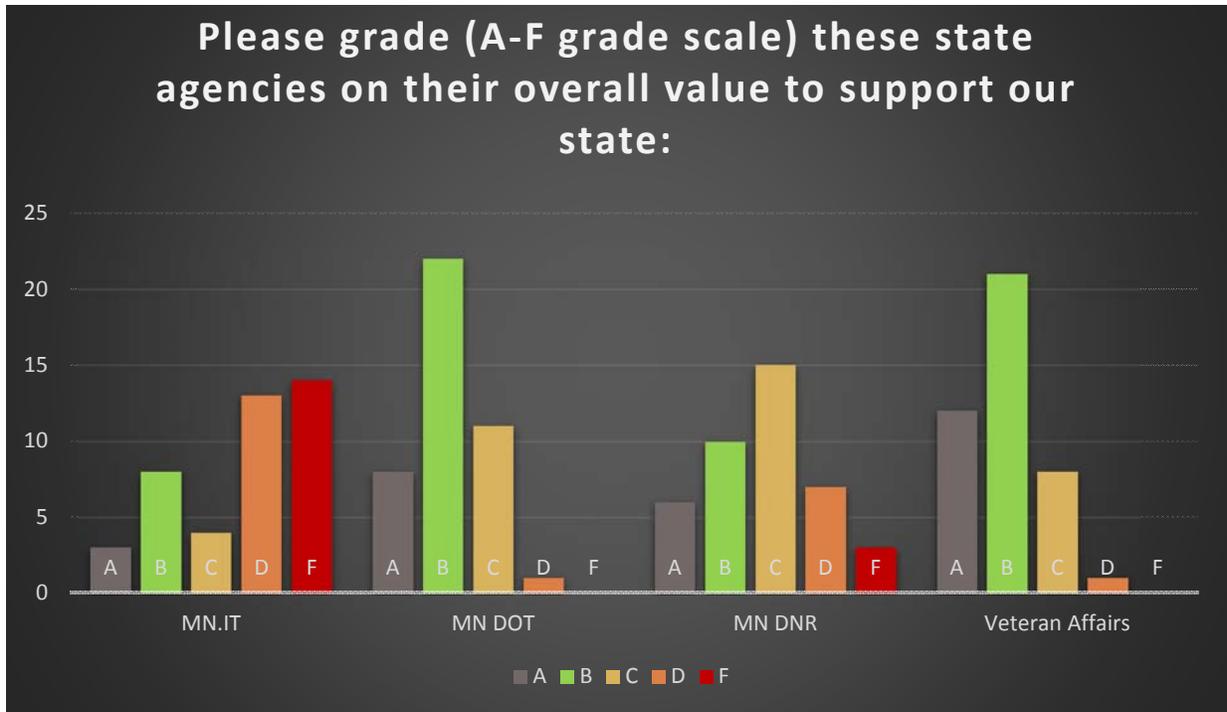
FIGURE 1

Other notable responses indicated that communication ability and effectiveness might be the main source of disconnect with lowest grades (D and F) being given over half the time. In addition, the ease in understanding the communication on project statuses received a "C" in 39.53% of responses. An overwhelming 86% feel the best way to communicate effectively with your legislators is Face-to-Face meetings, with email at 67% and presentations at just over 44%. Figure 2 demonstrates an interesting trend of responses regarding the question "Please grade MN.IT on its communication ability and effectiveness." It's interesting to note the trend of negative responses for all 3 areas; Clear message and language, Trusted data, and Collaborative.

Please grade (A-F grade scale) MN.IT on its communication ability and effectiveness:

Legend: Clear message and language · Trusted data · Collaborative
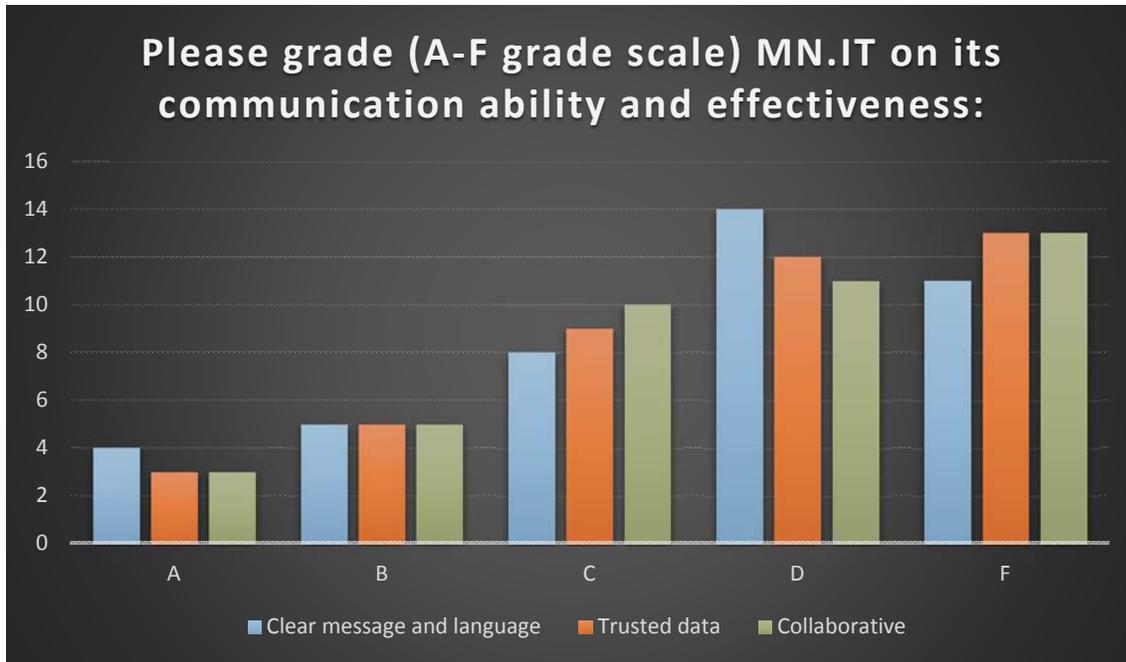
FIGURE 2

PROCESS AND COMMUNICATION

These survey results paint a picture that legislators don't feel the value of MNIT is represented or communicated effectively. Improving process and communication could alter this to improve the understanding of MNIT deliverables and timelines. One improvement we recommend is to meet with the state agencies and lawmakers (customers) to establish Service Level Agreements (SLAs), then data can be reported back to them on a reoccurring basis. These metrics, SLAs, and Key Performance Indicators (KPIs) are the source of truth and define success for MNIT and the state agencies.

As a success story, the state of Utah has maintained an A rating from The Center for Digital Government since 2010 and in a meeting with Utah Department of Technology Services (DTS), they stated that identifying their Service-Level Agreements (SLA) and building performance indicators that were made available to all executive branch agencies for viewing were the foundation on which it's success has been built. They provide many visuals including KPI reports and dashboards as seen in Figure 3 and 4. These KPIs were agreed upon by all Utah's state agencies so there would be no gray

area for interpretation. There is reporting for break-fix issues, hosting consumption, application

availability, security, customer satisfaction surveys, billing, project management, etc… These reports are

self-service and can be accessed at any time by all 23 executive branch agencies in Utah.

This is also a critical piece of ITIL and ITSM best practices that help define what success is and

should be implemented with MNIT and the state agencies and lawmakers so that when issues do arise,

no one is penalized for a specific issue but rather all parties can view that big picture of success or

