

House Appropriations Government Operations Division

January 09, 2023

Brynild Haugland Room



INTRODUCTIONS



Greg Hoffman
Deputy Chief Information Officer



Evonne Amundson
Chief Customer Success Officer



Ravi Krishnan
Chief Data Officer



Craig Felchle
Chief Technology Officer



Shelly Miller
Operations Director



Michael Gregg
Chief Information Security Officer

NORTH DAKOTA INFORMATION TECHNOLOGY

- NDCC Chapter 54-59
 - Information Technology
 - Statewide Longitudinal Data System (SLDS)
 - Health IT
 - State Information Technology Advisory Committee (SITAC)
- NDCC Chapter 54-59-1
 - Cybersecurity Incident Reporting
- NDCC Chapter 54-46
 - Records Management
- NDCC Chapter 37-17.3-02
 - Establishes Statewide Interoperable Radio Network (SIRN)



WHO WE ARE

479

Full-time Team Members

5

Temporary Team Members

Up to 700

Contractors

WHAT WE'RE ABOUT

Mission: Efficiently empower citizens with trusted information

Vision: How might we provide world class technology & services?

Values: Growth Mindset, Humility, Courage, Curiosity, Citizen Focus, Work as One, Make a Difference, Leadership Everywhere, Gratitude

Goals/Objectives:

Deploy a world class Government experience

Secure all government held data in North Dakota

Deliver the most efficient government services in America

WHO WE SERVE

All branches of Government

Assorted technology needs of Legislative, Judicial, Executive, Higher Education, K12, Cities, Counties – equaling over 600 independent entities.

All Citizens / Residents

Whether directly or indirectly, all citizens of North Dakota are impacted by NDIIT services in operational technology, broadband, cyber security, education, etc.

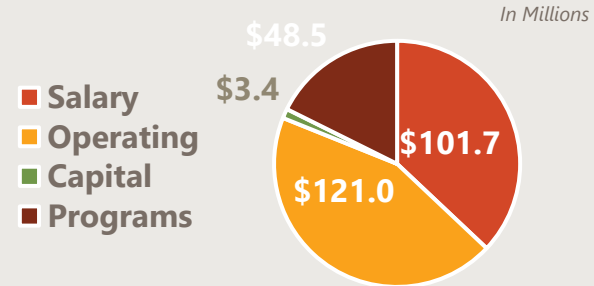
HOW WE DO IT

Total Agency Operations Budget: \$275M

- General: \$29M
- Special: \$232M
- Federal: \$14M

Projects (Managed)

- \$488M



WHAT WE'RE PROUD OF – Last 3 Years

252,000

Endpoints daily
on NDIR
networks

**Only state in US with Comp
& Cyber Sci K12 Standards**

North Dakota sets the
standard in computer/Cyber
science education

100%

of citizen's gov
data
dependent on
NDIT

**Only state with whole of
Government Cyber Defense**

North Dakota is 10+ years
ahead of every other state in
Cyber defense

3000+

Applications
supported

17 National Awards

Recognition competing against
public and private sector
competitors in innovation,
vision, and delivery

\$498M

WHAT WE DO

End to End Technology Services

Handling all technology from
Flintstones to Jetsons.

Cyber

Defending the data of all
branches of government
and all of their customers.

STAGEnet

Network backbone for all
governmental entities in the
state.

PK-20W

Every student, every school,
computer and Cyber science
educated – kindergarten
through PHD.

Education

Improve student and teacher
outcomes in every North Dakota
K12 school using SLDS and
Learning Information Systems.

Program & Portfolios

Managing hundreds of
millions of dollars of IT
projects across government.

HOW WE MEASURE SUCCESS

Customer

- Customer success integrated
- Just in time surveys (micro)
- Macro annual surveys (value and satisfaction)
- National benchmarks
- Service gap scores

Financial

- Cost per unit of service over time
- Interstate rate comparisons
- Continuous rate studies via legislature (4 in 5 sessions)
- Spending to revenue

People

- Gallup surveys
- Salary comparatives
- Knowledge debt/ education
- Objectives and key results

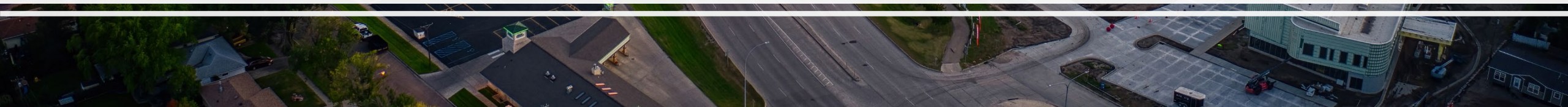
Process

- Mean time to resolution
- Run, Grow, Transform
- Process maturity
- Technical debt
- Risk Management
- Project Success Rates

Empower People, Improve Lives and Inspire Success



Current Biennium Overview



CHALLENGES AND OPPORTUNITIES

Continue to Increase, Enhance and Mature



Communication



Collaboration



Transparency

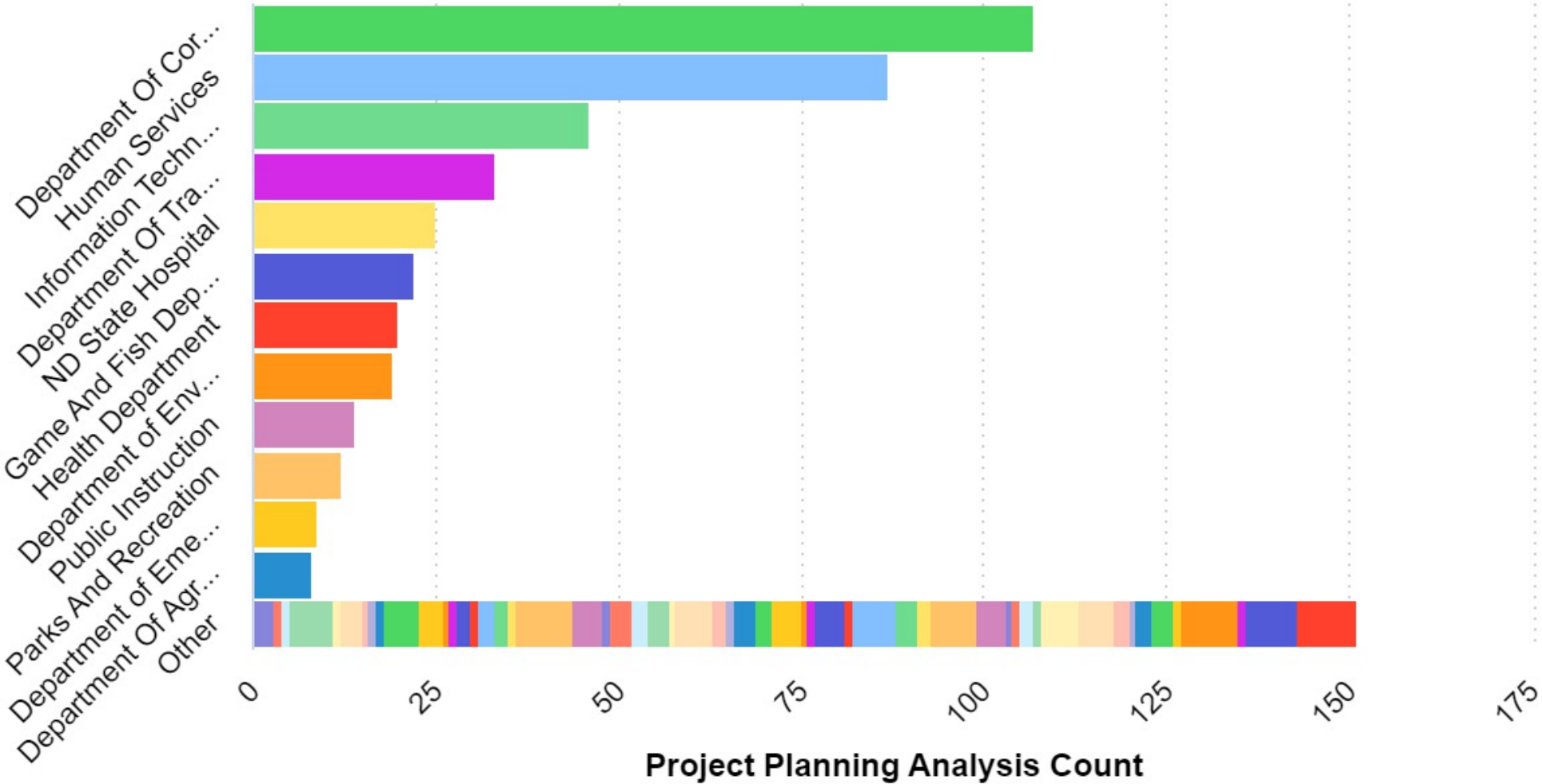


Productivity



IT Planning & Strategy

AGENCIES SUPPORTED BY INITIATIVE INTAKE



HOW COULD THESE RESULTS BE USED?



Perhaps certain curriculum decisions are associated with higher educational outcomes in foster care student. These invaluable insights could be shared to help school staff more effectively assist students in need of support.

This is not limited to only Foster Care data! The more data that is joined, the more insights can be discovered!

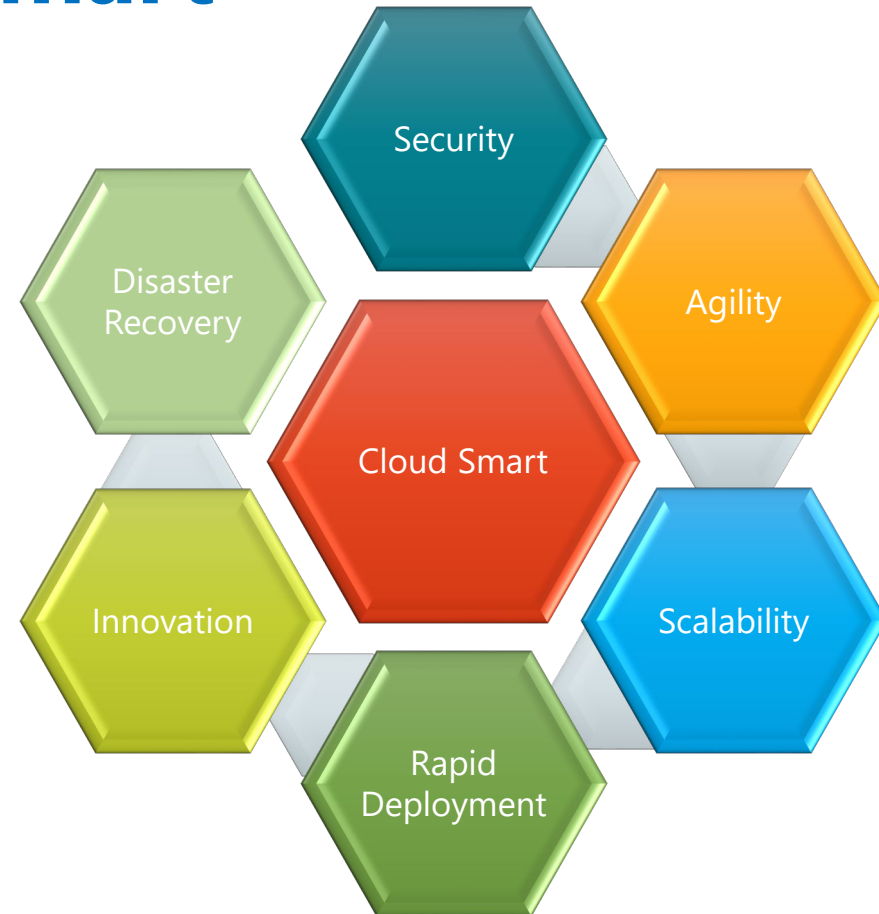
Early warning information could be provided by the SLDS to schools and districts with a more complete picture of the stressors that may affect a student's ability to thrive.



CHALLENGES AND OPPORTUNITIES

Cloud Smart

- 250+ Workloads in the cloud across 4 regions
- Petabytes of total data across all solutions
- Over 50% Growth over 2 years
- Agility and Scalability



CHALLENGES AND OPPORTUNITIES

Automation

- NDIT is up to 6 million minutes of Statewide effort/savings per year with automations.
- Efficiency/Quality/Consistency/Security
- Enabled VPN to support the Pandemic
- Provisioning Cloud Backups
- HHS Robotic Process Automation
- 5000 minutes saved for HHS myAvatar
- 2000 minutes saved Processing Home and Community Based Services Overtime Payments

Since Inception (2019)



Last 12 Months



CHALLENGES AND OPPORTUNITIES

95%
Satisfaction

86%
NPS

2,145
Weekly
Incidents

1,150
Weekly Service
Catalog Tasks

90%
Successful
SLA

19 sec
Average
Wait Time

Call Acceptance



Call acceptance rate 94.7%

CHALLENGES AND OPPORTUNITIES

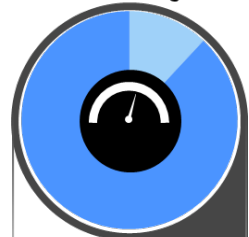
Breach Impact:

1. Loss of citizen trust
2. Cost to protect
3. Legal / regulatory fines
4. Critical infrastructure outage



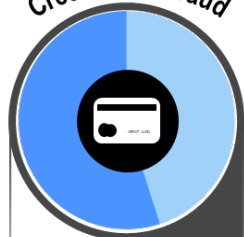
Threats

Phishing



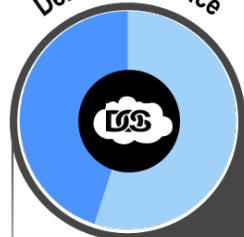
~80% of all inbound email volume is SPAM or phishing

Credit Card Fraud



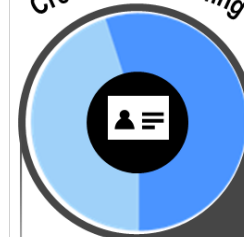
Multiple agencies have been victim of credit card stuffing attempts

Denial of Service



DDOS attacks are up 341% globally since start of pandemic³

Credit Card Stuffing



Dark web monitoring detected over 5,000 total leaks of state employees in 2021

Since 2020 cyber-attacks have increased:

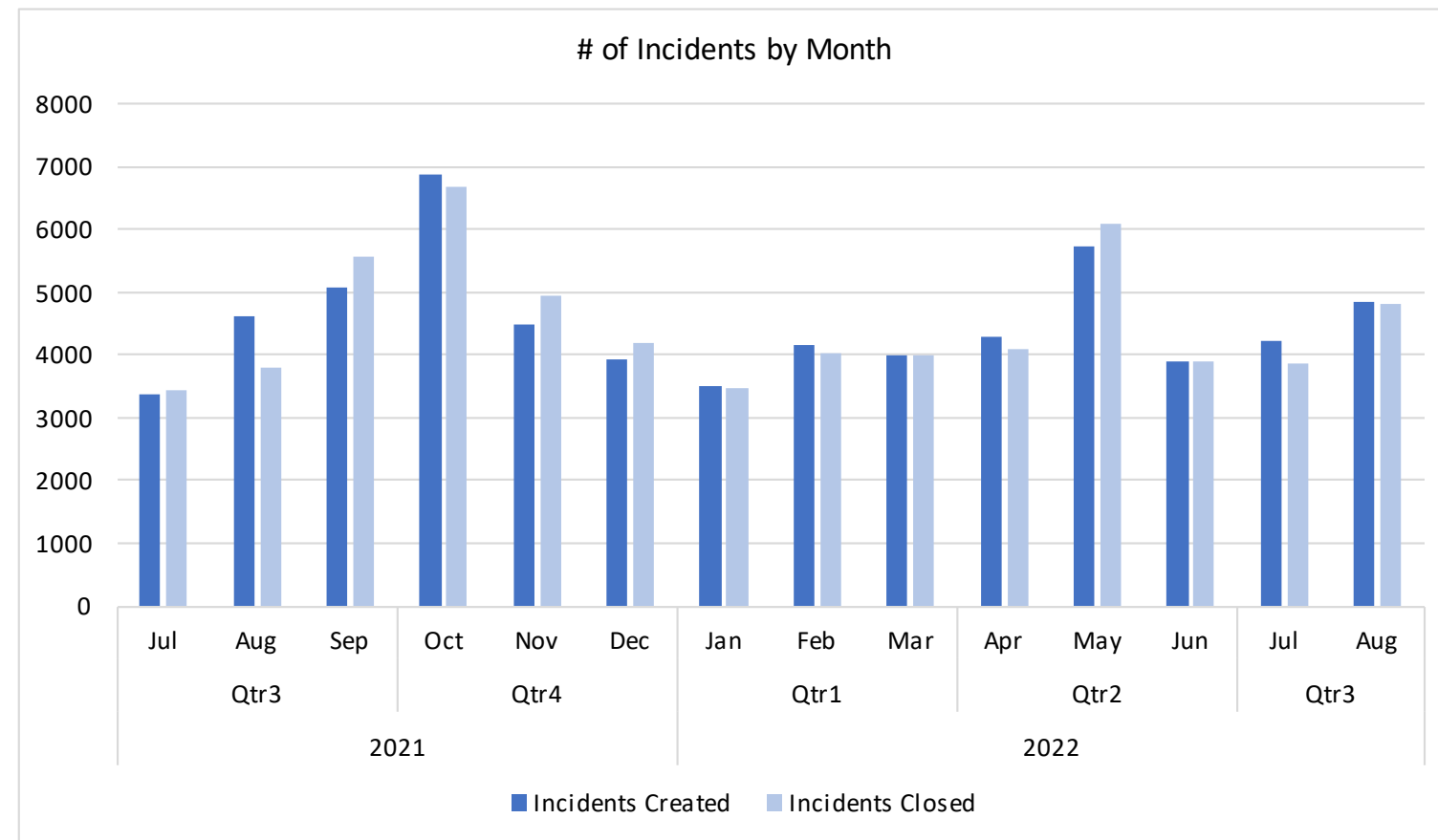
1. Education/Research sector ↑ 75%
2. Healthcare sector ↑ 71%
3. ISP/MSP up by ↑ 67%
4. Communications ↑ 51%
5. Government / Military sector up by ↑ 47%