failure based on all interactions with MNIT.
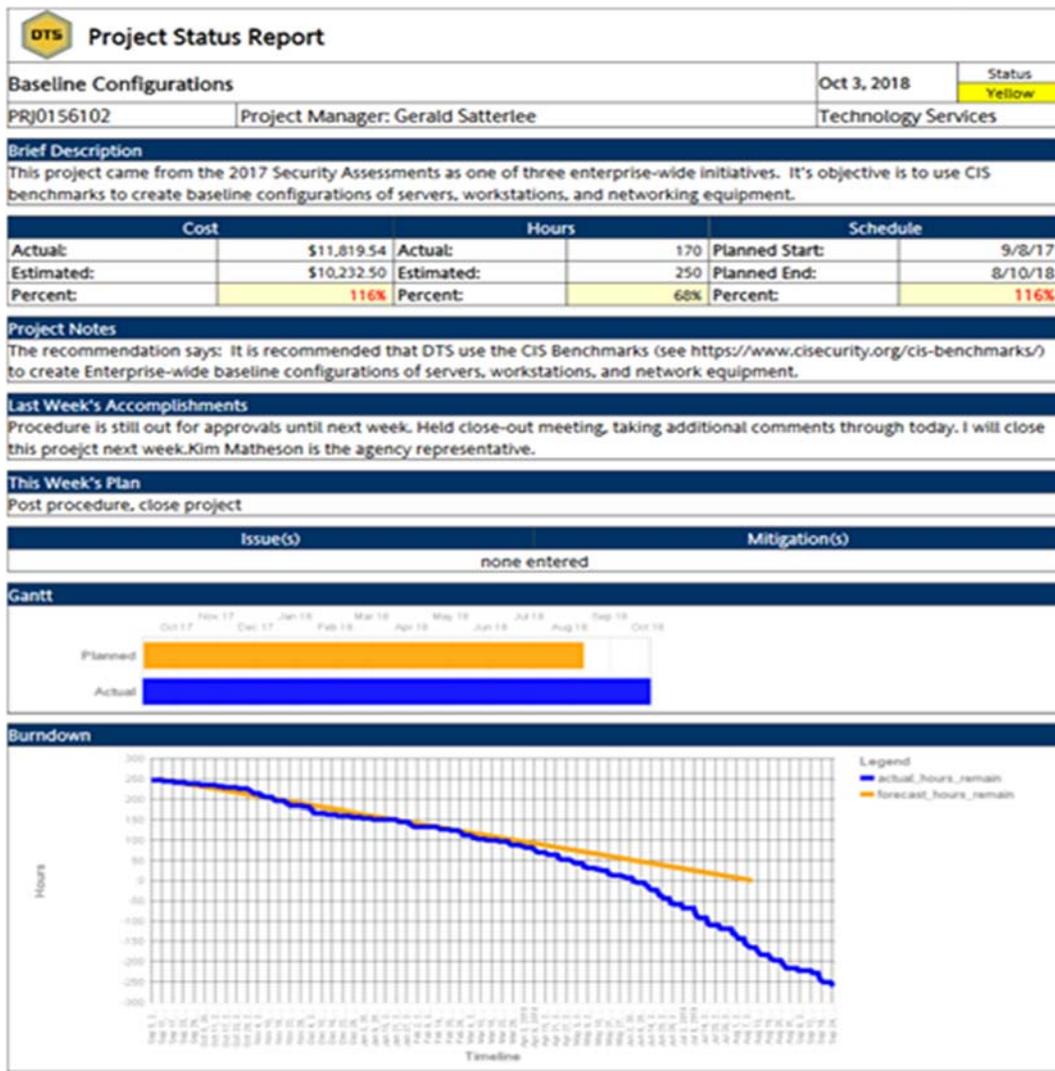
FIGURE 3
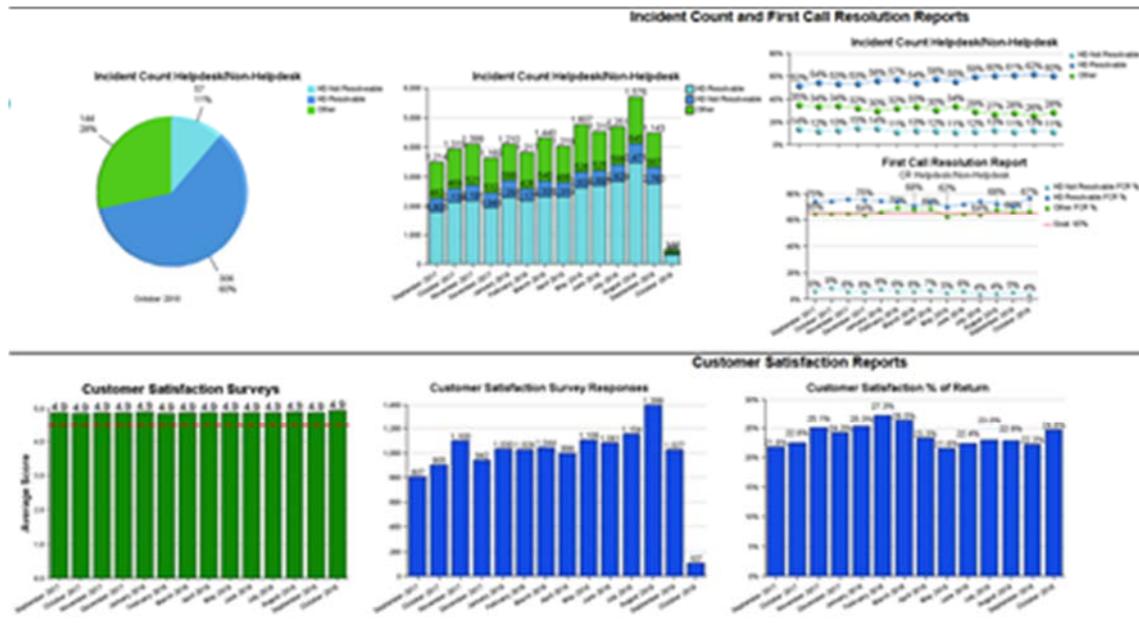
FIGURE 4

WHAT ABOUT FUTURE ISSUES?

When we first heard from Governor Dayton's chief of staff Joanna Dornfeld, she mentioned that there

was a Business Advisory Council (BAC) for MNIT, but that it was made up of mostly government

representatives, which we found interesting. On their website, MNIT has a list of all the members of

the current advisory council.

- **Ramona Dohman** - Minnesota Department of Public Safety
- **Eric Hallstrom** – Minnesota Management and Budget
- **Shawntera Hardy** – Minnesota Department of Employment and Economic Development
- **Charles Johnson** – Minnesota Department of Human Services
- **Laurie Martinson** – Minnesota Department of Natural Resources
- **Rick King** – Thomson Reuters
- **Richard Kolodziejski** - Minnesota Association of Professional Employees
- **Jason Lenz** – Lyon County

As you can see all but one are government representatives, Rick King, the CIO of Thomson Reuters is

the only private sector member of the council. Although providing SLA reporting to the state agencies,

lawmakers and the public is a great first step and will go along way in helping solves communication

problems, there will always be problems that occur and MNIT should be best equipped to handle

them. By having only one member be from the private sector, we feel that this is an opportunity

missed for MNIT. There are IT practitioners all over the state that are very knowledgeable and creative

in problem solving issues in their own line of work that could help MNIT here. Our recommendation is

that MNIT expand and diversify the membership of their Business Advisory Council to accommodate

experts in other IT fields and can provide a different perspective than a CIO or senior executive.

CALL TO ACTION

1) To the MHTA board, oppose the bill to abolish MNIT (SF 2966)
   o This bill would restructure IT services back under each state agency, an inefficient and outdated model of current industry best practices
2) To MNIT, establish SLAs that are communicated consistently to the State Agencies and law makers
   o Creating a single source of truth will improve transparency and trust
   o Evaluate these SLAs and provide valuable metrics and KPIs for all executive agencies to consume and stay informed.
3) Expand and diversify the membership of the Technology Advisory Committee
   o Current committee only includes 1 individual from the private sector, the CIO of Thompson Reuters
   o Include industry leaders in technology from varying levels and experiences

Our Team

Lindsey Hillesheim, Adventium Labs

Sarah Kalhorn, Hotwire

Hasan Mir, Mayo Clinic

Michael Nicholas, Associated Benefits & Risk Consulting

Murthy Peri, Seagate

Missed Connections

MHTA Can Change the Ecosystem

Broad & horizontal members – Look smaller

Data + relationships – Connect people

Experienced influencer & advocate – Expand targets

Mission: Bring together the people of Minnesota's technology ecosystem and fuel prosperity

The Opportunity

It's time to expand focus to make more meaningful connections.

We need a grounding force.

Be the reef

By The Numbers
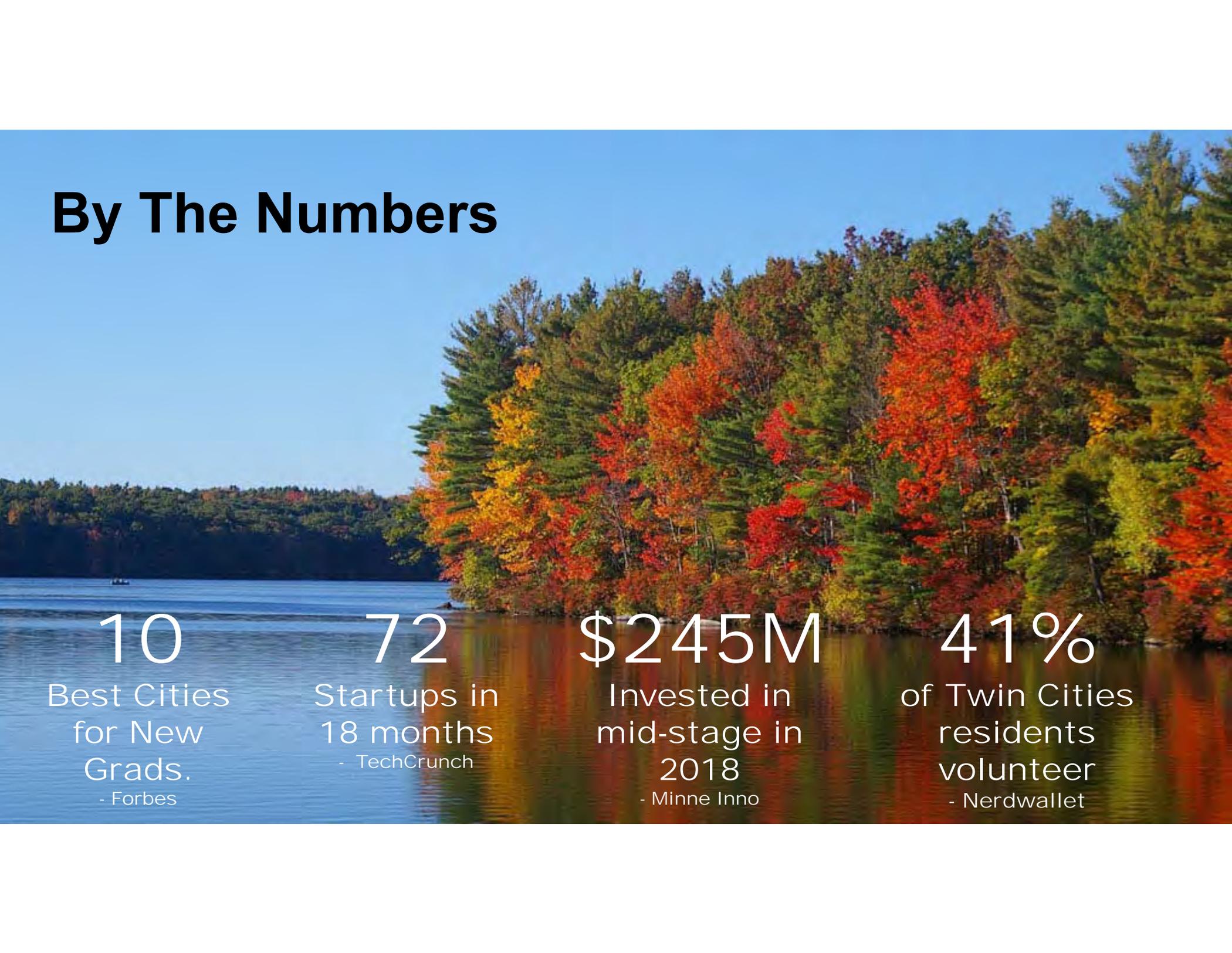
10
Best Cities for New Grads.
- Forbes