We protect:

- Legislative
- Executive
- Judicial
- K12
- Higher Ed
- Cities
- Counties

CYBER INCIDENTS AND CAPABILITIES OVERVIEW 2021-2022

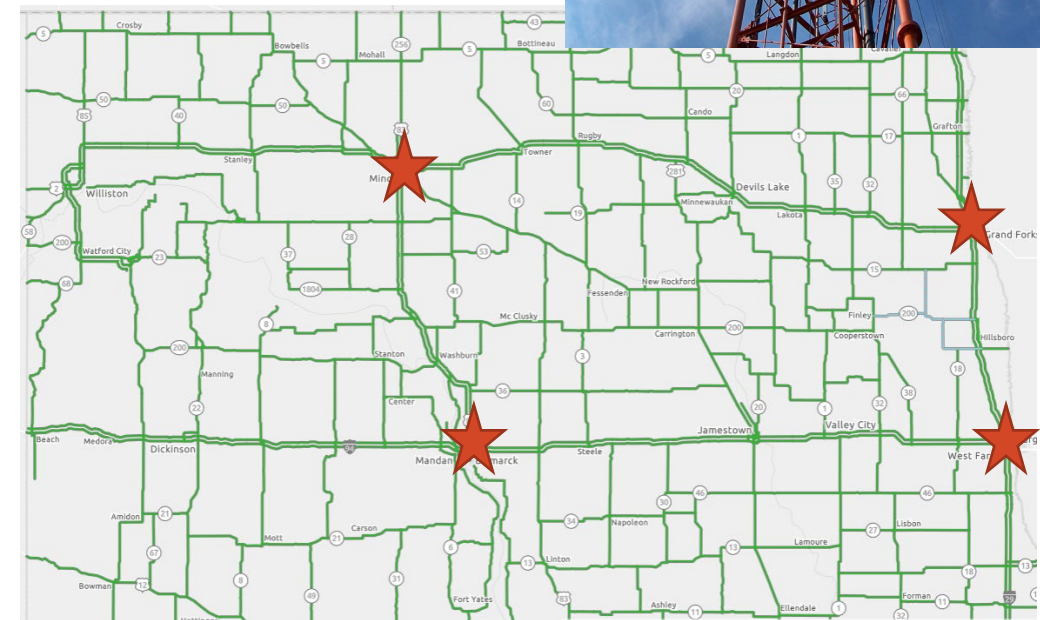
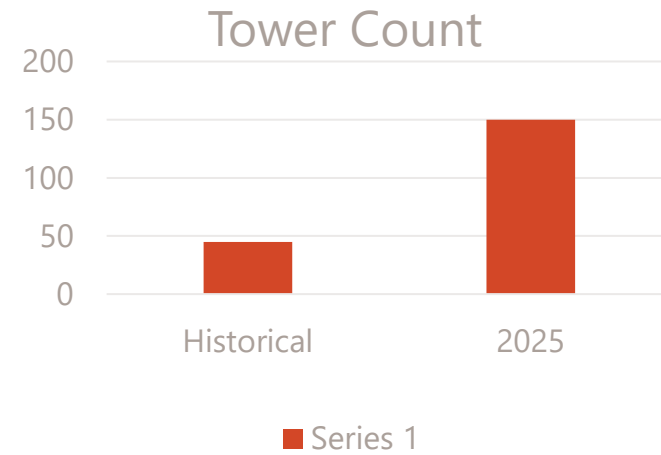
- The North Dakota Cyber Team:
 - Defending 252,000+ endpoints every day
 - Detecting / preventing over 4.5 billion threats on STAGEnet per year
 - Handling more than 95% of these threats via automation
 - Performing tasks with ½ the staff of a similar sized Fortune 30 company
- Cyber Madness - Adopted middle and high school state championships as a cyber security sport



CHALLENGES AND OPPORTUNITIES

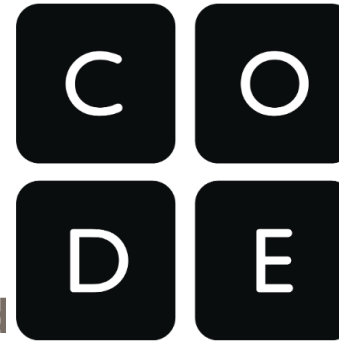
SIRN- Onsite Facility Maintenance

- Tower Count Increasing from ~45 to ~150
- 1 additional technician per region of the state to support tower growth
- Televate (2016) recommended 30+ people for Field Maintenance
 - Today – Mix of Motorola and Existing Resources
 - Requesting 4 dedicated positions
 - ~35 sites per FTE
 - 3-4 hours from all tower sites for emergency support



EDUTECH

- **PowerSchool Support**
 - Support/Training for 200+ PowerSchool Sites
- **PK-20W – Every Student, Every School, Cyber Educated**
 - Public and Private Partnerships
 - Cyber.org - First Certified State Training Partner
 - Code.org training partner
 - IgniteND – June 2022
 - Participation has doubled to 250 teachers
 - Outreach Support to 13,000 participants for 40,500 person-hours of training impact
- **Statewide Computer Science Plan**
 - Code.org
 - ~6,800 Students Attending CS/Cyber Education Classes
 - 164 Schools Offering Classes



State policy should provide clarity, school and state capacity, leadership, sustainability of computer science initiatives, and promote access to and equity within rigorous and engaging computer science courses.

Regional Comparison of Computer Science Education Policy Adoption

POLICY	ND	MT	SD	MN
State CS Plan	In progress			
K-12 CS Standards	✓	✓		
Funding for Teacher PD		\$32K		
Teacher Certification	✓	✓	✓	
Preservice Programs		✓		
State CS Supervisor				✓
All High Schools Offer				
Graduation Credit	✓	✓	✓	✓
Higher Ed Admission				

EDUTECH

- **North Dakota Citizen Skills for All**
 - Cisco Networking Academy
 - Free, Quality, Online-Learning aligned to Industry Jobs
 - Networking
 - CyberSecurity
 - Python Programming
- **Consolidated Microsoft Licensing**
 - Lowers Cost for Schools
 - Common Infrastructure/Identities
 - Improves Service Awareness, Support, and Training
- **Cyber Madness**
 - High School Competition – February 2022
 - Open to all Public, Private, Tribal, and Home School ND Students
 - Middle-School Competition – November 2022
 - 36 Teams

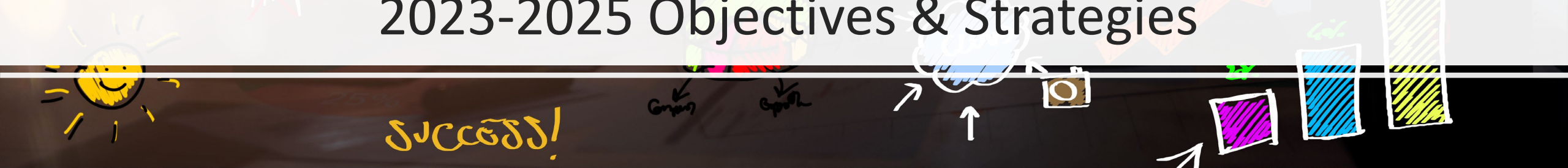




impossible

2023-2025 Objectives & Strategies

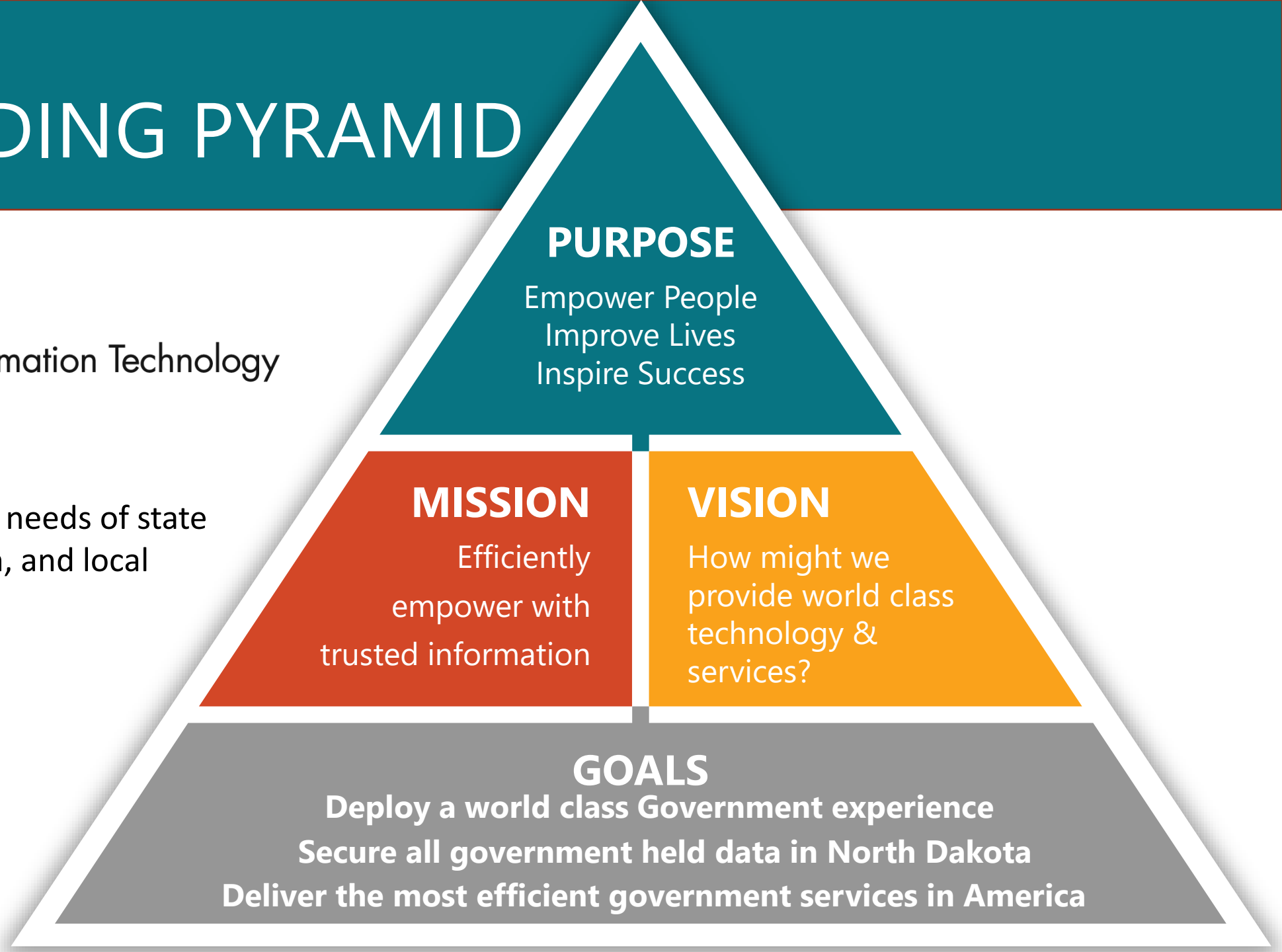
success!



NDIT GUIDING PYRAMID



Serving the technology needs of state government, education, and local communities



PURPOSE

- Empower People
- Improve Lives
- Inspire Success

MISSION

- Efficiently empower with trusted information

VISION

- How might we provide world class technology & services?

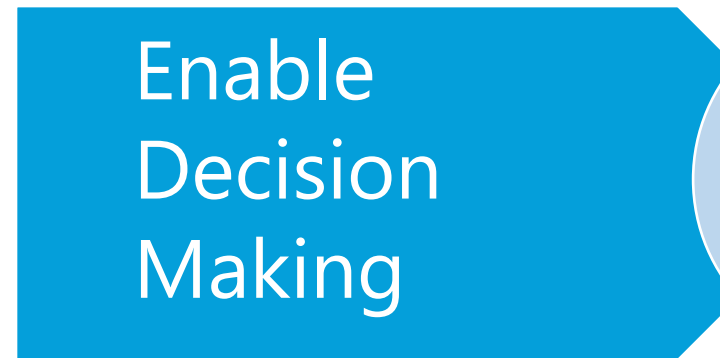
GOALS

- Deploy a world class Government experience
- Secure all government held data in North Dakota
- Deliver the most efficient government services in America

2023-2025 OBJECTIVES & STRATEGIES



Closing
Workforce
Gaps



Enable
Decision
Making



Managing Risk



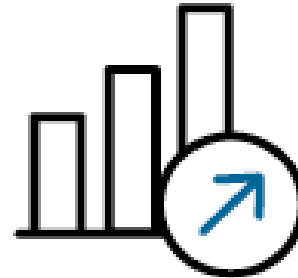
Citizen and
Business
Engagement



CLOSING WORKFORCE GAPS



THE WORK WE DO



Run

- **Mandate: Maintain current business capabilities**
- **Operational roles**

Grow

- **Mandate: Expand existing business capabilities**
- **Enhancing roles**

Transform

- **Mandate: Drive new business capabilities**
- **Innovation roles**

WHO'S ON DECK



Building the Bench:

- Supports cross-training
- Reduces single point of failure
- Promotes succession planning
- Fights job fatigue and burnout
- Increases job satisfaction

THE SHIFT: WHAT TALENT WANTS



Job seekers want a “complete” package that “aligns with their personal values, redefines what job security means, prioritizes their well-being and encourages flexibility.”