72
Startups in 18 months
- TechCrunch

$245M
Invested in mid-stage in 2018
- Minne Inno

41%
of Twin Cities residents volunteer
- Nerdwallet

Myles Shaver

Dean Truitt

Vicki Holt

Dean Hager

David Washtington

Bill King

Cameron Carter
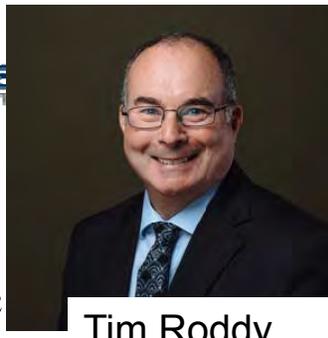
Tim Roddy
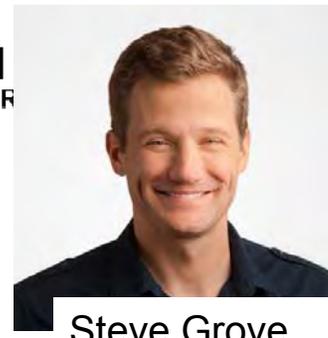
Steve Grove
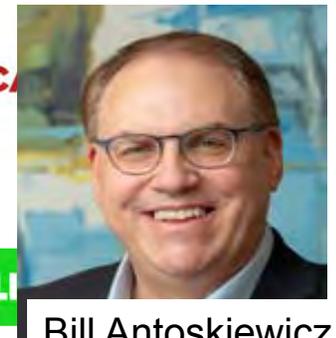
Bill Antoskiewicz

Phil Soran

Sherman Black

Gene Munster

Stephen Russell

Kah Whye Peng

Getting The Stories
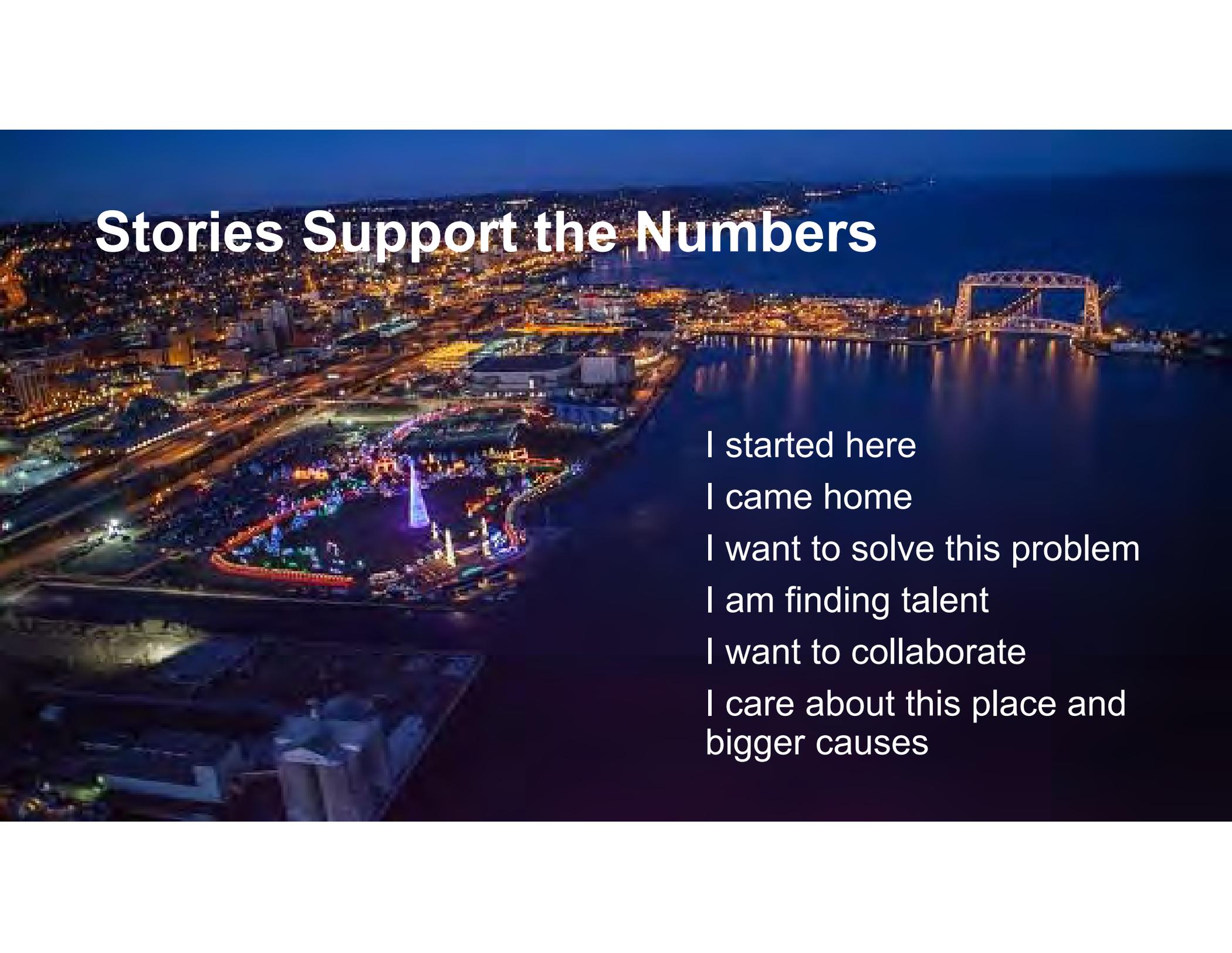
Stories Support the Numbers

I started here

I came home

I want to solve this problem

I am finding talent

I want to collaborate

I care about this place and bigger causes

Ikigai

A JAPANESE CONCEPT MEANING "A REASON FOR BEING"

Satisfaction, but feeling of uselessness

Delight and fullness, but no wealth

What you LOVE

PASSION

MISSION

What you are GOOD AT

Ikigai

What the world NEEDS

PROFESSION

VOCATION

Comfortable, but feeling of emptiness

What you can be PAID FOR

Excitement and complacency, but sense of uncertainty
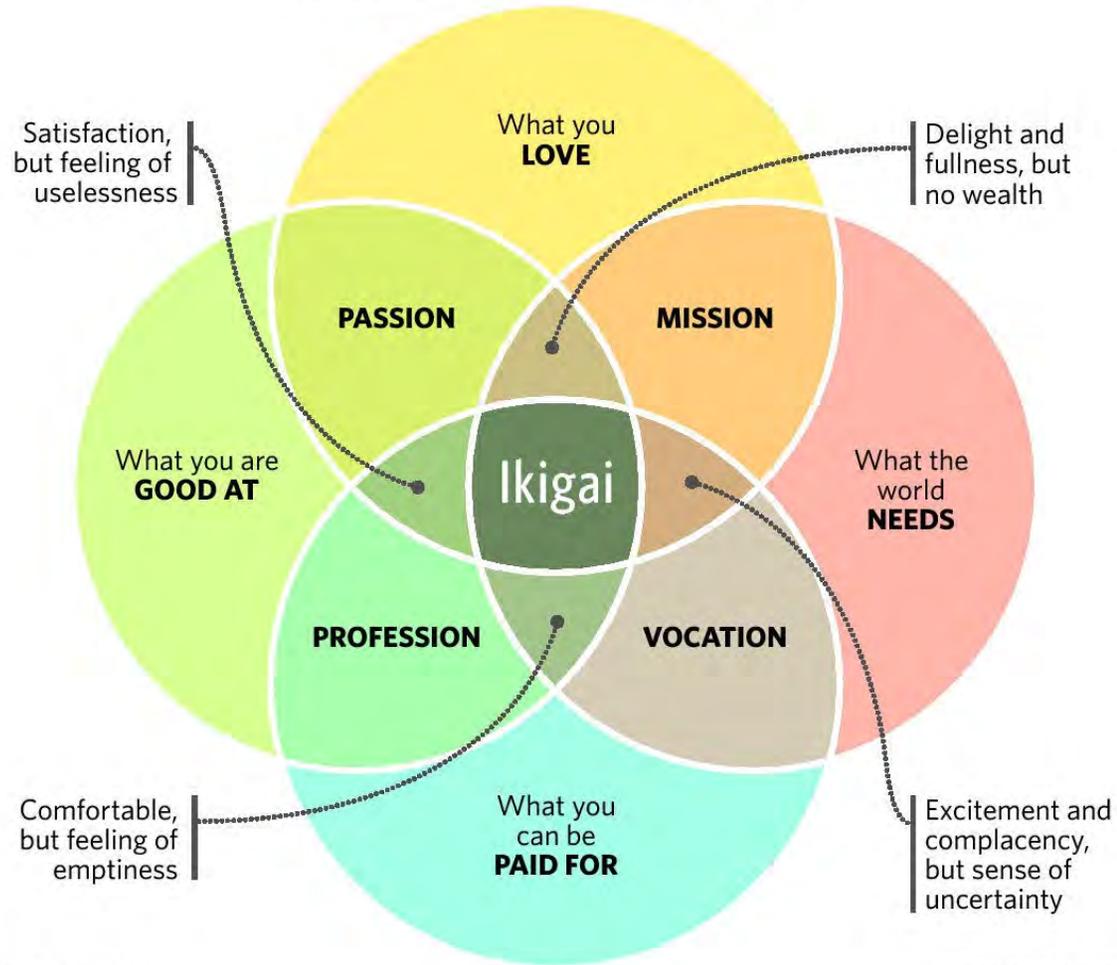
What Does This Ecosystem Need?

Nutrients
Gravity
Energy

Be the Reef

Make a Map

Make More Matches

Support the Smaller Fish

Collect and Share Stories

Missed Connections

Group Members:

Lindsey Hillesheim, Adventium Labs
Sarah Kalhorn, Hotwire Global
Hasan Mir, Mayo Clinic
Michael Nicholas, Associated Benefits & Risk Consulting
Murthy Peri, Seagate

Project Abstract:

According to the numbers, Minnesota's tech ecosystem is thriving – it is a compelling environment for new entrepreneurs and big corporations alike. We conducted 25 interviews of CEOs or VP-level management of start-ups, established small, medium, and large businesses, mostly in the Twin Cities area to ask them why their business is in Minnesota? Why would they leave? What could the tech ecosystem be doing better? Their answers supported the numbers, but also showed that the numbers aren't the whole story. To get at "Why NOT Minnesota?" you need to get out and talk to people. And to really appreciate what is working in our tech ecosystem and advertise what is great about it, you also have to talk to people and get them to tell their tech success story. This paper describes some of the themes that emerged from those interviews, both positive and negative. Many of the challenges for our tech ecosystem revolve around missed connections – connections that MHTA is uniquely position to make.

Methodology:

Initially, we had planned to work with GreaterMSP to identify a project that could be useful material for attracting the Army Futures Command to Minneapolis/St. Paul. We did have an initial discussion with Matt Lewis and Joel Atkinson about this, but due to the timeframe for the Army decision (they decided in early July), there was not much to be done.

Lindsey was involved with the effort to attract the Army Futures Command to Minneapolis/St. Paul and participated on a panel that included 3M, PAR, Raytheon (formerly Orbital ATK), Third Wave Systems, and other defense related businesses in the area. A number of themes emerged from those presentations about "Why Minnesota?" for those companies. Initially, the thought was to interview a number of technology companies in the area, ask them questions around this theme, and then use the material for a future solicitation. But after hearing that Minneapolis/St. Paul was not selected for the Army Futures Command, and coming on the heels of the Amazon bid loss, we were left wondering, "Why NOT Minnesota?" As we conducted the interviews, we decided to retarget our audience to MHTA staff and board members specifically, since we felt our findings pointed to several challenges within Minnesota's high tech ecosystem that MHTA is particularly suited to address.

We conducted 25 interviews of CEOs or VP-level management of start-ups, established small, medium, and large businesses, mostly in the Twin Cities area. The list of interviewees is below and the list of interview questions we drew from are found in Appendix A.

Name	Company	Position
Austin O'Brion	Token of Trust	CEO & Founder
Kyle Nelson	Adventium Labs	CEO & Owner

Todd Carpenter	Adventium Labs	Chief Engineer & Owner
Randy Kvalheim	TeamVantage	Development Engineering Manager
Kerry Marusich	Third Wave Systems	CEO & Founder
Stephen J Russell, MD PhD	Vyriad	CEO & Founder
Kah Whye Peng, PhD	Vyriad	CTO & Founder
Phil Soran	Compellent, Help Systems, Flipgrid, Piper Jaffray	Founder, CEO, Director
Bill King	Cirrus Aircraft	VP
Cameron Carter	Bright Health	Product Manager
David Washington	Microsoft	Principal Software Engineer
Steve Grove	Google News Lab	Director
Tim Roddy	Fidelis Security & McAfee	VP, Director
Dean Hager	Jamf	CEO
Vicki Holt	Protolabs	CEO & President
Sherman Black	Conservis	CEO
Gene Munster	Loup Ventures	Managing Partner
Dean Truitt	Savigent	CEO
Bill Antoskiewicz	Savigent	SVP of Marketing & Sales
Ken Morris	KnectIQ	CEO & Founder
Brian Axness	Delaget	CFO
Julie Theisen	TruSignal	CFO
Ed Fiore	Atavium	Founder and CEO
Daryl McLindon	Holmes Corp	CFO
Marty Keifer	Virteva	Founder/CEO
Don Nuntzman	Charter Solutions	President

Narrative:

According to the numbers, Minnesota's tech ecosystem is thriving – it is a compelling environment for new entrepreneurs and big corporations alike. Minnesota is home to only about 5.5 million people but hosts headquarters of 19 Fortune 500 companies. Minnesota continues to be one of the top 10 states to do business according to CNBC's "Top States for Business." What makes Minnesota such a uniquely hospitable place for entrepreneurs and businesses? The answer to this question can attributed to few significant factors:

Availability of talent is one of the hidden gems of Minnesota. According to Minnesota Office of Higher Education, Minnesota ranks second in the percentage of population with associate of higher degrees. This large educated workforce provides a huge incentive for companies to operate in Minnesota. Forbes ranks Minneapolis as one of the top 10 cities for new graduates because of attractive employment opportunities, higher than average income, and lower rent than comparable metropolitan cities. Greater MSP estimates that Minnesota workforce grew at 4.6% rate over the past 5 years and will continue to grow by 5.2% over the next 5 years (national rate is 4.1%). These numbers not only demonstrate availability of a skilled technical workforce but also ensures consistent stream of new talent to that workforce.

Minnesota has *strong set of core industries.* Successful Minnesota companies are distributed across wide swaths of industries – Biosciences, Banking and Finance, Health Care Technology, Medical Device, Retail, Agriculture and Food, and others. A potential employee can be employed at top notch retail behemoths such as Target or BestBuy, or they can deploy their skills to solve critical lifesaving problems in one of the large medical equipment development companies. Other industry leading employers such as US Bank, General Mills are easy contenders for bright and best of the country. Minnesota also boasts a number of emerging companies in various industries. Minnesota's strength is in having wide variety of industries and allows anyone to work in leading and emerging companies. This built-in diversity adds a level of stability to the region that is rare in other cities.

Minnesota, especially the Twin Cities area, offers the *best amenities* for big metropolitan US cities, and US News World Report ranks the Twin Cities as one of the top 10 places to live in USA. Those amenities include renowned museums (Minnesota institute of Art), sports franchises (6 professional sports teams), best park system (based on Trust for Public Land raking), and vibrant foodie culture. Minneapolis International airport is the 17th busiest airport in USA offering direct flights to major cities in USA.

Minnesota residents enjoy unparalleled *quality of life* that is extraordinarily rare in other comparable metropolitan cities. Some of these features include: One of the top states for K-12 education, world class research university, affordable housing (the Twin Cities have a 68% lower cost of living than San Francisco), lower living cost, high civic engagement (41% of citizens volunteer and Minnesota leads the rest of the US in voter turnout), and healthy living (Fittest city in USA according to American College of Sports Medicine).

Minnesota *growing tech scene* deserves lot more attention than it currently garners (this is partly due to Minnesotan's unwillingness to hype up their accomplishments). Minneapolis is ranked second after Chicago in terms of number of companies founded and total amount funded (Source: TechCrunch). Minnesota entrepreneurs are known to tackle hard problems with real implications in people's lives. Areas such as medical device, healthcare technology, and agriculture technology are some of the areas receiving the most attention from Minnesota innovators. Minnesota startups raised over $247 million during the first six months of 2018. This shows continuous growth from previous years and increasing startup activities.

Minnesota's evolving tech ecosystem now boasts Incubators and Accelerators (Tech Stars Retail, Medical Alley, Target Pitch to Pilot, and many more), organizations facilitating collaboration and coworking spaces, events highlighting and encouraging entrepreneurship (Twin Cities StartUp Week), regular meetups and backing from large organizations such as United Health, Target, Medtronic, and Mayo Clinic. These big organizations act as customers (sometimes), attract talent to the region, and support entrepreneurship with time and resources and investments.

The answers to "Why Minnesota?" from our interviews support the statistics above. We distilled them into:

1. They started here.
   - *We started 20 years ago by four founders and their roots are in Minnesota.*
   - *After I sold my first start up, I wasn't leaving. My network was here, our friends, our kids' friends. And I didn't have to leave. I could keep starting companies here.*
   - *Most of us grew up in the big companies here (3M, Honeywell, Medtronic) before starting our own.*

- *There are no barriers to starting a business here.*

2. They came home.
    - *I moved back to be close to family and was surprised by the big city action on a smaller scale We get the cool stuff Chicago gets without the hassle.*
    - *Living here is easy. As bad as you think traffic is, it's worse everywhere else. Taxes are worse in CA, parking spaces are bigger here, there is just less friction in life here.*

3. They are solving real problems.
    - *People in the valley are after 1 billion users – they say big minds chasing small ideas – then they exit. Here, we started this business to solve a problem so people stick around and see it through.*
    - *We stick with our problems – start-ups here are fixing a problem they care about. They are committed.*
    - *Culturally, we under-promise and overdeliver. We never tell our customers we can do something unless we can do it. Risk aversion. Does this slow us down? We are the leading ecommerce digital manufacturer of custom parts. But it's a race. We have to take risk.*
    - *People here have the patience to see things through.*
    - *We work on life and mission critical systems here, not consumer electronics/technology.*

4. They are finding the talent they need.
    - *We developed a consulting practice with 12 people and in about five years we grew to around two hundred people.*
    - *Nine out of 10 times, local folks will win in terms of work ethic and intelligence.*
    - *You'll be shocked at how hard people work, and they are much more loyal, less entitled.*
    - *I was told I had to get my head of marketing and product development in the valley. That's never been true. I've filled the roles here with great success.*
    - *There is a highly educated workforce and they often stay here.*
    - *Most of our defense customers want to work with Minnesota vs. companies local to them because those companies can't do the manufacturing at the level required or provide the technical design services we can.*

5. They like the collaborative (versus competitive) environment.
    - *You don't have the luxury of thinking you are center of universe here.*
    - *That MN nice – passive aggressive – I don't see it that way. I see smart people. The intellectual capacity of this town is amazing.*

6. They are civic-minded and philanthropic.
    - *People don't put on airs. Formalness is gone. We are all comfortable with all different kinds of people, and don't like the inequity we see. We want to work on it.*
    - *This city benefits from all the Fortune 500 HQs. They are donating to build this great infrastructure and art scene. Their loss would be felt by all of us.*
    - *Cold weather, warm hearts.*

But the interviews also show that the numbers aren't the whole story. To get at "Why NOT Minnesota?" you need to get out and talk to people. Themes that emerged around that question included:

1. Where to go?
   - People don't know where to go to get help when they need it and their own networks aren't sufficient. There isn't a physical or virtual center. "*The tech scene here has no center of gravity.*"
   - No one has really connected all the resources, from investors to accelerators to pitch competitions, for start-ups. All the pieces are here, but entrepreneurs aren't sure where to start or where to go to grow.