Choice

Opportunity

Well-Being

Purpose

NDIT RETIREMENT DATA



Years to meet Rule of Eligibility	Total Employees			Management			Non-management		
	Management to FTE Ratio: .093								
	# of FTEs	% of Total FTEs	Cumulative %	# of FTEs	% of Total FTEs	Cumulative %	# of FTEs	% of Total FTEs	Cumulative %
Currently Eligible	35	8.01%	8.01%	2	0.46%	0.46%	33	7.55%	8.33%
0-3 years	31	7.09%	15.10%	5	1.14%	1.60%	26	5.95%	13.50%
3.1 - 5 years	32	7.32%	22.42%	1	0.23%	1.83%	31	7.09%	20.59%
5.1 - 10 years	63	14.42%	36.84%	10	2.29%	4.12%	53	12.13%	32.72%
10.1 - 15 years	83	18.99%	55.83%	11	2.52%	6.64%	72	16.48%	49.20%
15.1 - 20 years	69	15.79%	71.62%	9	2.06%	8.70%	60	13.73%	62.93%
20.1 - 25 years	62	14.19%	85.81%	9	2.06%	10.76%	53	12.13%	75.06%
25+ years	62	14.19%	100.00%	3	0.69%	11.44%	59	13.50%	88.56%
Total	437	100.00%		50	11.44%		387	88.56%	

*Management includes all people managers

*Data as of 7/6/2022

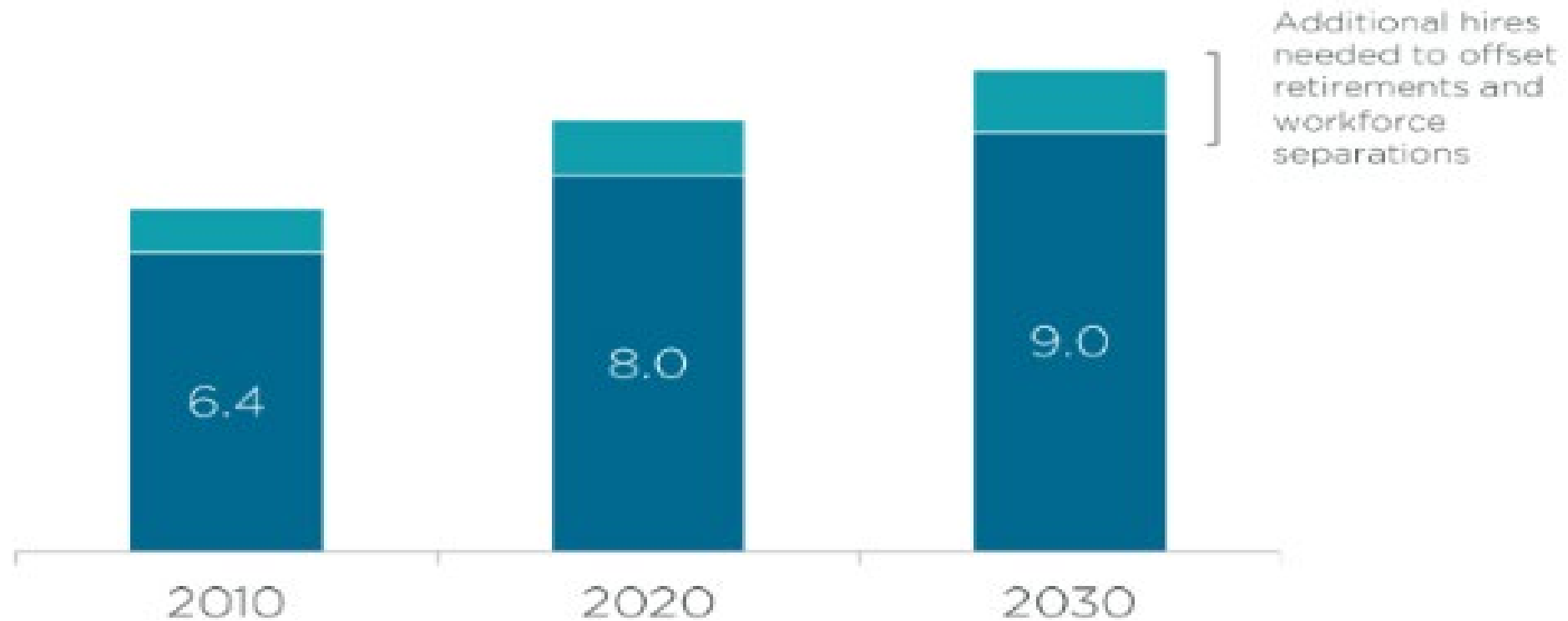
TECHNOLOGY WORKFORCE



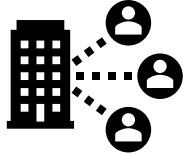
Tech Occupation Employment Outlook

Workforce need = annual replacement rate + growth rate

MILLIONS OF WORKERS



WORKFORCE DATA



Competition

- Our competition is primarily the private sector across the nation as IT professionals have historically been able to work from anywhere.



Recruitment

- Our applicant pools have increased slightly with LinkedIn Recruiter and other online partners.



Retention

- We are becoming training grounds for private sector companies. We are losing staff to salaries 30-100% more than we can pay. Average 2021 IT salary: \$104,566.



Retirement Stats

- Within the next five years, NDIT risks losing approximately 23% of our staff to retirement.

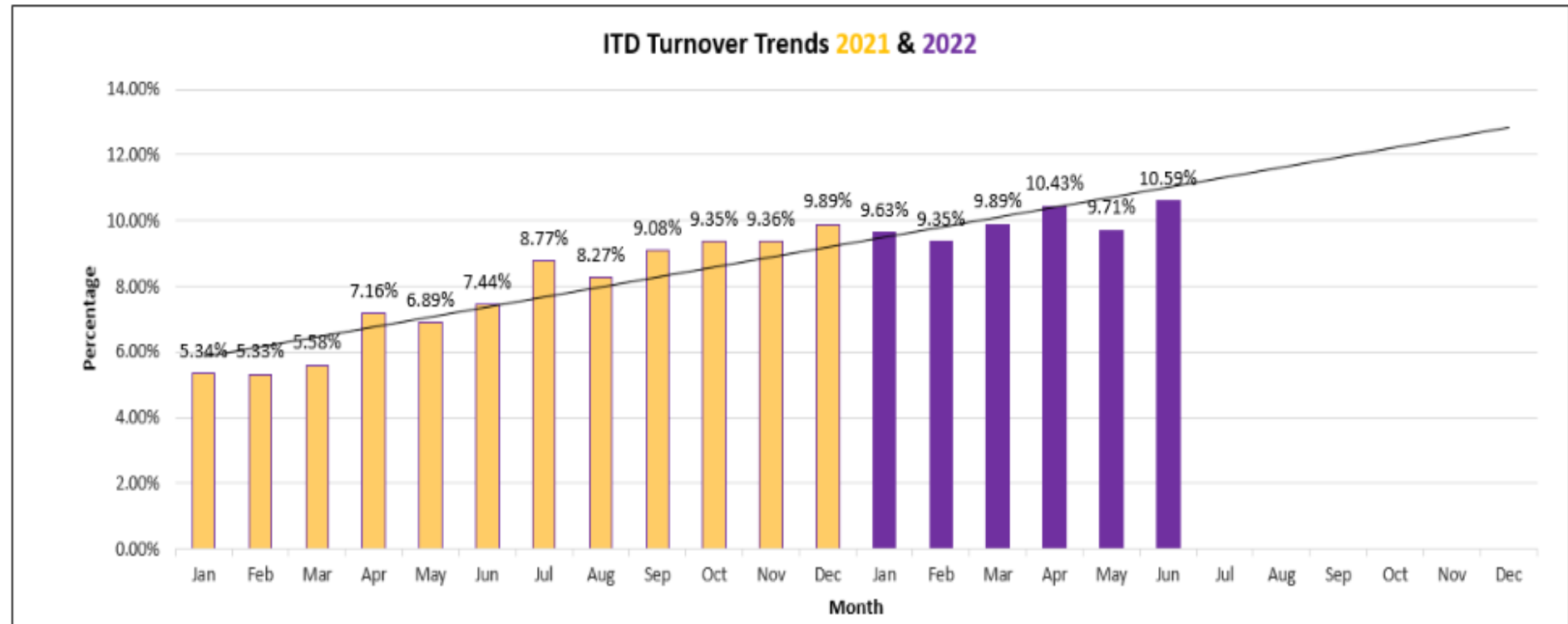
Industry Outlook: The US Bureau of Labor Statistics forecasts a 10.8% increase in overall employment within the year. The need for knowledgeable IT employees is at an all-time high, highlighting the importance of clean and effective IT staffing and IT recruiting processes. Tech unemployment remains low at 2.1%. Wages for the tech workforce have grown faster than the national average.

WORKFORCE COMPETITION



2022
NDIT's
Average
Salary
\$80,401

2021
Average
Tech Salary
\$104,566



EFFECTS OF TURNOVER



Unable to provide timely support and services.

Increased staff stress and burnout.

Longer customer wait times.

Delay in remediating critical security vulnerabilities.

Cost of turnover



\$60K

per team member

Figured at 6 to 9 months of an average tech salary.

- Remaining staff feel overworked & stressed potentially leading to additional turnover.
- Loss of IT knowledge plus time to get a new team member up to speed.
- Direct costs to recruiting, lost productivity, opportunity costs and cultural impacts.



ENABLE DECISION MAKING



ENABLE DECISION MAKING



Visibility

- Projects, Programs and Portfolio management
- Program & project reviews
- Benefit realization
- Reporting

Alignment

- Fully integrated with the strategic planning process
- Identify enterprise-wide opportunities
- Aligning like work

Enterprise Portfolio Management

Efficiency

- Role-based demand management
- Capacity management
- Consistent/standard processes
- Change management

Governance

- Steering committee providing oversight and guidance
- Centralized oversight and prioritization
- Informed decision making
- Risk management

DATA GOVERNANCE



Data Governance is the specification of **decision rights** and an **accountability framework** to ensure the appropriate behavior in the valuation, creation, consumption and control of data and analytics.

Technical

- Manage the **availability** and usability of data in enterprise systems
- Focus on **security** processes to manage and protect data, and mitigate vulnerabilities

Organizational

- Build **data literacy** to empower Team ND to use data efficiently
- Exercise **control over data** sets, create definitions; determine retention and lifecycle policies

Business

- Respond to threats from changing tech and the **regulatory** landscape
- Prevent **misallocation of scarce resources** to initiatives that do not conform to data policies

While we continue to make strides, the volume of work needed to implement data governance processes across all agencies far exceeds our current capacity to support.



MANAGING RISK



MANAGING RISK



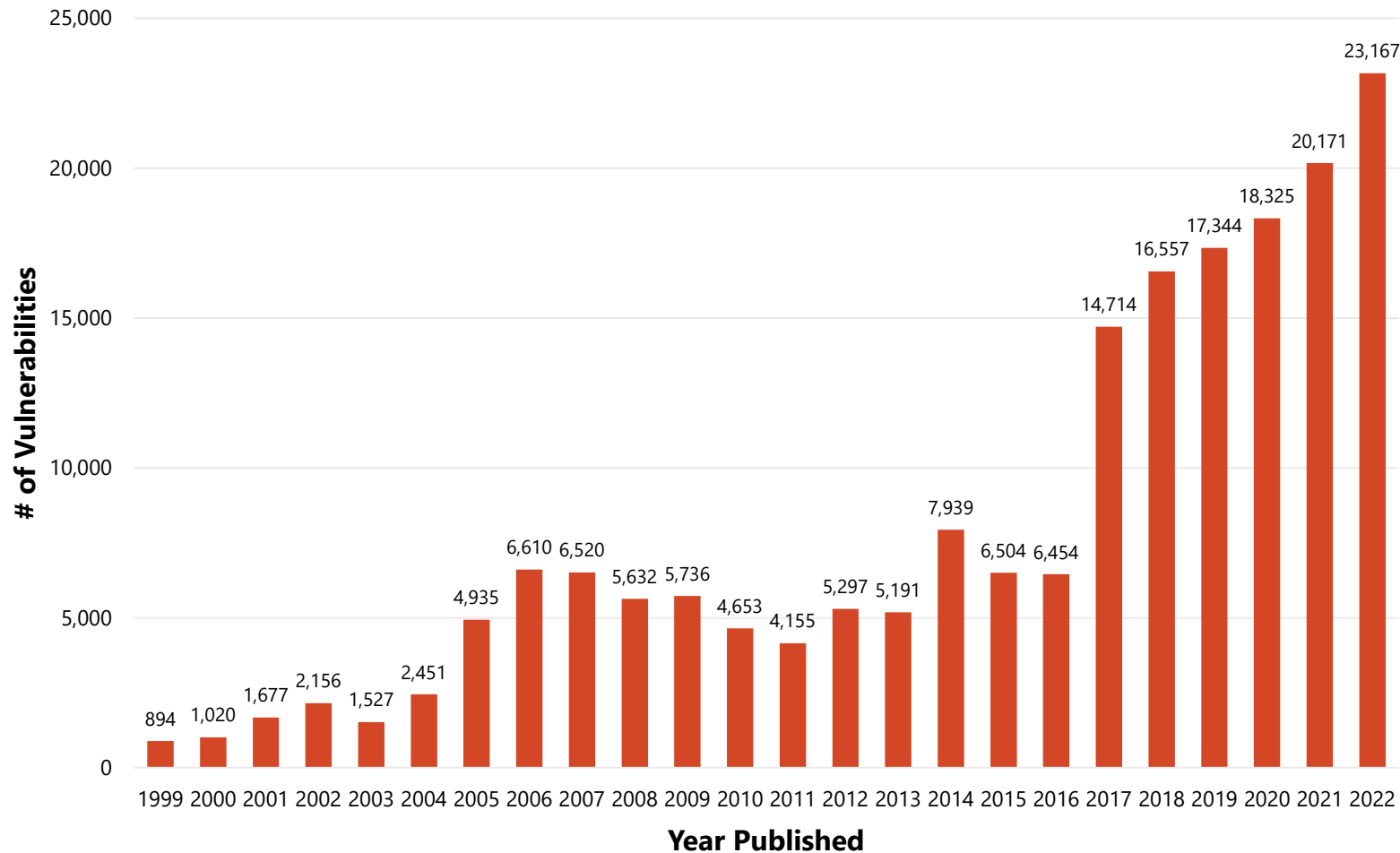
- We are all on STAGEnet, and vulnerabilities impact all of us.



THREAT LANDSCAPE – A GLIMPSE



Published Vulnerabilities by Year



<https://www.cvedetails.com/browse-by-date.php>

Rapid 7 2021 Vulnerability Intelligence Report

12 days
Time to Known
Exploitation (TTKE)

50%

Vulnerabilities exploited
within 7 days of public
disclosure

20
vulnerabilities exploited
as zero-days
(no patch available)

33
Widespread threats
(broad, opportunistic
exploitation)

CrowdStrike 2022 Global Threat Report

82%
Increase in ransomware-
related data leaks

1h 38m
Breakout time of eCrime
adversaries

62%
Detections were
malware-free ("living off
the land" techniques)

45%
Increase in interactive
intrusion campaigns

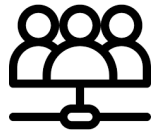
RISK REMEDIATION - WHAT



Problem – Amount of Work

Problem – Complexity of Work

Server/Workstation
Technology Team



Application Data Team



~34,000 New
Vulnerabilities Each Month



~25,000 Vulnerabilities
That Are Backlogged

<CODE/>

~182,000 Vulnerabilities
Are Backlogged



Reliance On
External Tools



7.5 Years Worth of Work
at Current Capacity Rate



25 Years Worth of Work at
Current Capacity Rate

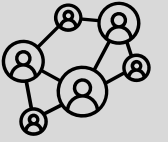




Citizen and Business Engagement



CITIZEN AND BUSINESS ENGAGEMENT



The screenshot shows the North Dakota Gateway website. At the top left is the logo "NORTH Dakota Be Legendary.™". At the top right is a "LOGIN" button with a user icon. Below the logo is a large landscape image of a sunset over a river. To the right of the image is a red box with the text "ND | GATEWAY" and a description of the service. Below this are two columns: "FOR INDIVIDUALS" with a photo of a family and the text "FUTURE INVESTMENT", and "FOR BUSINESSES" with a photo of a person using a handheld device.

NORTH Dakota Be Legendary.™

LOGIN

ND | GATEWAY

One login provides a more secure and private experience during online interactions with the State of North Dakota.

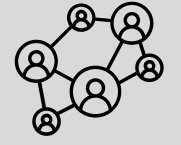
If you have an ND Login, use your existing username and password.