2. Support for new starts
   - Several commented that while we have made great strides in increasing local investors and other resources for entrepreneurs, there is still not enough local investment capital.
   - The ecosystem is still not seen as mature enough. "*Our companies are competing with companies out of Silicon Valley (or NYC) there is often a sense with both companies and investors that we need to be there to compete. Not as much of the talent here is used to working in a start-up.*"
   - Local investors are often too risk adverse. They are also often not willing to fund folks whose main customers are outside of the U.S. in emerging markets.
   - When you get an investor on the coast, they don't trust the network here. They want you to move to their area, so you team with their trusted network – e.g. Particle.
   - It is not easy to find early stage or seed funding within Minnesota. Early stage funding is essential to nurture and keep promising ideas in Minnesota.
   - Renting working space, buying equipment, providing affordable insurance and sourcing other necessary items for a start-up can be rather expensive. What can we can do to lessen the burden on entrepreneurs?
   - Some local tech companies have had a hard time selling to local customers, others commented that this has been an important segment to grow their business.
   - Companies here grow slower. This might be due to the lack of capital, which also means that you have to focus on value to the customers (versus value to investors) and getting customers right away. You have to bootstrap.

3. Making connections
   - People want to collaborate, but aren't really sure how to do that outside of their existing networks or how to expand their networks.
   - We are more connected than ever but less real connection is happening. Face to face interactions remain critical for building meaningful connections.
   - There was a sense that MHTA is for large companies versus the start-ups or small to mid-sized tech companies. Most of the small and mid-size companies we talked with are not currently members, although were at one time or have attended events. One hadn't heard of MHTA at all.
   - There are many companies represented in MHTA, but only an employee or two actually are actively engaged.
   - There are multiple associations and organizations in the Twin Cities that are all competing for membership, many are seeing event and membership numbers on the decline.

4. Programs and policy

- There is a need for an apprenticeship type program – several companies need more people with associate degrees or vocational training that are self-starters and innovators.
- Some commented that they would like to see an R&D tax credit at the state level, tech development environments (physical locations within the community that incubate tech startups), or other ideas to provide financial incentives to start here and stay here.

5. Other
- While many wouldn't leave, they would consider opening up satellite offices in other locations.

Suggested Actions:

Many of the challenges identified above can be addressed through better connections and MHTA is uniquely position to make those connections. Other tech-related organizations focus on just one sector of the tech industry (e.g., Medical Alley), or just on specific size of business (e.g., start-ups), or include businesses that are not technology developers or innovators (e.g., regional Chambers of Commerce).

Our vision is for MHTA to be "the reef" in the Minnesota tech scene. Coral reefs are some of the most diverse ecosystems in the world, bringing together of thousands of marine species in one place. Reefs themselves are a living organism. In addition to their incredible value as habitat, coral reefs protect coastlines from storms and provide infrastructure that leads to billions of dollars of food and jobs to people around the world. In the context of a tech ecosystem, to be the "reef" means to be the place where all the different types of tech businesses, large and small, from healthcare to fintech to defense all gather. MHTA should be the connection maker in the tech scene – the place you call to figure out next steps and who you should talk to, and where you can meet collaborators, mentors, etc.

Ecosystems are governed by a couple of precepts: (1) They evolve from simpler to more complex ecosystems, and generally the more complex the ecosystem, the more robust it is and (2) there exist several energy and material cycles both internal and external that support the ecosystem. Thirty to forty years ago, the Twin Cities was seen as a "company town" – everyone in the tech scene worked for one of the big companies. But our tech ecosystem has become more complex and diverse, both in terms of technical areas and in terms of company size, particularly in the last 10 years. Your role is to support that evolution and to help optimize some of the energy and material cycles supporting our ecosystem.

Create meaningful connections. MHTA's mission is, *"[To] bring together the people of Minnesota's technology ecosystem and lead the charge in directing technology issues to Minnesota's state capitol and the local affiliate for our global partner, Techna."* Many of those we interviewed were aware of the policy advocacy work MHTA has done, such as the angel tax credit, and noted that that was valuable. But they also said that isn't what they feel is the most important thing for supporting the Minnesota tech scene. MHTA can use the power of your connections -- being able to get the right people in the room -- to address some of the challenges. It doesn't have to always be through advocating for policy at the state or federal level. Below we present several ideas for creating more meaningful connections in the Minnesota tech ecosystem that build on some of the themes that emerged from our interviews.

Make building connections the centerpiece of everything you do. For example, don't plan events and conferences and assume "networking happens" – think about it from the beginning and design the event according to the connections you want to make. For all activities you undertake, ask how you are building new connections, bridging across various networks, and strengthening existing connections?

How do you ensure that the right people, whether they are members or not, hear about your event and attend?

Consider putting together a landing place or visual map for all the various new start resources (whether they are mentoring, space, prizes/competitions, incubators, accelerators, investment types) so that entrepreneurs can figure out what they need and where they can get it at all phases in the start-up lifetime. This may also help you and others identify gaps that need to be addressed.

Build deeper connections with all businesses including small and medium sized businesses. Provide networking opportunities or showcase events based on size/tier of companies (startups, small, medium, big). Multi-year memberships may also be a better option for small and medium size businesses so that they have enough opportunities to utilize their membership.

Incorporate narratives and interviews into the MHTA Venture and Spring Conferences. As stated earlier, numbers do not tell the entire story. People do! Provide opportunities for some of the great companies in the area to tell their story -- the good and the hard parts. The folks we interviewed as well as TEKNE award winners would be a great resource for speakers and panels. This also provides a way to identify and discuss emerging challenges for our ecosystem. It also becomes a constantly renewed resource of great stories for MHTA, GreaterMSP, DEED, and others to tell the rest of the world.

Find ways to bridge between existing networks. For example, the ACE Leadership program draws participants from a broad range of industries and business size. Think about ways MHTA might leverage that alumni network (e.g., networking event for ACE alumni). Invite key representatives or members from other associations to join the Spring or Venture conferences (Minnesota Precision Manufacturing Association, TechDotMN, Chambers, Medical Alley, etc.) Events that are focused on a topic (e.g. cyber security, fintech, or defense) are another place for folks who might otherwise not be connected to become connected. With the loss of Defense Alliance, there is an opportunity for MHTA to help bring those tech businesses, and those interested in working in that sector, together. Find ways to stay engaged with TEKNE award winners – these are our bright future companies (e.g. a free ACE Leadership Participant to TEKNE winners). Continue to build, foster, and leverage the relationships that already exist.

Appendix A: Interview questions

Interviews were generally free ranging and did not necessarily follow or even cover all of the questions below.

1. What is your business (in your own words)? Why are you in Minnesota?
2. Where else have you worked? How does MN compare to other places you've worked?
3. Where was/is your technology developed?
4. What drives innovation in your firm?
5. What have been the inflection points in the growth of your business? Do think being in MN helped you navigate those transitions and if so, how?
6. What are 2-3 things you would like see changed over the next few years that can help your company become more successful in Minnesota? (e.g. training, funding, tax benefit, etc.)
7. Have you struggled to find tech workers here? Or get them to move here if necessary?
   ALT: What skills and abilities your company will need next 5 years. How are you planning to close any possible skill gaps?
   ALT: Do you have a leadership development program for current employees?
8. Who to you tap when you need help? What is the support ecosystem like for tech biz in MN? Are you able find the resources you need here?
   ALT: Do/did you have local mentors?
   ALT: Do you currently collaborate with other businesses in MN/the region?
   ALT: How much do you collaborate with the U of M? MnSCU? Incubators?
9. Are you interested in doing more collaboration?
10. What makes your business grow that might be counterintuitive?
11. What would cause you leave MN? Have you ever considered leaving? What would you do in order to stay in MN?
12. What's one of the jokes you tell to out of towners that exemplifies MN? What's your favorite MN saying? What are the stories you heard about MN before you got here? What is working against us?
13. Are you an MHTA member? Have you attended any MHTA events? What events do you attend to engage with the MN tech scene?
14. Would you tell this/a similar story at MHTA spring conference?