FOR INDIVIDUALS

FUTURE INVESTMENT

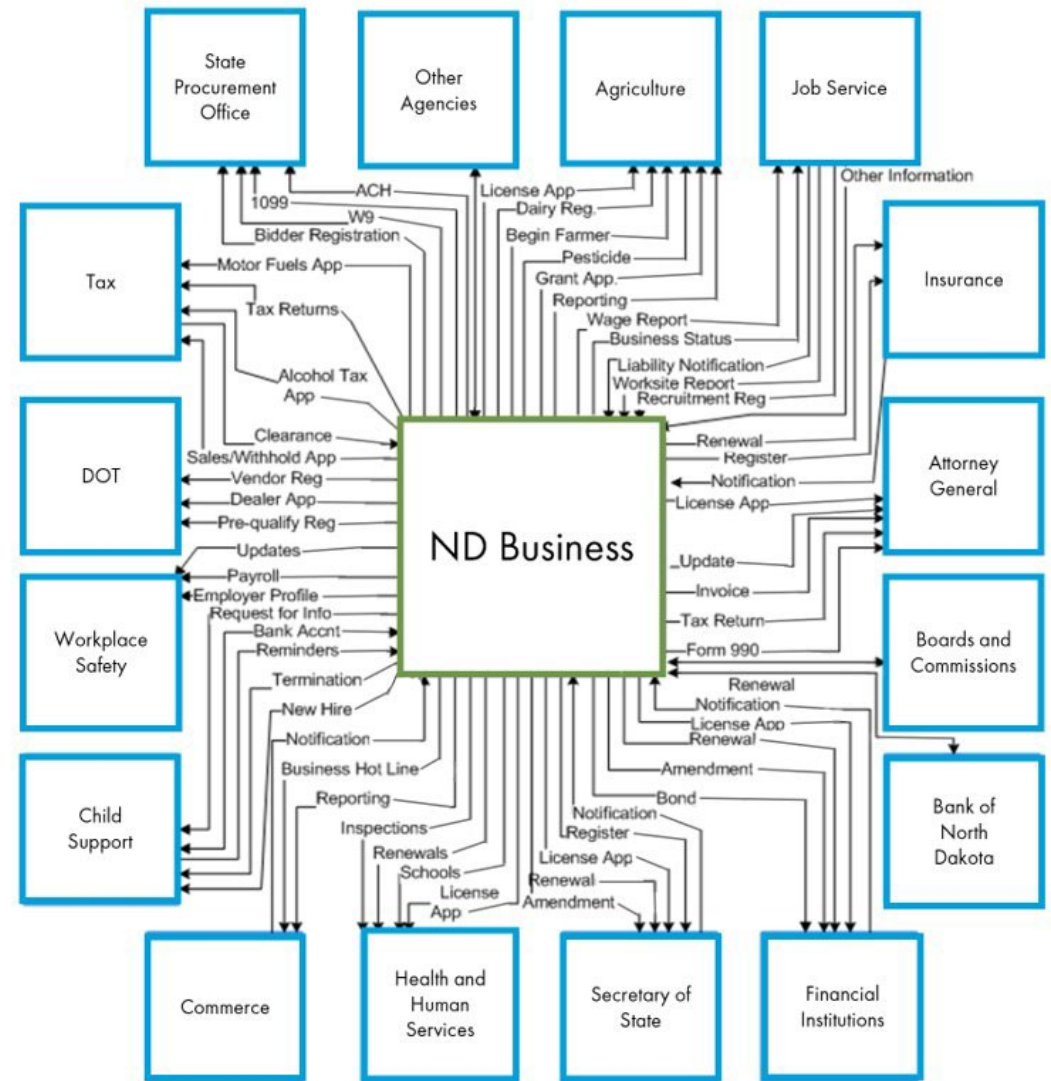
FOR BUSINESSES

CITIZEN AND BUSINESS ENGAGEMENT

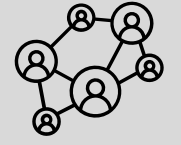


CURRENT STATE

Businesses engagement with state agencies is confusing and difficult.



CITIZEN AND BUSINESS ENGAGEMENT



Business Gateway

Business Gateway Portal
Business identity (B2C identity)

Customer Relationship Information
Business attributes and information

Modern State Applications



API Gateway

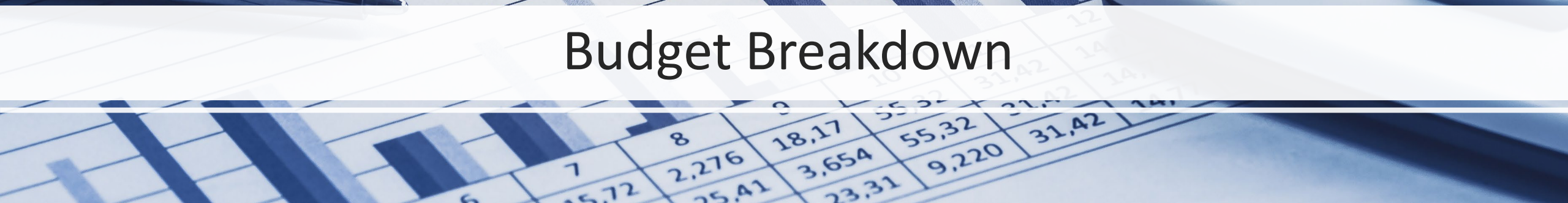
Legacy Applications

Business/Citizen User

FUTURE STATE



Budget Breakdown



BUDGET APPROPRIATION



NDIT 2021-2023 Total Budget Appropriation

Program	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	434.0	\$ 14,680,713	\$ 204,573,437	\$ 7,012,500	\$ 226,266,650
Public Safety - (E911/SIRN)	1.0	1,858,240	12,335,556	-	14,193,796
K-12 Network	4.0	4,589,718	90,000	-	4,679,718
Geographic Information System	1.0	1,036,127	-	65,679	1,101,806
Statewide Longitudinal Data System	7.0	3,986,278	-	500,000	4,486,278
EduTech	28.0	2,824,877	6,367,062	500,000	9,691,939
Health Information Technology	4.0	-	8,725,871	6,000,000	14,725,871
Total	479.0	\$ 28,975,953	\$ 232,091,926	\$ 14,078,179	\$ 275,146,058

BASE BUDGET



NDIT 2021-2023 Legislative Base Budget

Program	FTE Chg	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	434.0	\$ 14,680,713	\$ 204,573,436	\$ 512,500	\$ 219,766,649
Public Safety - (E911/SIRN)	1.0	1,858,240	12,335,556	-	14,193,796
K-12 Network	4.0	4,589,718	90,000	-	4,679,718
Geographic Information System	1.0	1,036,127	-	65,679	1,101,806
Statewide Longitudinal Data System	7.0	3,986,278	-	500,000	4,486,278
EduTech	28.0	2,824,877	6,367,063	500,000	9,691,940
Health Information Technology	4.0	-	2,725,871	6,000,000	8,725,871
Total	479.0	\$ 28,975,953	\$ 226,091,926	\$ 7,578,179	\$ 262,646,058

OPTIONAL REQUESTS



NDIT 2023-25 Budget Request - Optional Requests by Program

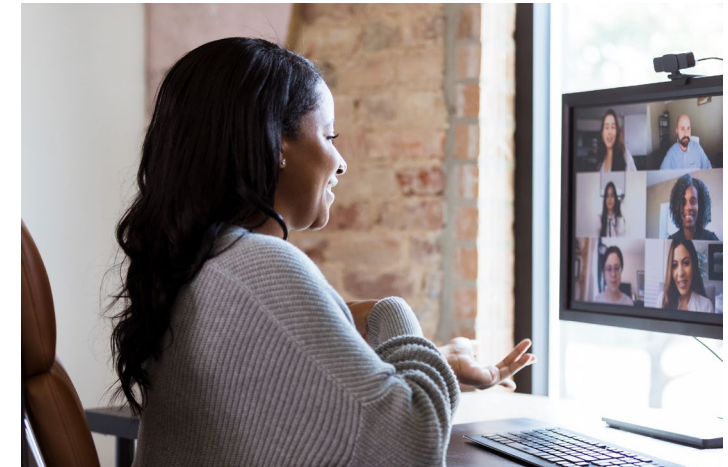
Program	FTE	General Funds	FTE	Special Funds	Federal Funds	One-Time SIIF Funding	Total
NDIT Operations	19.0	11,589,661	22.0	13,054,844	-	34,351,650	58,996,155
Public Safety - (E911/SIRN)		-		4,244,380	-	-	4,244,380
K-12 Network		2,028,460		-	-	-	2,028,460
Geographic Information System		28,790		-	-	-	28,790
Statewide Longitudinal Data System		3,154,103		-	-	-	3,154,103
EduTech		285,354		282,532	-	-	567,886
Health Information Technology		3,000,000		3,093,744	(6,000,000)	-	93,744
ARPA / IIJA Programs		-		-	193,250,000	-	193,250,000
One-Time Funding		12,407,500		37,722,817	-	-	50,130,317
Total	19.0	32,493,868	22.0	58,398,317	187,250,000	34,351,650	312,493,835

CUSTOMER DEMAND



NDIT 2023-2025 Customer Success Management Program

Program - NDIT Operations	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	2.0	\$ 2,569,700	\$ (2,050,884)	\$ -	\$ 518,816
Total Executive Budget	2.0	\$ 2,569,700	\$ (2,050,884)	\$ -	\$ 518,816



CUSTOMER SUCCESS



Trusted advisors and business partners, committed to helping customers achieve business goals

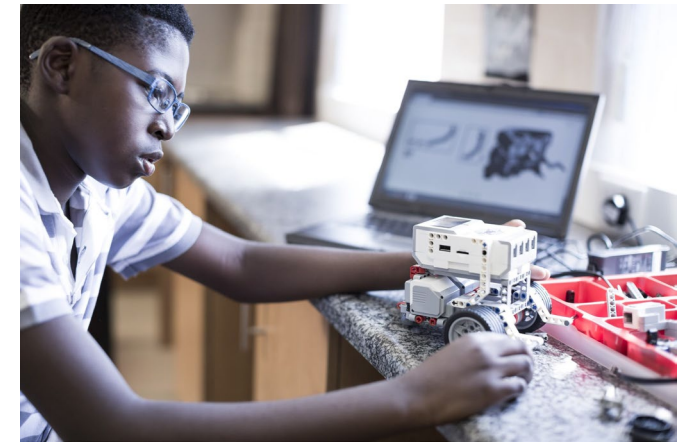


ENTERPRISE DIGITIZATION



NDIT 2023-2025 Enterprise Digitization

Program - NDIT Operations	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	5.0	\$ 3,245,000	\$ 1,096,138	\$ -	\$ 4,341,138
One-Time Funding		-	950,000	-	950,000
One-Time Funding (SIF)		\$ -	\$ 24,250,000	\$ -	\$ 24,250,000
Total Executive Budget	5.0	3,245,000	26,296,138	-	29,541,138



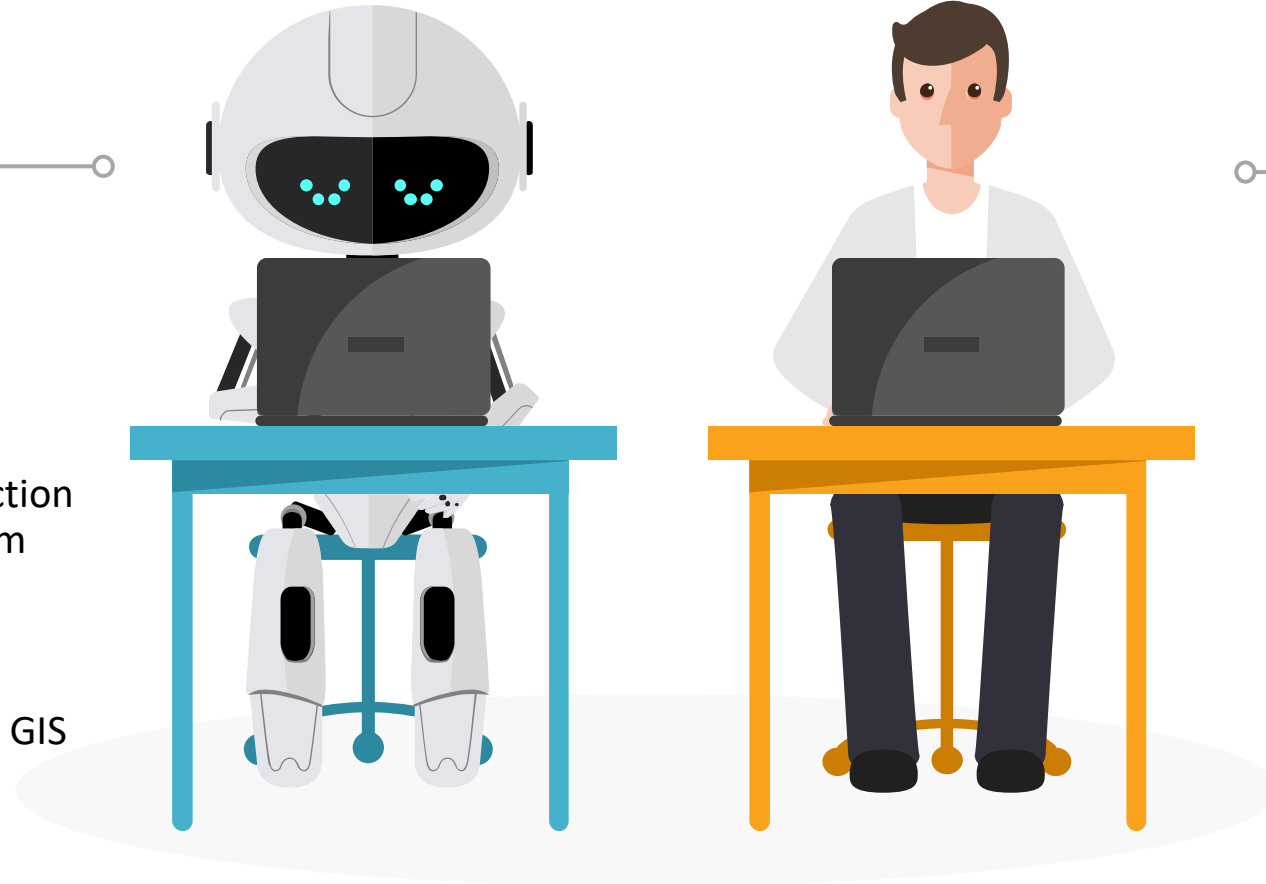
ENTERPRISE DIGITIZATION



• Intelligent and Modern Tools

MODERN TOOLSETS

- Lower Human Cost
- Modern Capabilities
 - Cloud Computing
 - Better Reporting
 - Simplify State Interaction through Modern Form Solutions
- More Secure
- Mapping Integrations with GIS



TRADITIONAL SYSTEMS

- Traditional capabilities have served us well for 15 years, but we need to modernize to meet the needs of all stakeholders
- Mainframe
- Traditional Infrastructure
- Legacy Coding Languages
- Paper forms that have to be digitized manually or through expensive software

IT STANDARDIZATION, APPLICATIONS & SECURITY



To Consolidate & Standardize IT Services Under One Umbrella Through NDIT:

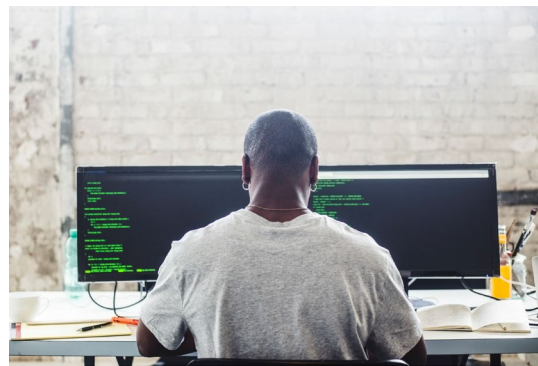
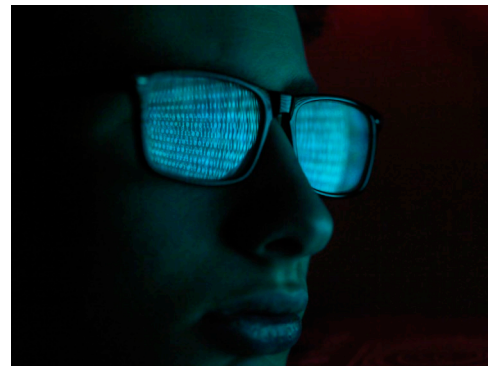
- File Services
- Computational Infrastructure For Scientific Applications
- Big Data Development/Production For Various Data Types
- Big Data Administrative Costs
- Costs Associated With Additional FTE For NDIT
- Business Analysis
- Project Management
- Project Oversight

GOVERNANCE, RISK, AND COMPLIANCE

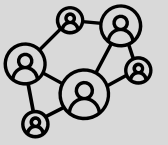


NDIT 2023-2025 Governance, Risk and Compliance

Program - NDIT Operations	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	4.0	\$ 298,868	\$ 800,676	\$ -	\$ 1,099,544
					-
One-Time Funding (DPI Transfer)		1,350,000	10,000,000		11,350,000
Total	4.0	1,648,868	10,800,676	-	12,449,544



LIGHTHOUSE PROGRAM



01

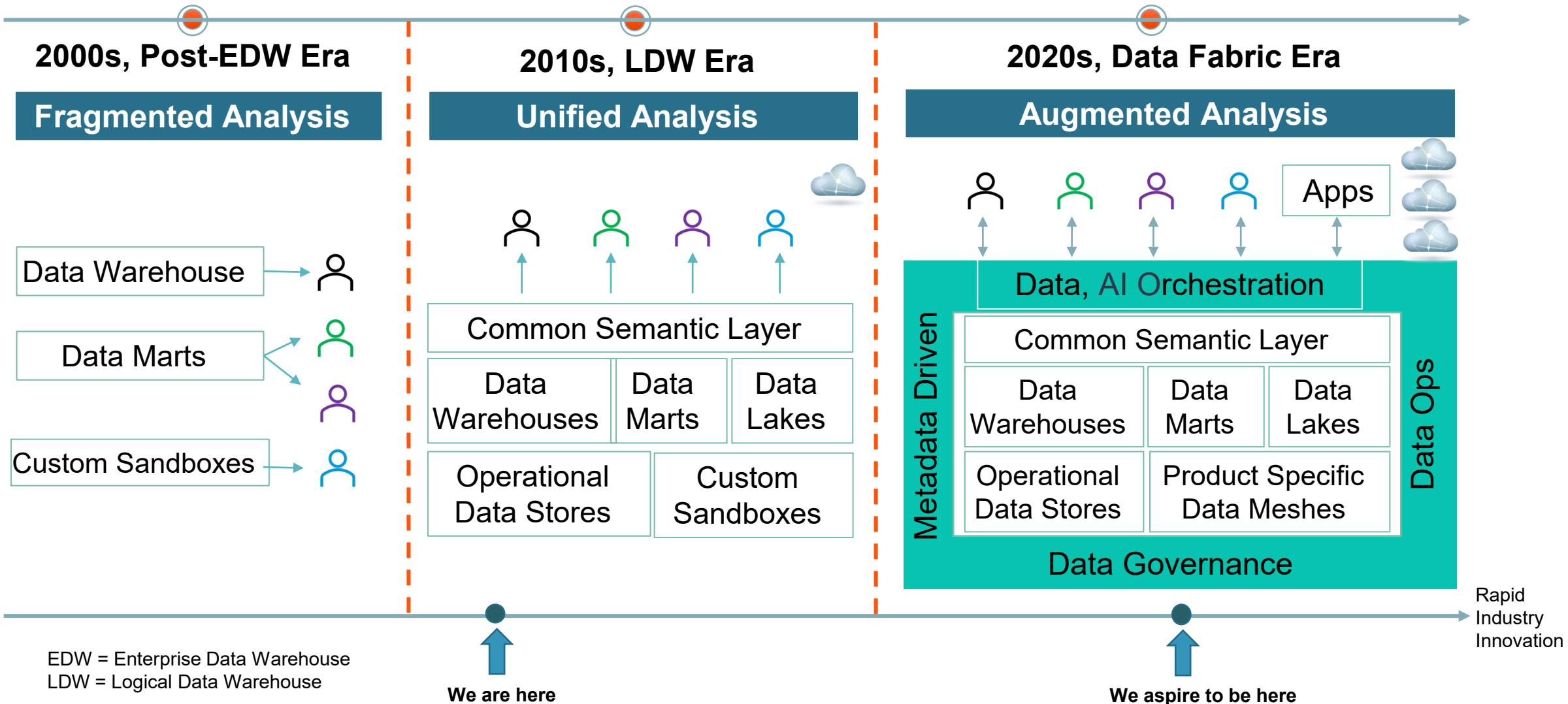
02

03

04

- Objectives: Identify early warning indicators to educators for making interventions and, provide information to policy makers to help decide where investments are needed.
- Expected Outcomes: Ability to combine data across selected state agencies to provide actionable insight to improve performance of children in schools.
- Status: User interface upgrades, business analysis and proof of concept completed. Request for Proposal (RFP) for implementation in progress.
- Funding: From part of the \$10M special funds transfer from DPI to NDIT (SB 2346)

FOCUS ON DATA ARCHITECTURE



DATA GOVERNANCE



Data Governance is the specification of **decision rights** and an **accountability framework** to ensure the appropriate behavior in the valuation, creation, consumption and control of data and analytics.

Technical

- Manage the **availability** and usability of data in enterprise systems
- Focus on **security** processes to manage and protect data, and mitigate vulnerabilities

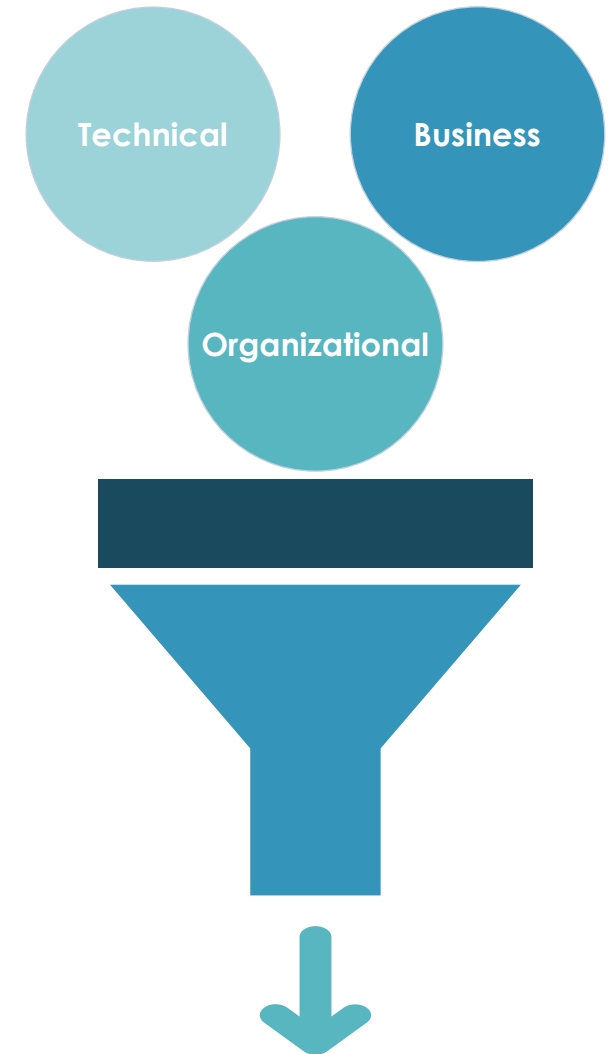
Organizational

- Build **data literacy** to empower Team ND to use data efficiently
- Exercise **control over data** sets, create definitions; determine retention and lifecycle policies

Business

- Respond to threats from changing tech and the **regulatory** landscape
- Prevent **misallocation of scarce resources** to initiatives that do not conform to data policies

While we continue to make strides, the volume of work needed to implement data governance processes across all agencies far exceeds our current capacity to support.



DATA GOVERNANCE: IMPLEMENTATION



Organizational Framework



- Conduct systematic **review** of all organizational data processes

Data Governance Charter & Policy



- Publish draft of data governance **charter and procedures** for review

Implementation Plan



- Create execution plan with well defined **KPIs and metrics**

Role Definition and Enablement



- Train & enable **data stewards** across NDIT and partner agencies

Seating a Data Governance Council



- Establish the data governance **oversight council**

Establishing a Data Governance council requires dedicated resources to create collateral, educate and train stakeholders and data stewards. Having a statewide data governance policy will provide a way to standardize and support data initiatives for various agencies.

THIRD PARTY RISK MANAGEMENT (TPRM)

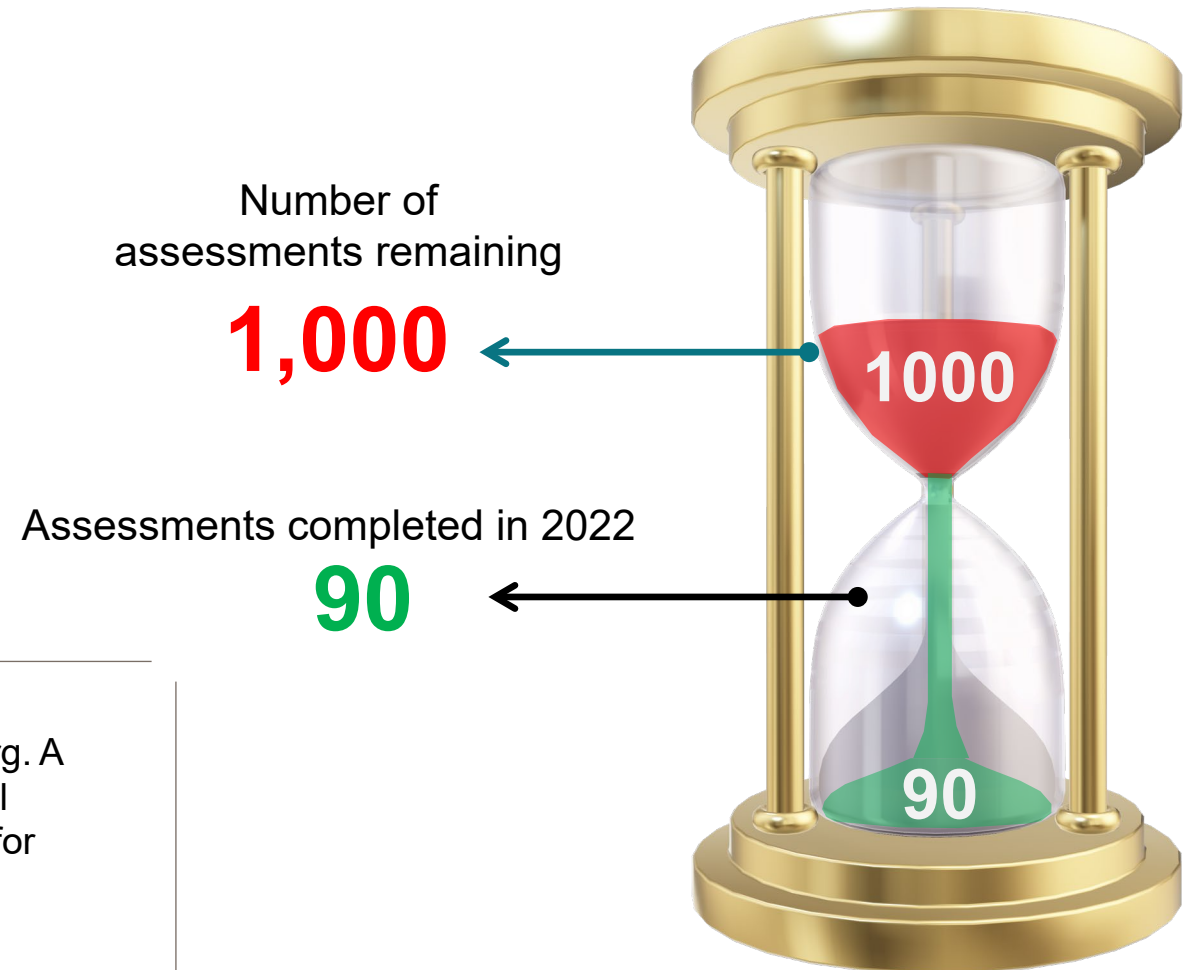


- TPRM is important because it moves us from a reactive to a proactive posture
- TPRM reduces costs as it allows us to assess third-party risks to the state before supply chain attacks, data breaches, and/or reputational damage can occur
- The process is currently manual, time intensive
- A one-time spend would allow us to speed up the process, reach all agencies and reduce risk within the next two years

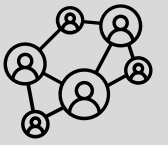


We have just started working the tip of the iceberg. A one-time spend to build automation for TPRM will reduce risk and improve operational efficiencies for the state of ND

10 years effort at current rate



CUSTOMER RELATIONSHIP MANAGEMENT

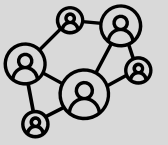


NDIT 2023-2025 Customer Relationship Management

Program - NDIT Operations	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	8.0	\$ 2,827,830	\$ 501,808	\$ -	\$ 3,329,638
					-
One-Time Funding (SIIF)		-	8,700,000	-	8,700,000
					\$ -
Total	8.0	2,827,830	9,201,808	-	12,029,638



DELIVERING GOVERNMENT SERVICES



NORTH
Dakota Be Legendary.™

LOGIN 



ND | GATEWAY

One login provides a more secure and private experience during online interactions with the State of North Dakota.

If you have an ND Login, use your existing username and password.

FOR INDIVIDUALS

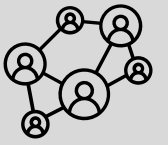


FOR BUSINESSES



LG

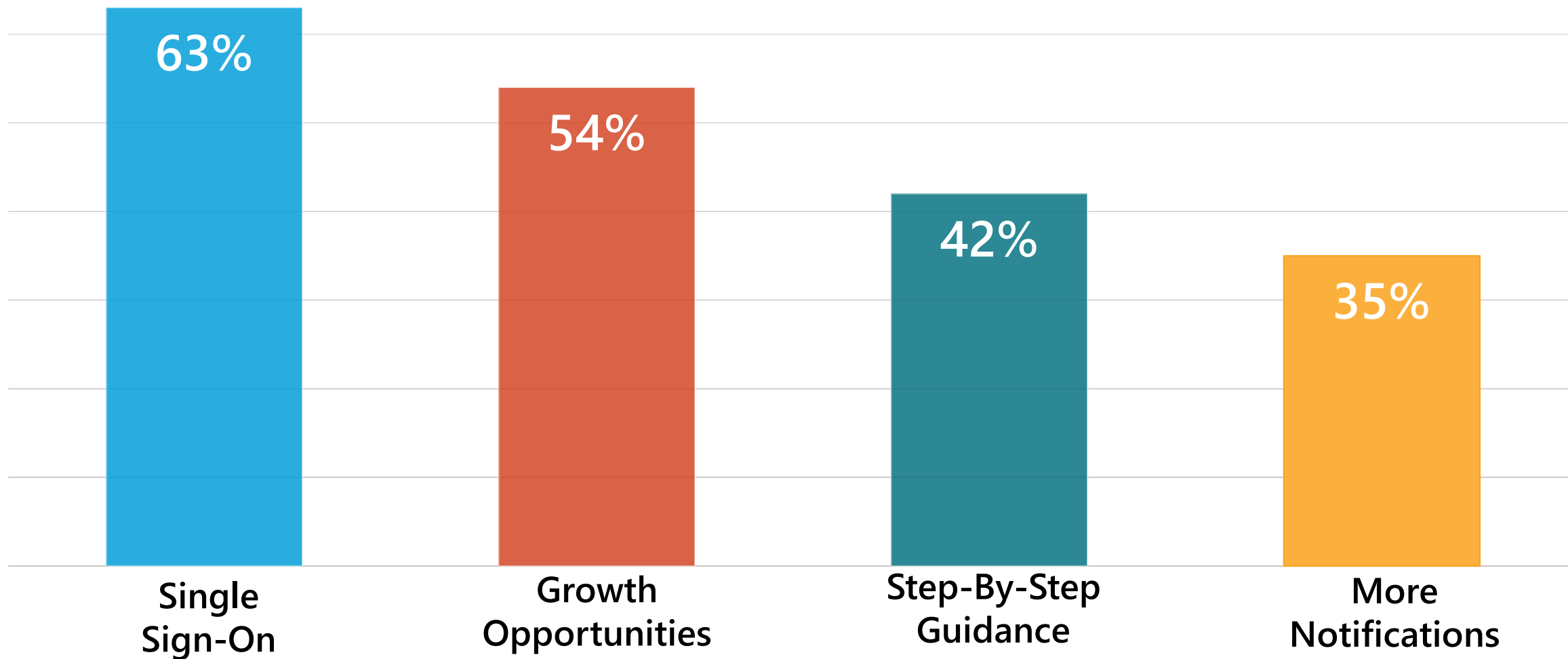
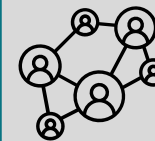
BUSINESS LEADER INTERVIEWS

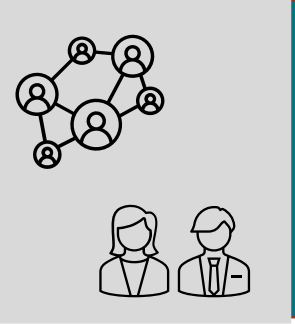


- Diverse representation — 9 key market segments
 - Small Businesses (< 25 employees)
 - Large Businesses (25 - 500 employees)
 - Extra Large Businesses (> 500 employees)
 - New Businesses (< 3 years old)
 - Existing Businesses (> 3 years old)
 - Domestic Businesses (incorporated in ND)
 - Foreign Businesses (not incorporated in ND)
 - Primary Sector Businesses
 - Non-Primary Sector Businesses



TOP REQUESTS





ANTICIPATED TIMELINE

PHASE 4 – Integrated Workflow
User has no idea they are working with different agencies.