2016

PRINCE
1958-2016

abc NEWS.com

SOS SoS

Election Protection

Brian Seebacher, Hargrove & Associates
Kelly Mark, Cray
Ray Hoover, MHTA
Emily Hulstein, Denamico
Brad Walter, Code 42

Threats to American Democracy
Russian State Actors Target the US Political System

BS2

BS1

State Electoral IT Systems Under Attack

Source : Department of Homeland Security

Politics

Russian Hacks on U.S. Voting System Wider Than Previously Known

By Michael Riley and Jordan Robertson
June 13, 2017, 4:00 AM CDT

▶ Attackers said to take measure of voting systems, databases
▶ A 'red phone' warning to the Kremlin from Obama White House

THE VOTE   U.S. NEWS   BUSINESS   WORLD   TECH & MEDIA   THINK   SP

Russians Breach 39 States in Election Cyberal

NEWS

TECH & MEDIA

U.S. intel: Russia compromised se
states prior to 2016 election

by Cynthia McFadden, William M. Arkin, Kevin Monahan and Ken Dilanian / Feb 27, 2018 / 4:34 PM CST
Updated Feb. 28, 2018 / 11:11 AM CST

CNN politics

Officials: Hackers breach election systems in Illinois, Arizona

By Wesley Bruer and Evan Perez, CNN
Updated 2:08 PM ET, Tue August 30, 2016

2018 : The Threat Continues
Russia Continues Electoral IT Meddling

Microsoft Says Russia Has Already Tried to Hack 3 Campaigns in the 2018 Election

POLITICS   The New York Times

New Russian Hacking Targeted Republican Groups, Microsoft Says

Microsoft said it had seized fake websites, linked to a Russian military intelligence unit, meant to trick people into thinking they were sites for Republican-leaning think tanks that have criticized President Vladimir V. Putin of Russia.

Gulshan Khan/Agence France-Presse — Getty Images

By David E. Sanger and Sheera Frenkel

Aug. 21, 2018   826

As The Political System Struggles

Our 'modern' Congress doesn't understand 21st century technology

Who's Fault Is It That Congress Doesn't Understand Tech?

'I can understand about 50 percent of the things you say': How Congress is struggling to get smart on tech

Razor Thin Decisive Margins

- **91**
  1962 Minnesota Gubernatorial Election (out of 1.2 million cast)
- **537**
  2000 Florida Presidential Election (out of 6 million cast)
- **312**
  2008 Minnesota US Senatorial Election (out of 2.9 million cast)

Technology is Falling Behind

State of the Art Security…

…Is Poor Security.

Voting machine password hacks as easy as 'abcde', details Virginia state report

AVS WinVote machines used in three presidential elections in state 'would get an F-minus' in security, said computer scientist who pushed for decertification

Danger to Minnesota

- A Known Target for Interference
- Ideas and New Intelligence Flowing, But Critical Resources Are Lacking
- A Legislative Stalemate

Minnesota Secretary of State Office

- ❑ Paid Less than Private Sector Average
- ❑ Responsible for all Office Functions
- ❑ Serious Funding, Time Constraints

IT Staff Pushed to the Limit

The Challenge Ahead

State of Minnesota

Electoral System Security Assessment

Minimum Cybersecurity for Voter Registration Systems	Fair
Voter-verified paper audit trail	Good
Post-Election Audits	Fair
Ballot accounting and reconciliation	Unsatisfactory
Paper absentee ballots	Fair
Voting machine certification requirements	Fair
Pre-election logic and accuracy testing	Fair
Overall Grade	B

Source: Center for American Progress Study, 2018

Minnesota Secretary of State Office

- Assistance in Bid Review
- Help with Policies and Procedures
- Security Advice
- Continuity

What Did IT Staff Ask For?

Recommendation

MHTA to establish an advisory group for IT security and operations for the Minnesota Secretary of State Office.

IT Professionals Giving Back

- ✓ Security
- ✓ Policy
- ✓ Vendor Risk Management

Trusted Advice from the Field

Why Us?

MHTA is in a unique position to help.

- ❖ If not us, who?

- ❖ If not now, when?

Call to Action

- ✓ Donate Your Staff Time
  - Security
  - Operations
  - Project Management
- ✓ Serve on the Committee
- ✓ Talk to Your Legislators

Thank You

Questions?

Secretary of State SOS

Election Protection

Brian Seebacher, Hargrove & Associates
Kelly Mark, Cray
Ray Hoover, MHTA
Emily Hulstein, Denamico
Brad Walter, Code 42

Abstract

The threat is real. Foreign governments are interfering with local, state and national elections in the United States. The interference is coordinated, well funded and effective. Social media campaigns, hacking and stealing email/cell phone data; hacking into and stealing voter registration data all aim to erode public confidence in the voting process in the United States.

The Secretary of State office in each state is responsible for overseeing and certifying election results.   These offices are underfunded, understaffed and lack the technical expertise to provide adequate election protection. They need help.

Methodology

We were introduced to this issue when the MHTA-ACE leadership group spent a day at the Minnesota State Capitol. One of the meetings we had was with the Secretary of State. Secretary Simon laid out a brutal reality facing Minnesota and asked for help.

We followed up with a small group meeting and brainstormed a few ideas. Some things we considered:
- Preparing a brief for the legislature on industry security budgets and strategies
- Helping solicit security vendors & provide selection criteria
- Project management help

We then scheduled a meeting with Secretary Simon and presented the ideas. In that meeting, our discussions evolved from a short term focus to long term focus.   If we formed a MHTA security advisory council, the council could implement all of the ideas above and provide strategic consistency over time as different parties take office.

Narrative

Elections are decided with razor thin margins and every vote counts. In the 2000 election Al Gore won the national popular vote by 543,000 votes, but lost the election by losing in Florida by 545 votes.[1]

The 2016 presidential election was another razor thin result. The difference in 2016 was that a foreign government interfered with the United States election process.   Russia launched a coordinated social media and hacking campaign aimed at eroding voter confidence, disrupting voter registration and swaying public opinion. Russia broke into Democratic National

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[1] https://en.wikipedia.org/wiki/United_States_presidential_election,_2000

Committee systems and obtained and distributed internal emails to discredit campaigns.[2]
Russia also attempted to access and modify voter registration databases in multiple states, one
of which was Minnesota. Russia successfully accessed and modified databases in Illinois and
Arizona. We are still learning of all the hacking activity in 2016.

States notified by DHS of Russian hacking attempts

● Breached   ● Sorta breached   ● Targeted   ○ Not notified of targeting

Source: News reports and public statements
THE FIX

We are all familiar with these headlines. The question is what do we do about it? How do we
protect Minnesota elections? How do we lead the way for other states?

The Secretary of State office is responsible for a number of state functions, one of which is
overseeing the election process and reporting the results. This is a small office and they do not
have sufficient technical expertise, staffing or funding to define and implement a
comprehensive IT security strategy aimed at defending against well funded adversaries. In
October, we met with Jake Spano and Larry Olson with the Secretary of State's Office, and they
asked for help.

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[2] (DNC Hack Reference)

They outlined several specific areas the private sector could contribute to an election protection solution. They recommended forming a MHTA security advisory council that could help the Secretary of State understand IT security best practices, provide expert testimony to the legislature on complexity and cost of security solutions; analyze and compare vendor bids and most of all provide some technical consistency through Secretary of State appointments.

Security professionals can't agree on how many states were breached. There are There is a fog of war on this topic. We're still grasping at the solution for this, and our failure to identify an accurate amount of breaches is indicative of our inability to prevent them. Election protection must learn to navigate ambiguity, trust a process, and rely on good values, culture and best practices.

Minnesota, thankfully, was able to prevent Russia from inflicting real damage to the voter registration database. However, next time we may not be so lucky. As we all know, external threats to critical data and networks are continual and security infrastructure requires continual investment.

Funding

In March 2018, President Trump signed an appropriations bill that allocated funds to the Help America Vote Act (HAVA). The HAVA program was awarded $380 million in grants, made available to states to improve the administration of elections for Federal office, including to enhance technology and make election security improvements. [3] Minnesota is eligible to receive $6,595,610 but must match at least 5% of the grant with state funds. The Minnesota state budget was vetoed in the last session, preventing Minnesota from accessing the federal grant.

Secretary of State Simon has testified in congress six different times, made countless phone calls and held multiple in person meetings trying to get the election security funds separated from the overall budget.[4] Simon's lobbying efforts failed, and as it stands today, Minnesota cannot utilize the grant money.

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[3] https://www.eac.gov/2018-hava-election-security-funds/

[4] https://www.npr.org/2018/06/18/617874348/bureaucracy-and-politics-slow-election-security-funding-to-states

Recommendation

The members of the Minnesota High Tech Association have the talent to help with this problem. We recommend implementing a Cybersecurity Advisory Council with 8-10 representatives from the private sector who have a background in network or data security. The council would work with both the Secretary of State office and state legislature. The objective of this council would be primarily to provide technical expertise on security. We believe this can be the difference that protects our elections.

MHTA would provide oversight and management of the council creation process including:
- defining candidate selection criteria
- soliciting applicants
- selecting applicants
- providing introductions to elected officials
- creating council roles and structure so the council is self-managing

Following final approval of the council by the Secretary of State's office, MTHA will finalize committee documents, coordinate recruitment of candidates, and handoff management of the council to officials from the Secretary of State's Office.

Metrics of Success

The Center for American Progress published criteria for measuring state election security and graded all 50 states[5]. Criteria included:

- Minimum cybersecurity standards for voter registration systems
- Voter-verified paper ballots
- Post-election audits that test election results
- Ballot accounting and reconciliation
- Return of voted paper absentee ballots
- Voting machine certification requirements
- Pre-election logic and accuracy testing

Minnesota's grade in this report was a B. Not bad, but not good enough and the threats keep changing. We need to ensure Minnesota has the best security in place and remains a leader in state government. The Cybersecurity Advisory Council should create metrics of success that

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[5] https://cdn.americanprogress.org/content/uploads/2018/02/21105338/020118_ElectionSecurity-report11.pdf

allow the Secretary of State's office to meet the standards set by the Center of American Progress.