PHASE 3 – Business Alignment
Workflows integrated for the user. User still interacts with different agency operational systems.

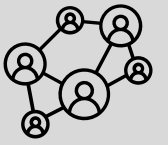
PHASE 2 – Identity & Single Sign-On
Align remaining identities with North Dakota single sign-on.

PHASE 1 – Links & Workflows
Bring workflows together in a single location.



USER EXPERIENCE

COLLABORATIVE EFFORT



Phase 1 focus

- Department of Commerce
- Job Service
- Secretary of State
- Tax Department
- Workforce Safety & Insurance

In collaboration with:

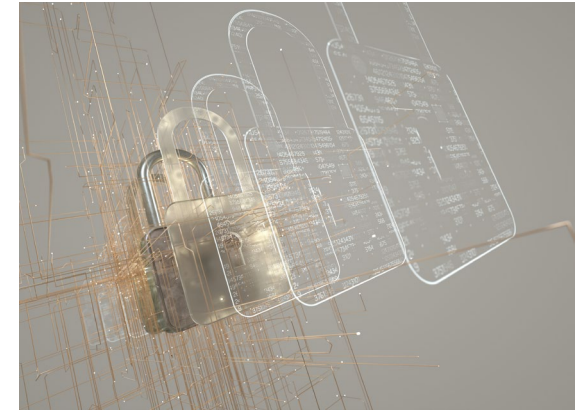
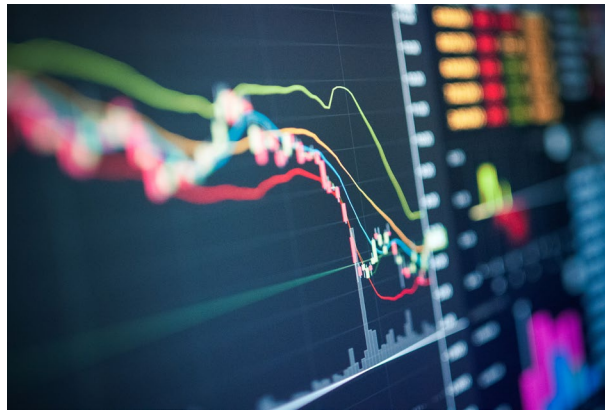
- Governor's Office
- Information Technology
- Bank of North Dakota

UNIVERSAL VULNERABILITY MANAGEMENT



NDIT 2023-2025 Universal Vulnerability Management

Program - NDIT Operations	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	0.0	\$ 765,000	\$ -	\$ -	\$ 765,000
					-
One-Time Funding		7,132,500			7,132,500
Total	0.0	7,897,500	-	-	7,897,500

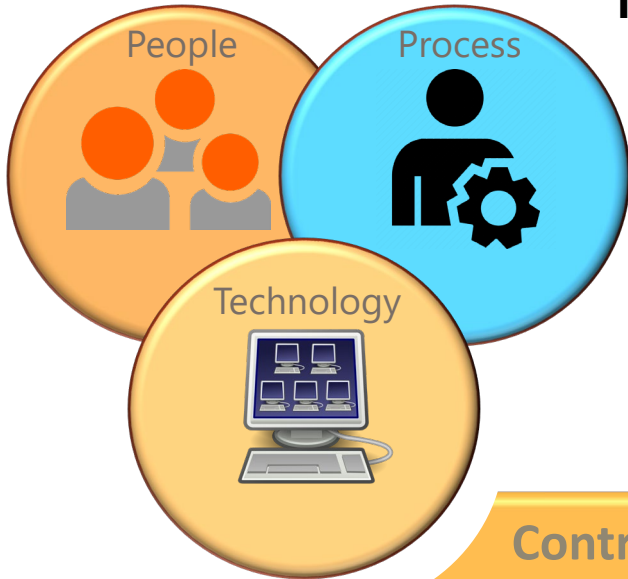


RISK REMEDIATION - HOW



If not addressed, there is a potential massive cost to North Dakota as a whole

- Inherent risk to ND citizen data per Ransomware attack: \$2.7B
- Risk of not patching NDIT-managed devices for each attack: \$175M
- 2022 cost of healthcare breach: \$10.1M
- Effects on ND citizen impacted by data compromise:
 - financial, emotional, reputational

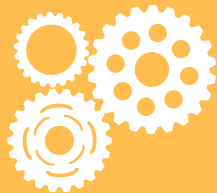


Contractors

Used for a one time burn down of vulnerabilities

65% for Technology Division

35% for Data Division



Process

NDIT Oversight

1. Customer Success
2. Support
3. Service Desk
4. GRC



80-95%

Reduction in backlog of critical exploitable vulnerabilities



Tooling to fix application vulnerabilities before they reoccur

Technology

NDIT RESOURCES & INFLATIONARY INCREASES



NDIT 2023-2025 NDIT Resource Needs

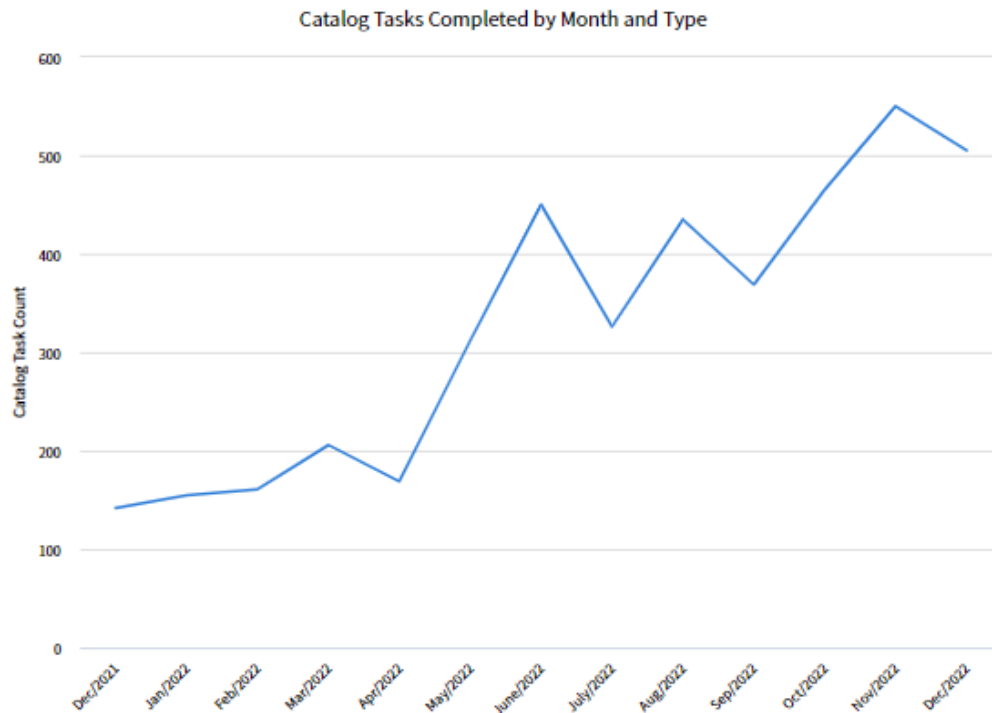
Program - NDIT Operations/Edutech/K12/GIS	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	17.0	\$ 444,258	\$ 2,899,442	\$ -	\$ 3,343,700
FTE Transfers from DOOCR, INS	3.0	-	559,876	-	559,876
One-Time Funding - Operations	0.0	1,750,000	4,650,000	-	6,400,000
One-Time Funding - EduTech	0.0	\$ 500,000	\$ 1,025,000	\$ -	1,525,000
One-Time Funding - K12 Network	0.0	500,000		-	500,000
One-Time Funding - GIS	0.0	100,000		-	100,000
Total	20.0	3,294,258	9,134,318	-	12,428,576

NDIT RESOURCES & INFLATIONARY INCREASES



End User Compute

- Large Increases in Demand
- Efficiencies Gained through Collaboration and team reorganization



Upcoming Challenges – New Work

- Managed Print Services
- Increased O365 Adoption – Increased Statewide Collaboration
- Virtual Desktop Infrastructure
- Endpoint Encryption and Security Vulnerability Management



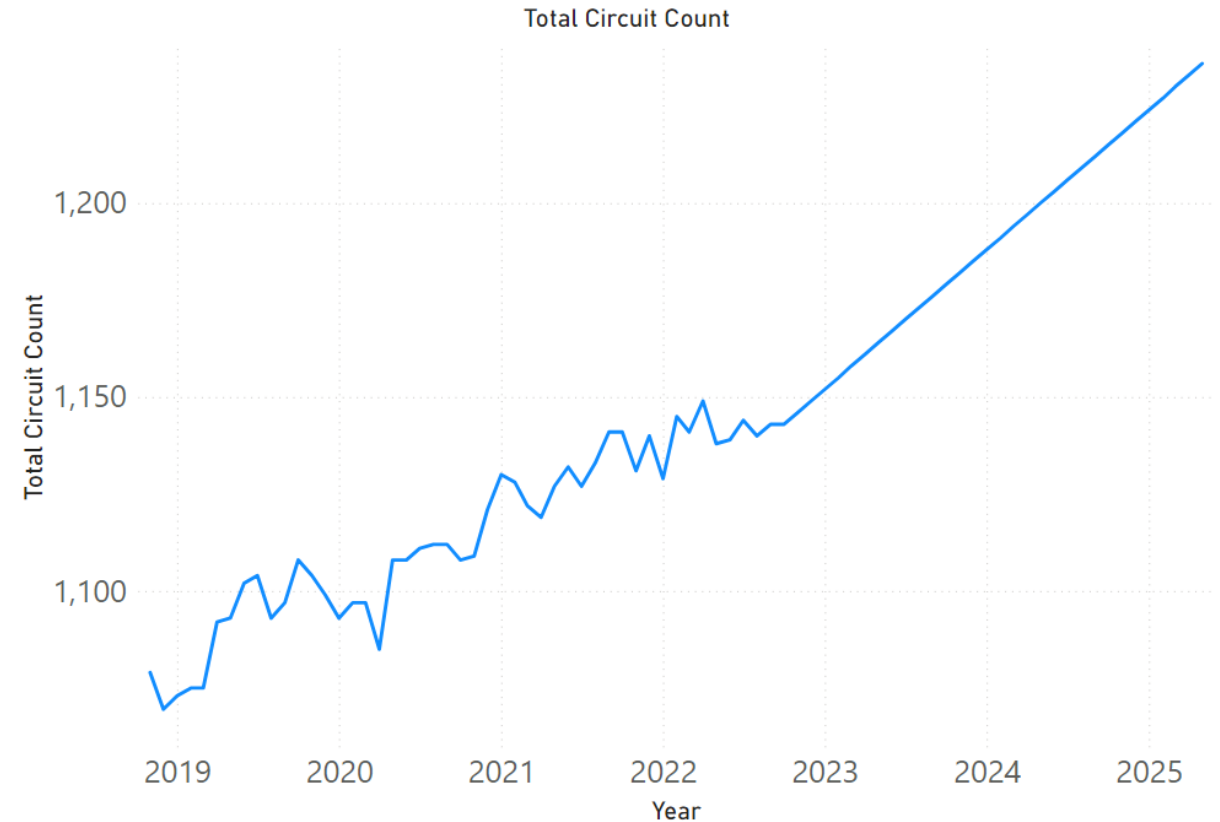
NDIT RESOURCES & INFLATIONARY INCREASES



Network - STAGEnet

- 6000 Production Devices
 - Wireless Access Points
 - Switches
 - Firewalls
 - Routers
- 1000 Locations across the entire State
- 20 FTE
- 252,000 endpoint/devices connect to StageNet
 - Responsible for nearly all Public Safety/Law Enforcement, Education, Drones, in the State of North Dakota.
 - Failures in this realm can put lives at risk.

Circuit Growth from 2019 – 2025 (Projected with BVLOS and SIRN)



NDIT RESOURCES & INFLATIONARY INCREASES



Intelligent Transportation Systems

- PTZ Highway Cameras
- Message Boards
- Collision Warning Systems
- Mobile RWIS (Snowplows)
- Automatic Traffic Recorders

ITS Systems -
2011

47

ITS Systems -
Present

335

*1447 Individual
Devices

ITS Systems -
Planned

~500+



NDIT RESOURCES & INFLATIONARY INCREASES



Consolidated Public Safety Team

- Next Gen 911 Support (256,000 911 Calls each year)
 - Added six 911 Call Centers to Vesta last Biennium
 - Added additional network redundancy
- SORN
 - Adding Centralized Radio Management
 - Tower Sites Increasing from 45 to ~150
 - New Department of Emergency Services CAD System (300% growth over the prior system) and providing modern capabilities.
 - Body Camera Support (150+) across Highway Patrol and other partner agencies.
- Silver/Amber Alerts
- This technology directly impacts citizens at times when lives are on the line.
- Growing Need to Support all Public Safety Facilities (State Penitentiary, Correctional Centers) Technology

PUBLIC SAFETY COMMUNICATIONS IN ND

- 
- 20,000 Users & Devices
 - 900+ Public Safety
 - 114 Law Enforcement Agencies
 - 175 EMS Departments
 - 359 Fire Agencies
 - Public Sector Entities
 - Public Works, Highway Depts, Public Health, Hospitals & School Transportation



**NORTH DAKOTA
STATEWIDE
INTEROPERABLE
RADIO NETWORK**



NDIT RESOURCES & INFLATIONARY INCREASES



Nationwide, in just three months in 2022 State governments hired....



194
CYBERSECURITY-RELATED PROGRAMS MOVING FORWARD

+ 120 Occupations added to programs



<https://www.apprenticeship.gov/apprenticeship-industries/cybersecurity>

7,965
APPRENTICES



2,100
female



3,748
people of color



3,208
youth

1 Apprentice

We would like to grow this program to 6 apprenticeships throughout NDIT



Over 80% Conversion Rate For Interns to FTE's

2020-2021 Timeframe

Barriers impacting the development and support of IT workforce

1. Lack of qualified candidates

2022 Deloitte – NASCIO Cybersecurity Study

Top talent management practices to attract and retain cyber workforce nationwide in state government

1. Internships
2. Apprentice programs

2022 Deloitte – NASCIO Cybersecurity Study



STATS

- In 2020-21, ND Universities only graduated **289** students with a degree or certificate in Computer & Information Sciences
- **2,230:** Average Job Postings in the last 12 months
- **1.3%** Unemployment Rate as of July 2022
- **37.4%** Projected Growth for the next 10 years

ND Industry Analysis – Dakota Digital Academy

SECURITY EXPERT (DOOR SECURITY)



NDIT 2023-2025 Executive Budget - Security Expert

Program - NDIT Operations	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	0.0	\$ 226,900	\$ -	\$ -	\$ 226,900
One-Time Funding (SIIF)	0.0	-	2,499,467	-	2,499,467
Total	0.0	226,900	2,499,467	-	2,726,367