Threats are constantly evolving, and there is no endpoint for this issue. The Council will provide continuity and best practices to the Secretary of State's Office to allow capabilities to evolve ahead of the threats.

75,000

Data Center Technician
Software Engineer
Java Developer
System Administrator
.net Developer
IT Support Professional
Software Engineer
IT Support Professional
Project Manager
Network Security Administrator
Business Systems Analyst
Quality Assurance Analyst
Linux Systems Administrator
Web Developer
Cloud Operations Specialist
Soft...
Systems Analyst
Data Center T...
Project Manager
Network Operations
Project Manager
Quality Assurance
Systems Administrator
Cloud Operations Specialist
System Administrator
Software Engineer
Software Developer
Project Manager
.net Developer
Network Security Administrator
Network Operations Developer
Data Center Technician
Java Developer
Business Analyst
Web Developer
IT Support Professional
System Administrator

Apprenticeship: A Playbook for Sustainability

The Plays

Partner with Apprenti

~ Sustainability is Key ~

Partner with Apprenti

~ Sustainability is Key ~

The Plays

Partner with Apprenti
Hire Staff
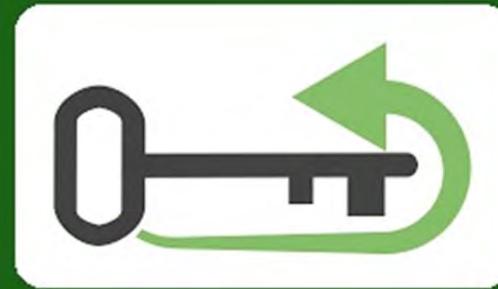
~ Sustainability is Key ~

Hire Staff

CORP OUTREACH
01

FT PGM COORD
02

PT PGM COORD
03

~ Sustainability is Key ~

The Plays

Partner with Apprenti
Hire Staff
Work with Employers

~ Sustainability is Key ~

The Plays

Partner with Apprenti
Hire Staff
Work with Employers
Manage Apprentices

~ Sustainability is Key ~

Manage Apprentices

~ Sustainability is Key ~

The Plays

Partner with Apprenti
Hire Staff
Work with Employers
Manage Apprentices
Secure Funding
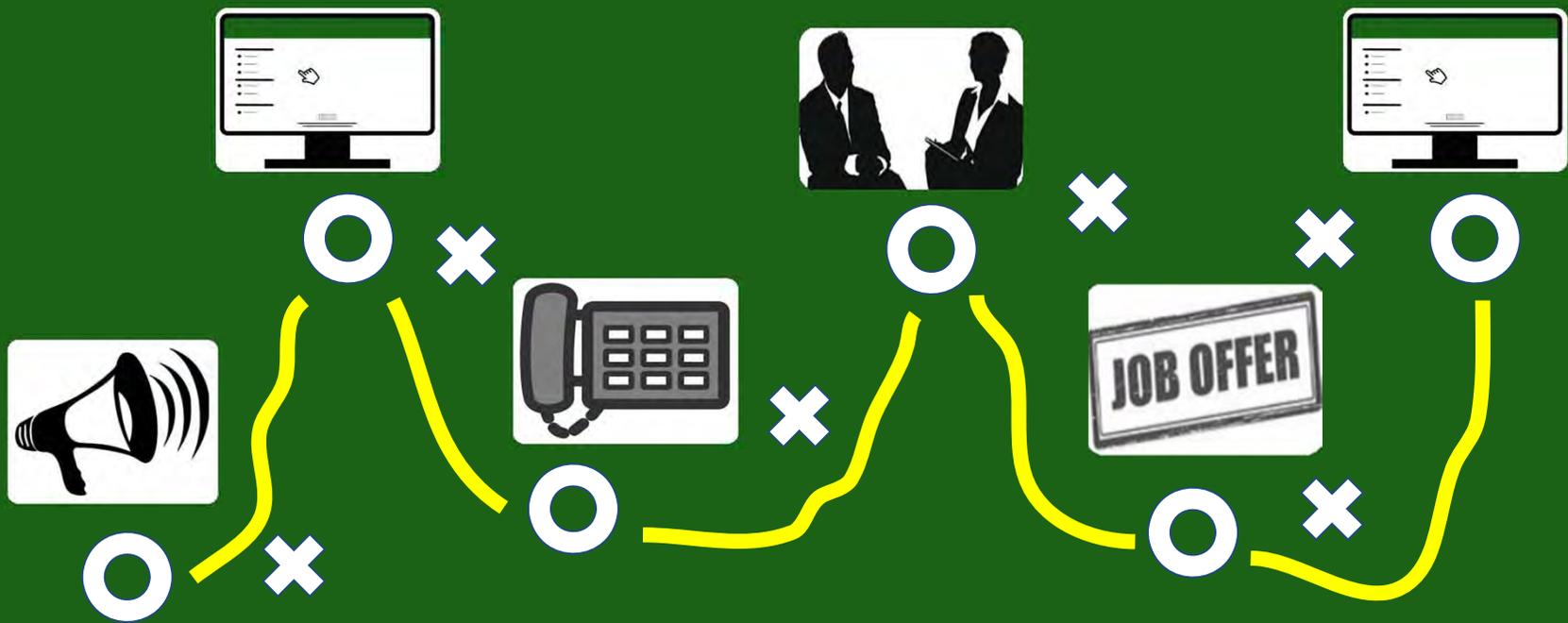
~ Sustainability is Key ~

Secure Funding

❖State

❖Federal

❖Employer

❖Match from Apprenti

Lumina FOUNDATION

~ Sustainability is Key ~

A Look at the Numbers-MHTA

Expected costs per year

Staff - 100K - 200K

Apprenti License Fee - 25K

Marketing - 20K

Possible sources of funding

Administrative fee (50 candidates) - 75k

Employer Donations

Match from Apprenti - 40K

MHTA membership fee

~ Sustainability is Key ~

A Look at the Numbers-Employers

Expected costs per year

- Training per candidate - 5-10K
- Wages - 60% starting
- Administrative Fee

Possible sources of funding

- State Grants, DoL
- Federal Grants
- Internal Revenue

~ Sustainability is Key ~

Sustainability Success

Self-sustaining Apprenticeship Program =

Revenue from apprentice placements **>** Cost of administering program

Thank you!

Apprenticeship:
A Playbook for Sustainability

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Project Abstract and Methodology

We are approaching a crisis point in the IT workforce; there are not enough skilled workers to fill the growing number of tech jobs. Though there is not one solution to solve the talent shortage we are experiencing, apprenticeship programs can be a viable option for addressing the dearth of IT workforce in Minnesota's companies. Apprenti is a program of the Washington Technology Industry Association Workforce Institute that offers a turnkey model to help organizations and companies find potential apprenticeship candidates, coordinate training, and manage the process from start to finish using a learning management portal. In order for an apprentice program to operate in a sustainable way, it is important to consider the details of running a statewide apprenticeship program and the financial implications prior to implementation. In this playbook, the various aspects of the implementing the Apprenti apprenticeship model are described along with some insights into the financials. It is recommended that the MHTA board leverage the information provided in this report to adopt the Apprenti apprenticeship model and make key decisions about running the program. The report is organized in a sequential way while following the business model canvas template [1]. First, the problem statement and intended customer segments are described. This is followed by details on how the service will be delivered to the customers, including details involved in recruiting candidates and training them. Finally, some insights are offered into the potential costs and the sources of revenue that must be balanced to ensure sustainability.

Implementing the Apprenti model was selected as a group project because the Washington Technology Association Workforce Institute had already approached MHTA and the initial vetting of Apprenti as a viable solution had been completed. Additional information was gathered through materials available from the internet, Minnesota employer survey results, and personal interviews with representatives from Apprenti, MHTA, employers, and workforce organizations.

Motivation, Value Proposition, and Customer Segments

There is an urgent need to address the IT workforce shortage. Minnesota ranks 17th in the nation for tech employment. In 2017, the state added 3500 tech jobs (1.4% growth) to take it to 250,000 which is 8 percent of the state's entire workforce [2]. According to Minnesota's Department of Employment and Economic Development (DEED), there is an anticipated need of 75,000 tech jobs in the next decade [3]. Yet, companies continue to struggle to identify suitable candidates with the right skills to fill the gaps in the workforce. The gap is particularly evident in the field of Information Technology (IT). Additionally, the IT workforce in Minnesota is overwhelmingly white male. Currently, 75% of the state's IT workers are male and 79% are white [4].

Openings for the following job titles are the most frequently reported:
    1. Project Manager

2. Software Engineer
3. Java Developer
4. Business Systems Analyst
5. Senior Software Engineer
6. .net Developer
7. Senior Project Manager
8. Business Analyst
9. System Administrator
10. Quality Assurance Analyst

And the following 5 skills are in high demand:
1. Software Development
2. Java
3. Structured Query Language (SQL)
4. JavaScript (JS)
5. SDLC

To fill these positions, we need to look beyond the traditional college pathway into the industry. The number of college-educated candidates is generally low due to high educational costs and this number is particularly low in the STEM fields. However, many IT skills can be learned without a 4-year college degree. In fact, the need to train candidates independent of college education has led to various coding bootcamps and accelerated training programs. An apprenticeship program can serve as a much-needed intermediary to help companies find candidates that meet their specific business needs. Through apprenticeship, companies can hire candidates with the right attitude and aptitude then provide them with both classroom and on-the-job training that builds the specific skills and experience to meet their requirements. Such a program is not unprecedented for the Minnesota High Tech Association (MHTA). In 2012, the MHTA worked with the DEED to launch the SciTechsperience Internship program. This continues to be a highly successful program that connects college students in STEM fields to small companies for valuable real-world experience.