SECURITY EXPERT



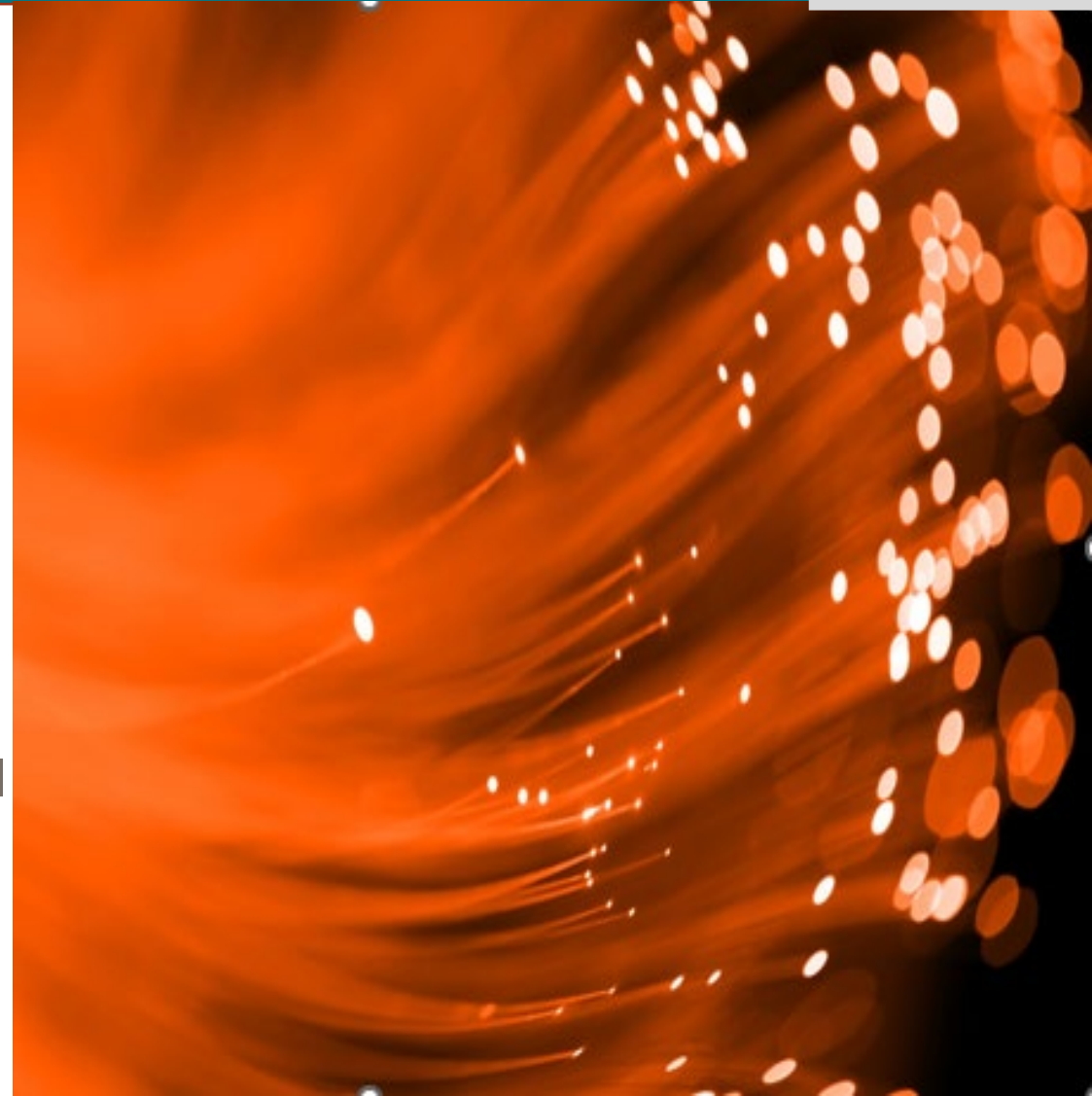
- Whole of Government Approach to Security and Maintenance Systems
- Current system is End Of Life Soon
 - New physical hardware not compatible with current system
 - No Mobile Support
- Benefits
 - Modern system with modern authentication
 - More secure facilities at the Capitol Complex
 - Better reporting for security access
 - Visibility into the enterprise
 - Single Solution for all facilities on Capitol Campus



SECURITY EXPERT – CAPITOL UPGRADES



- Aging Capitol Network Infrastructure
 - Current fiber cabling is 15-25 years old
 - Inconsistent with current standards
 - Difficult and time consuming to run new fiber
- Benefits
 - Faster Wireless
 - Faster 100 GB Network
 - Faster Connectivity to the Data Center in the Capitol
 - Easier and faster to replace damaged cables
 - Easier to add capacity in the future

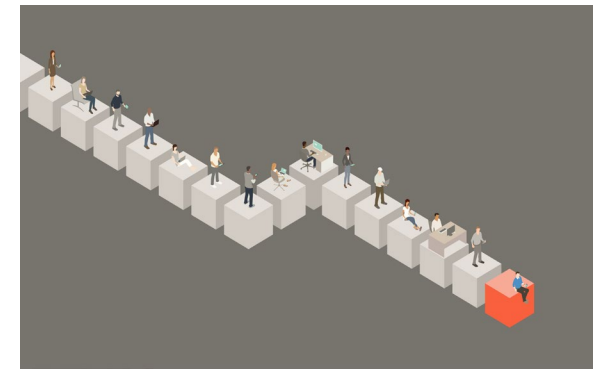




STATEWIDE LONGITUDINAL DATA SYSTEM (SLDS)

NDIT 2023-2025 Executive Budget - SLDS

Program - SLDS	FTE	General Funds	Special Funds	Federal Funds	Total
Statewide Longitudinal Data System	0.0	\$ 3,000,000	\$ -	\$ -	\$ 3,000,000
One-Time Funding	0.0	1,075,000	-	-	1,075,000
Total	0.0	4,075,000	-	-	4,075,000



SLDS GROWTH & ENHANCEMENTS



Public Data Download

Researchers can download datasets to conduct their own research.



Training

Multiple training opportunities within the SLDS exist for both in-service and pre-service educators.



Reporting Tools

Reporting tools are provided to schools, students, agencies, and the public to explore and analyze data.



PK-12 Public Education

The public may view education data on a state, district, or school level.



Career and Technical Education

View Career and Technical Education data including the pathways to careers and skills.



Higher Education

The public may view post-secondary education system data by college / institution or program / degree offerings.



Research Support

Research is conducted to provide policy makers and agencies insight into outcomes of participants.



Workforce

The public may explore job openings, occupations, high demand careers, and post-secondary outcomes as it relates to ND workforce.



Digital Credentialing

Citizens will own their education and employment credentials and be able to share them with future employers and education-training providers.



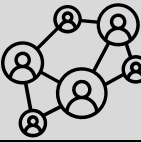
SLDS 2021-2022 KEY ACCOMPLISHMENTS



- CTE
 - Insights expanded to include CTE and defined more distinct pathways to completing an Area of Study.
- Digital Credentials
 - Published the eTranscript as a Comprehensive Learner Record to a web and mobile **wallet**.
 - Citizens will own their education and employment credentials and be able to share them with future employers and education-training providers.

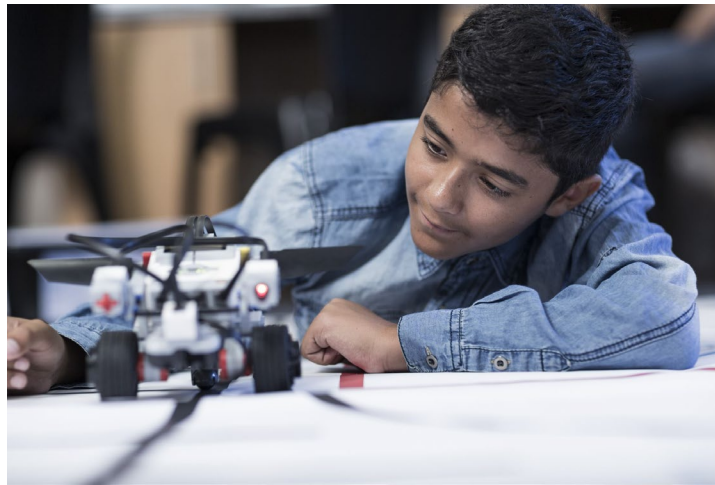
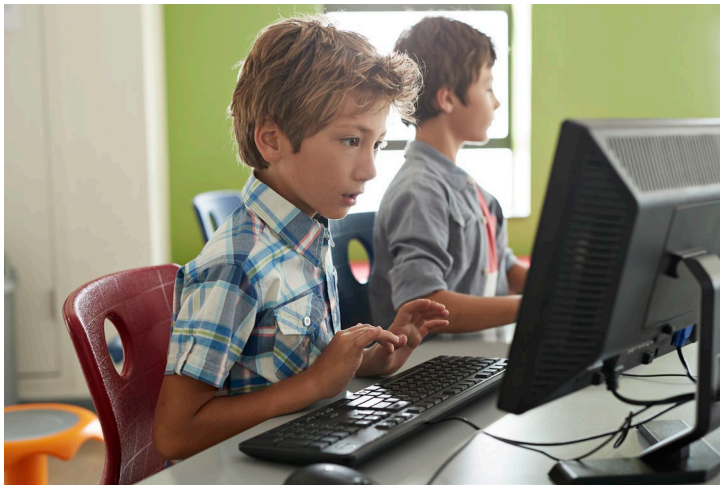


K-12 CLASSLINK

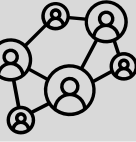


NDIT 2023-2025 Executive Budget - K-12 Classlink

Program - K-12 Network	FTE	General Funds	Special Funds	Federal Funds	Total
K-12 Network	2.0	\$ 1,905,888	\$ -	\$ -	\$ 1,905,888
Total	2.0	1,905,888	-	-	1,905,888









CLASSLINK



- Pilot (2022)
 - Easy, fast, and secure way for students and families to use classroom technology
 - 24 districts with 21,000 students and teachers.
- Single Sign-On
 - Simplify access to educational technology tools
 - Increased Security for educational tools
- Analytics
 - Show tool usage by the district, school, classroom, and student to help educators and leaders make decisions on educational tools
- Support
 - Implementation and Training Resource
- Replaces Aging Identity Management Infrastructure



 LaunchPad End the painful student login process. Save time and cut confusion with single sign-on to a library of 6,000+ connectors. Learn More	 Analytics Make informed purchasing and training decisions with access to usage data for all of the digital resources in your district. Learn More	 Roster Server Deliver class rosters to all of your digital learning resources instantly and securely using open data standards. Learn More
 OneSync Reduce the time it takes to create and manage student and staff accounts with secure, automated account provisioning. Learn More	 Analytics+ Gain usage data for all the digital resources used on school-owned devices, even those accessed outside of ClassLink. Learn More	 MFA ClassLink supports MFA (multi-factor authentication) for users based on their profile. Choose from several second-factor options. Learn More



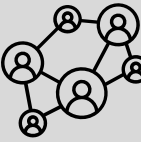
ND HEALTH INFORMATION NETWORK (NDHIN)

NDIT 2023-2025 Executive Budget - Health Information Network

Program - HIN	FTE	General Funds	Special Funds	Federal Funds	Total
Health Information Technology	0.0	\$ 3,000,000	\$ 3,000,000	\$ (6,000,000)	\$ -
Total	0.0	3,000,000	3,000,000	(6,000,000)	-

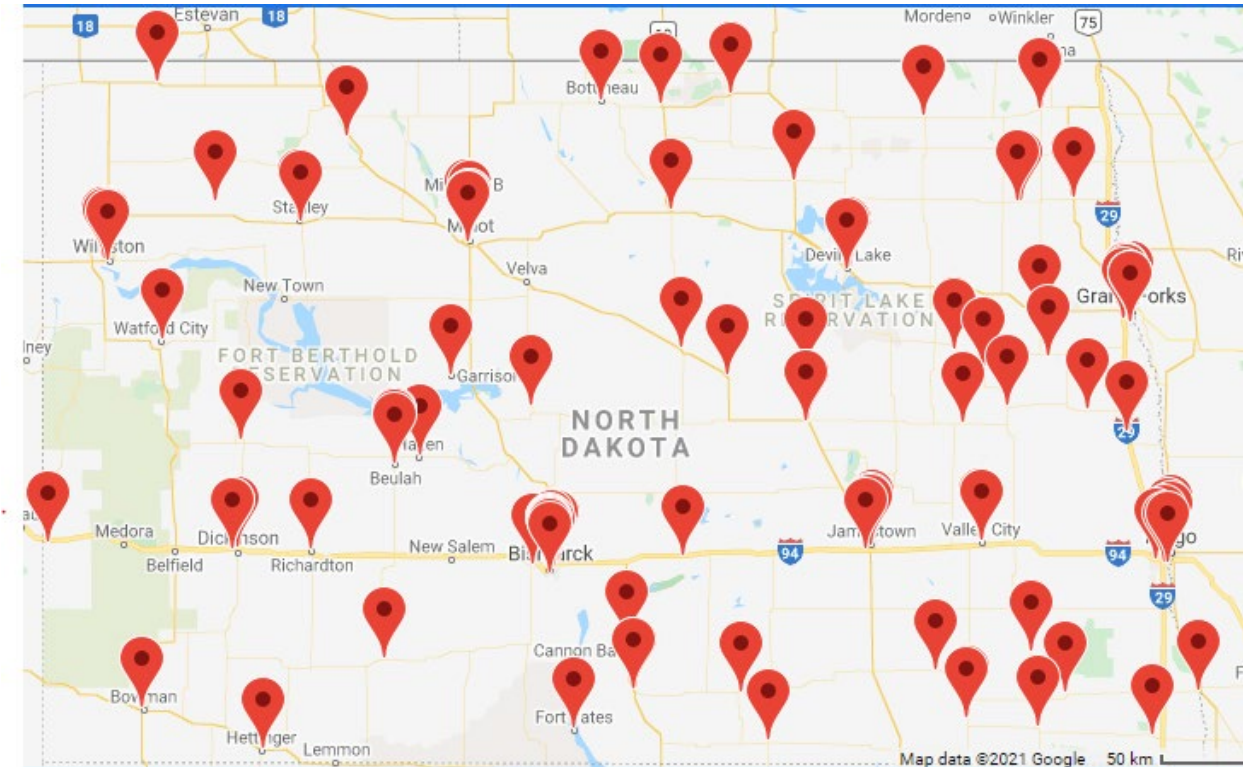


ND HEALTH INFORMATION NETWORK (NDHIN)



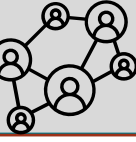
2022 SNAPSHOT

- 352 Participation Agreements
- 1.47M Unique Patient IDs
- All tertiary and Critical Access Hospitals participating
- Data feeds increased from 361 feeds in 2018 to 679 feeds in 2022
- 5331 Active Users

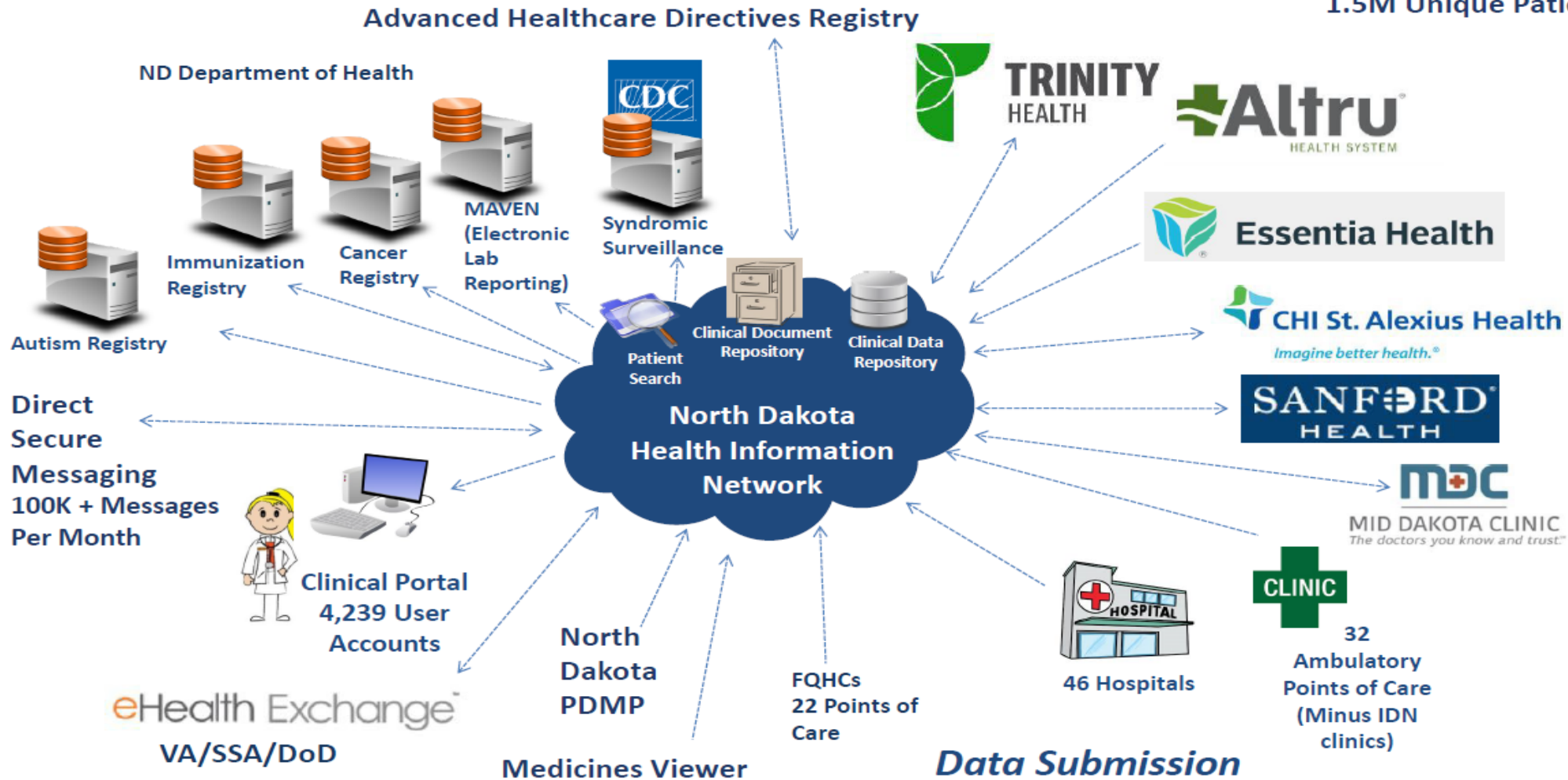


<https://www.ndhin.nd.gov/providers/providers-map>

NDHIN FUNCTIONALITY & SERVICES



1.5M Unique Patient IDs



NDHIN PUBLIC HEALTH COLLABORATION

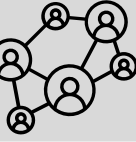


Electronic Public Health Reporting

- Meets regulatory compliance required by ND HHS and ND Century Code
- Ensures reporting is done in a timely manner
- Facilitates electronic reporting of immunizations, syndromic surveillance, and labs to eliminate manual data entry
- Routing Electronic Lab Reporting/Reportable Conditions to the State and CDC
- Electronic Test Orders and Results (ETOR)
- Meets regulatory reporting requirements for Merit-based Incentive Payment System (MIPS)