In addition to the companies, other obvious beneficiaries of an apprenticeship program are the candidates. This is an opportunity for many candidates who have the right aptitude for these jobs but either lack a college education and/or sufficient training to perform these jobs. Such programs improve the employability of individuals. Furthermore, apprenticeships serve as a great way to increase diversity and inclusion in the workforce as they provide opportunities to groups such as minorities, women, and veterans who might otherwise lack access to gain training, certification, and job placement. Through apprenticeship, companies may also choose to upskill their existing employees.

Customer Relationship and Distribution Channels

For companies large and small, there are benefits of utilizing an intermediary with a proven model to manage the recruitment and training of workforce talent. MHTA is well positioned to be that intermediary. And to quickly and efficiently implement a successful apprenticeship program, a turnkey model like Apprenti is an attractive solution.

Apprenti is a Washington Technology Industry Association Workforce Institute program that offers its hiring partners an end-to-end apprenticeship management solution. In July, Apprenti presented at the MHTA board meeting to explain the benefits of apprenticeship, Apprenti's success in Washington and other markets, and how MHTA could license this model for a fee and thus offer a similar experience to its customers. After that meeting, a subcommittee of the board was formed and met for the first time on September 18, 2018 to begin vetting this option.

This playbook is designed to breakdown the components of implementation and help the board move forward in adopting Apprenti as a model for a sustainable apprenticeship program. As *Apprenti Minnesota*, MHTA can to leverage its interactions with members and other employers through regular scheduled meetings, graduation ceremonies, and other outreach events to establish and grow the program. Utilizing Apprenti's consultation, website and learning management tools, *Apprenti Minnesota* can effectively recruit an untapped pool of talent, assess and train them, and manage their progress through the mastery of the knowledge and skills needed to strengthen and grow Minnesota's tech workforce.

Key Activities and Resources

Apprentices are paid employees who have an interest and aptitude, but lack the mastery of skills. The goal with apprenticeship is to bring individuals in as employees and to train them to be successful long-term employees. As opposed to the "try before you buy" internship model, the apprenticeship model brings in the right individuals and "trains to retain" promising talent.

Thankfully, the Apprenti model is a turnkey solution. There are multiple benefits to working with Apprenti, including:
- Implementation experience
- Assistance with hiring and training program staff
- Software for administering the program
- Assistance with marketing to a diverse pool of applicants
- Help engaging employers
- Support with filing necessary paperwork with government
- Aid in identifying training plans with employers
- Consultation in identifying and vetting training programs and institutions

Through a licensing agreement, *Apprenti Minnesota* would be created and MHTA would be able to leverage Apprenti's experience to quickly implement a proven apprenticeship model.

Apprenti has implementation experience in multiple locations across the country. Apprenti staff can assist in hiring and training personnel to staff *Apprenti Minnesota*. Hiring the corporate outreach person comes first, though a current MHTA employee could possibly be leveraged for this role. This first step is followed by a full-time program manager to help get the model up and running. Once the program is established, hiring a part-time program coordinator to do the administrative tasks, data entry, and paperwork should be considered. Apprenti has job descriptions for these roles and understands the skill sets needed for each to be successful.

Having the right staff in place is important. However, one of the most important aspects of establishing an apprenticeship program is securing funding. Government funding is a promising source. MHTA needs to determine how to tap into State and Federal money. There are existing state funds available through the MN Dept of Labor and Industry to encourage employers to engage in apprenticeships and help defray the costs. There is precedent of intermediary organizations also tapping into these grants. For example, VisionOne, a company which helps small companies navigate ownership transitions, successfully used states funds for apprenticeship programs via a contract with employers, who then reimburse VisionOne. Likewise, there may be federal funding available. In recent months, the federal government has posted opportunities for colleges to apply funding to help grow the number of apprenticeships across the country. This could be an opportunity for MHTA to partner with these colleges.

In addition to state and federal funds, MHTA will also need to encourage companies to invest in the program. As beneficiaries of a stronger workforce pipeline, employers engaging in this program could reap the rewards of having screened individuals trained to meet their specific business needs.

By leveraging these funding sources, MHTA can tap into a match grant of up to $40,000 from Apprenti as part of a grant from the Lumina Foundation to use as seed funding to cover start-up costs and initial operations.

Concurrent to securing funding, MHTA will also need to engage companies as employers. Apprenti can again be leveraged to provide marketing and consultation support. As with any effort, early adopters are essential. Running a successful apprenticeship program requires two to three companies to pilot the program. Once the initial companies have been identified, defining the IT workforce needs of these companies is important. The needs may include desired skills and competencies, number of candidates needed, and the time frame over which hiring is desired.

At the same time companies are being onboarded, the program would be identifying, screening, and enrolling applicants in the program. Apprenti provides an online learning

management and applicant tool – which would be locally branded as *Apprenti Minnesota* – that manages applications, assessments and ranking of the applicant pool. When companies are ready to move forward, the highest ranked applicants are screened and brought in for interviews. The companies conduct interviews and select which one(s) they would like to hire as apprentices. The selected individuals receive a hire letter from the company contingent upon the successful completion of their classroom training.

The classroom training phase is managed by *Apprenti Minnesota*. Based on the needs of each company, suitable training programs and training partners are identified and vetted. During the start up phase, Apprenti will provide consultation to *Apprenti Minnesota* help with this process. Once in training, the progress of the apprentice candidates is monitored by *Apprenti Minnesota* through the same online learning management system provided by Apprenti that is used to track applicants. Once apprentices are ready to start employment with hiring partners, the program manages the compliance aspects of registered apprenticeships. During the on-the-job training period, apprentices typically start by earning 60% of full-time wage and obtain wage increases at milestones during their apprenticeship journey. They can potentially be offered full time positions as early as six months into on-the-job training, but most apprenticeship periods continue on for one to two years.

Key Partnerships

Multiple partnerships are required for a successful apprenticeship program. A key partnership for *Apprenti Minnesota* would be MHTA. MHTA's connections to employers and the hiring partners, as well as leveraging its resources, are vital to running the program. Upon adopting the Apprenti model, the Washington Technology Industry Association Workforce Institute will also become a key partner. All the training providers, such as TLG, Coding Dojo, Cisco, CompTIA, and participating community colleges are key partners. The Minnesota state government can be considered a key partner for the compliance and registration process, but also for securing any incentive funds to employers for engaging in the apprenticeship program.

Cost and Revenue Structure

Some details of the operating costs and revenue generated are shown below. Some of the significant costs are staff salaries and training costs. These can be covered through training funds from the companies as well as the administrative fees. However, in the beginning the number of apprentices might be low and it may be important to start lean. A corporate outreach person could be leveraged from existing MHTA staff. Space and back office support (such as bookkeeping) could also be leverage from existing MHTA resources to get the program off the ground. A lean organization may just add a single new staff member (a program manager). As the program scales up additional supporting staff could be added. Based on the organizational scenarios, it is possible to understand the number of candidates and/or the administration fee required to sustain

the program. If these are parameters that cannot be controlled effectively by MHTA, additional sources of funding may have to be determined. By partnering with Apprenti, some seed funding from Lumina Foundation is available to help offset the required start up costs. By working with employers, community colleges, workforce development organizations or other eligible grantees, additional funding from state or federal sources may be available to help support a Minnesota apprenticeship program.

For example, a company called VisionOne leverages Minnesota Job Skill Partnership (MJSP) and Minnesota Apprenticeship Initiative (MAI) grants which are available to help small companies train and hire level 1 and 2 CNC machinists along with a leadership program. They also used the PIPELINE grants and private funding to supplement their work. Tapping into these resources could help support MHTA's apprenticeship efforts.

The table below outlines two different approaches that MHTA could utilize to implement the Apprenti program and create a sustainable apprenticeship program.

Cost vs Revenue Balance Sheet

			Scenario 1: Lean org			Scenario 2: Full org	
	# of apprentices/ year	50	100	200	50	100	200
Fixed Costs in thousands	Apprenti License	25	25	25	25	25	25
	Staff Wages	100	100	100	225	225	225
	Marketing	20	20	20	20	20	20
	Total	145	145	145	270	270	270
Variable Costs in thousands	Training Costs	500	1000	2000	500	1000	2000
	Total	500	1000	2000	500	1000	2000
Total Costs		645	1145	2145	770	1270	2270
Fixed Revenue in thousands	Lumina funding	40	40	40	0	0	0
	Total	40	40	40	0	0	0
Variable Revenue in thousands	Administrative fee	125	250	500	125	250	500
	Training funds from companies	500	1000	2000	500	1000	2000
	Total	625	1250	2500	625	1250	2500

			665	1290	2540	625	1250	2500
Total Revenue			665	1290	2540	625	1250	2500
Balance			20	145	395	-145	-20	230
# candidates to break even			42	42	42	108	108	108
Administrative fee to break even			2.1	1.05	0.525	5.4	2.7	1.35

For the spreadsheet above, the administrative fee per candidate is assumed to be $2.5K, the training cost and training funds available are both set at $10K per candidate. These numbers can be adjusted and an updated spreadsheet can be generated as desired.

Conclusions and Recommendations

The IT workforce in Minnesota and across the country is at an inflection point. Without interventions, the gap between business needs and the skilled IT workforce will continue to grow. The impact on our economy will be sizeable. While multiple approaches are needed, one proven model is apprenticeship.

A successful apprenticeship program is a sustainable program that produces a sizeable contribution to the size, strength, and diversity of Minnesota's IT workforce. Apprenti is a proven, turnkey program and MHTA is well suited to implement it.

While it is important for the board to examine all of the details of what is required to run an effective apprenticeship program and the corresponding financial implications, our team recommends adopting this playbook, partnering with Apprenti and creating a sustainable *Apprenti Minnesota*.

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