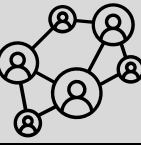


BENEFITS TO CITIZENS



- Reduce misreporting or gaps in transitions of care provided
- Help avoid usage of paper records or fax/scanned information
- Enhances quality and safety of care as well as patient privacy
- Sensitive data remains safe and protected
- Reduces costs and saves time and resources
- Helps avoid manual data input and related errors
- Allows accurate and quicker collection of public health data

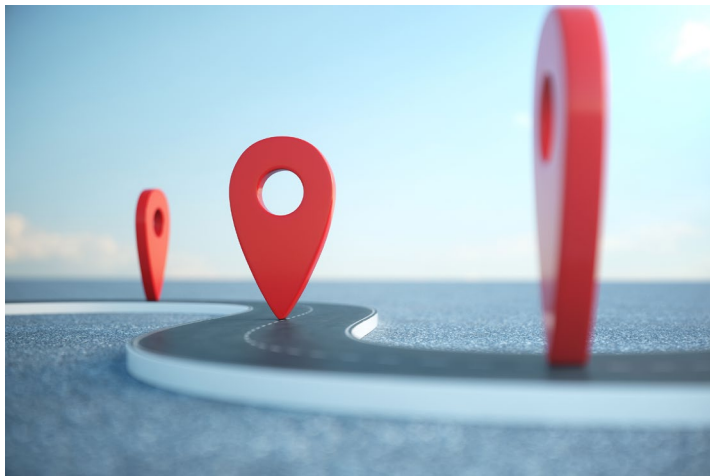




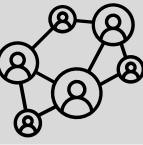
STATEWIDE INTEROPERABLE RADIO NETWORK (SIRN)

NDIT 2023-2025 Executive Budget - Statewide Interoperable Radio Network

Program - SIRN	FTE	General Funds	Special Funds	Federal Funds	Total
Public Safety - (E911/SIRN)	0.0	\$ -	\$ 4,200,000	\$ -	\$ 4,200,000
One-Time Funding (BND Profits)		\$ -	\$ 20,000,000	\$ -	\$ 20,000,000
Total	0.0	-	24,200,000	-	24,200,000



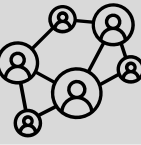
PUBLIC SAFETY COMMUNICATIONS IN ND



➤ SIRN Project Has 3 Main Phases

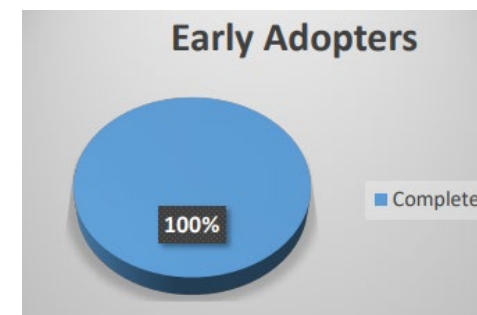
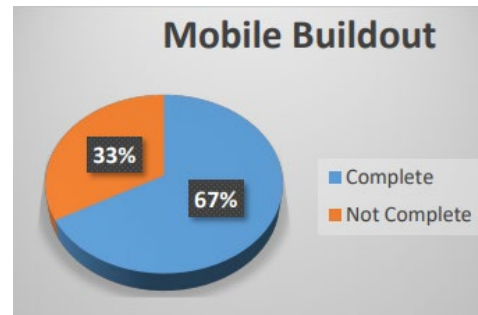
- Phase 1: Backhaul and PSAP Console Replacement
- Phase 2 – Group 1: Radio Frequency (RF) Buildout for Mobile (In-Car Radio) Coverage to include Simulcast Early Adopter Locations
- Phase 2 – Group 2: Radio Frequency (RF) Buildout for Portable (Handheld Radio)

PROJECT TIMELINE AND ESTIMATES



1/19/2024
Contract Extension

ID	Task Name	2020				2021				2022				2023				2024				2025	
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
1	Group 1 PSAPs - COMPLETE	[Green bar from Q1 2020 to Q4 2023]												COMPLETE									
2	Group 1 Towers (Mobile Coverage)	[Blue bar from Q1 2020 to Q4 2023]												67% COMPLETE									
3	Group 2 Towers (Early Adopters)	[Blue bar from Q1 2020 to Q4 2022]												COMPLETE									
4	Group 2 PSAPs - COMPLETE					[Green bar from Q3 2021 to Q4 2021]								COMPLETE									
5	Lease Tower Sites (estimate) Portable Coverage									[Blue bar from Q1 2022 to Q4 2025]													
6	Group 3 PSAPs					[Green bar from Q2 2021 to Q4 2021]								COMPLETE									
7	Group 4 PSAPs									[Green bar from Q1 2022 to Q4 2022]				COMPLETE									

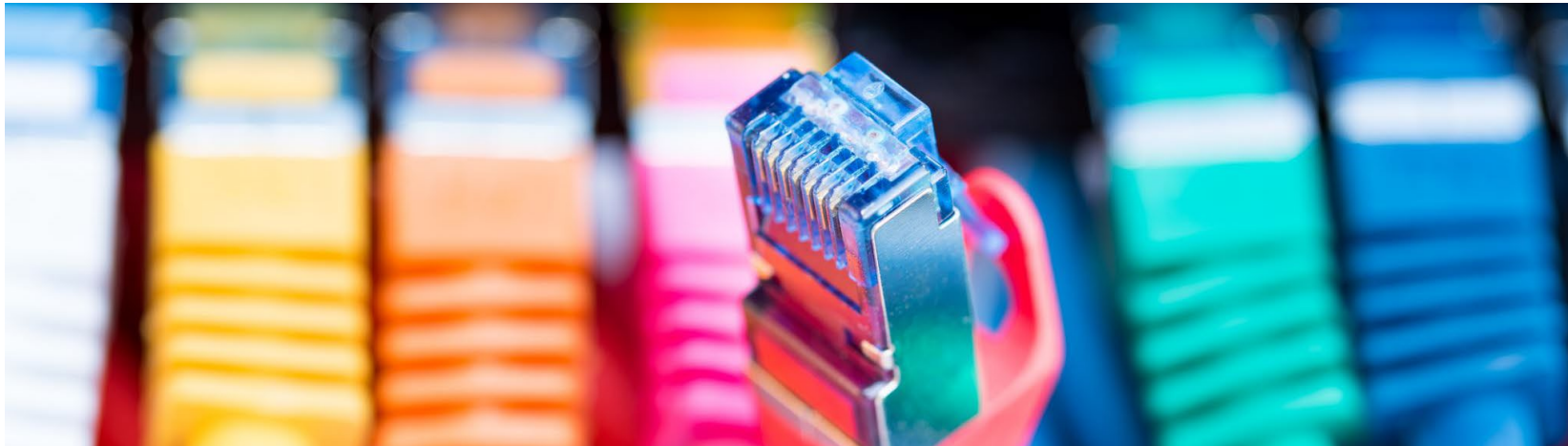


ARPA AND IIJA FEDERAL FUNDS

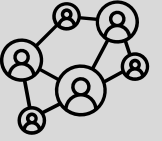


NDIT 2023-2025 Executive Budget - ARPA / IIJA Federal Funds

Program - ARPA / IIJA	FTE	General Funds	Special Funds	Federal Funds	Total
Capital Projects Fund (ARPA)	0.0	\$ -	\$ -	\$ 45,000,000	\$ 45,000,000
Infrastructure Investment and Jobs Act (IIJA)	0.00	\$ -	\$ -	\$ 148,250,000	\$ 148,250,000
Total	0.0	-	-	193,250,000	193,250,000



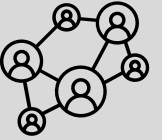
ARPA FEDERAL FUNDS - BROADBAND



- ND Grant Program (45M authorized by 2021 special session) launched fall 2022
 - US Treasury approval took longer than expected
- 12 grant application received and under review
- Grant awards expected in Q1 2023
- Spending authority required to administer the program and to release funding aligned with milestone dates



IIJA – BROADBAND PROGRAMS



BEAD Program:

Broadband, Equity, Access and Deployment Grant

- 42.5B federal program to expand high-speed infrastructure and adoption
- ND to receive 100M+
- Exact amount to be determine by mid 2023
- Priority:
 - Finish Infrastructure
 - Digital Equity

DE Program:

Digital Equity Act

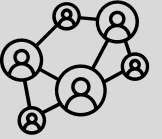
- 2.75B federal program to ensure all people and communities have the skills, technology, and capacity to reap the full benefits of a digital economy
- Two programs:
 - Digital equity capacity program (1.44B – ND share unclear at this time)
 - Digital equity competitive program(1.25B)

Broadband Plan

A comprehensive five-year broadband plan is a **pre-requisite** for both the BEAD program and DE program which is due fall 2023

ND already received 5M under the BEAD program and 516K under the DE program to create this plan which is underway

IIJA – CYBERSECURITY PROGRAM

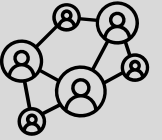


- Infrastructure Investment and Jobs Act (IIJA)
- IIJA bill was passed August 10th, 2021, for Political Sub-Divisions (PSDs)
- Notice of Funding Opportunity (NOFO) was finally released late September 2022
- The Federal Government allowed three weeks to respond
- What did we do:
 - Formed a state-wide task force aka Project Bulldog
 - Brought together schools, cities, counties, public health, etc.
 - Created a project charter
 - Finalized ~40 page “Whole-of-State Cyber Security Plan”
 - Developed a prioritized list of projects to reduce cyber risk state-wide
 - Successfully submitted the grant request

In the less three weeks the North Dakota team completed this process. More than ½ of US states have asked for extensions and have not yet applied



IIJA – CYBERSECURITY PROGRAM



IIJA Funding – A One State, One Security Approach

1 DEFEND
Defend against threats to North Dakota's citizens and critical infrastructure



2 DELIVER
Deliver world-class, highly automated and intelligent cybersecurity services



3 ACCEPT
Adopts a whole-of-government approach to cybersecurity



4 PREPARE
Prepare today's students & workforce for tomorrow's threats



IIJA Funding – Why This Should Be Funded

1. IIJA was approved late, Political Sub-Divisions (PSDs) do not have the funds allocated for the match in 2023
2. Cyber is not generally prioritized by PSDs
3. We are all on STAGEnet, risk impacts us all
4. PSD's have 209,897 number of vulnerabilities
5. Small entities are not able to do this on their own
6. Raises the bar and helps protect citizen data

IIJA Funding – How Will Funds Be Used

1 ✓

Replacement of out-of-date, obsolete hardware

2 ✓

Standardized Network / Systems security and device management

3 ✓

Standardized Cyber Maturity Assessment to be performed yearly

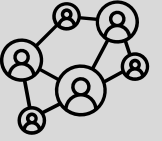
4 ✓

Skills training to enhancing Political Sub-Divisions cyber capabilities

IIJA Funding – How Does This Help the State

1. Reduces Risk
2. For \$254K investment, we get ~\$2.5M amount in funds
3. Demonstrates the "Whole-of-State" approach
4. Close vulnerability gaps in cyber security areas

IIJA- FUNDING BREAKDOWN



Federal Fiscal Year	Federal Award (DES)	State Match	State Portion	Local Portion	Total Award
2022	\$ 2,286,951	10%	\$ 254,106	\$ -	\$2,541,057
2023	\$ 4,573,902	20%	\$ 571,738	\$ 571,738	\$5,717,378
2024	\$ 3,430,427	30%	\$ 490,061	\$ 980,122	\$4,900,610
2025	\$ 1,143,475	40%	\$ 190,579	\$ 571,737	\$1,905,791

TOTAL BUDGET APPROPRIATION



NDIT 2023-2025 Total Budget Appropriation

Program	FTE	General Funds	Special Funds	Federal Funds	Total
NDIT Operations	475.0	\$ 26,260,989	217,637,666	512,500	\$ 244,411,155
Public Safety - (E911/SIRN)	1.0	1,858,240	16,579,936	-	18,438,176
K-12 Network	4.0	4,712,290	90,000	-	4,802,290
Geographic Information System	1.0	1,064,917	-	65,679	1,130,596
Statewide Longitudinal Data System	7.0	7,140,381	-	500,000	7,640,381
EduTech	28.0	3,110,231	6,649,594	500,000	10,259,825
Health Information Technology	4.0	3,000,000	5,819,615	-	8,819,615
ARPA / IJA Federal Programs	0.0	-	-	193,250,000	193,250,000
One-Time Funding	0.0	14,313,388	72,074,467	-	86,387,855
Total	520.0	\$ 61,460,436	\$ 318,851,278	\$ 194,828,179	\$ 575,139,893

THANK YOU

- Deputy Chief Information Officer
 - Greg Hoffman – gahoffman@nd.gov
- Chief Customer Success Officer
 - Evonne Amundson – eamundson@nd.gov
- Chief Information Security Officer
 - Michael Gregg – mgregg@nd.gov
- Chief Data Officer
 - Ravi Krishnan – rkrishnan@nd.gov
- Chief Technology Officer
 - Craig Felchle – cdfelchle@nd.gov
- Director of Operations
 - Shelly Miller – shmillier@nd.gov





EMPOWER PEOPLE.

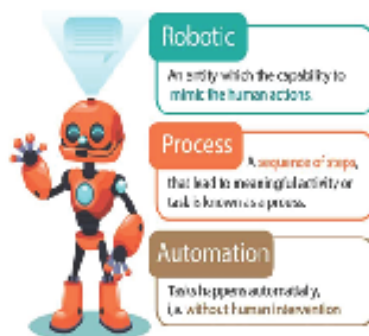
IMPROVE LIVES.

INSPIRE SUCCESS.



Appendix

WHAT IS ROBOTIC PROCESS AUTOMATION?



Using Automation to Empower People

We are using automation to improve lives and empower people across NDIT and other Agencies. Automations are being used to save users time and free up users' time to better serve the citizens of North Dakota.

What are these automations?

These are various processes for both NDIT and DHS that used to require data entry into websites and applications that have been automated with the assistance of robotic automation.

We have a goal to Automate 20% of all work in Government.

Projects that have been automated:

- **Accounts Payable Verizon**
 - Invoice download and watermarking of invoices and entering of invoice data into excel for record keeping
- **Gov Delivery**
 - Automation of Email Distribution lists
- **MyAvatar**
 - Entry of user forms into the MyAvatar system for updating and creating profiles
- **Surplus Asset Management**
 - Entering and updating Asset works and service now for marking electronics such as laptops that are being moved to surplus
- **HCBS Overtime Payments**
 - Submission and approval of overtime payments within the MMIS web portal
- **PeopleSoft UserID Creation**
 - Creation and deletion of users in the PeopleSoft website

IMPACTS OF AUTOMATION

With our Surplus Asset Management project, we have saved 183 hours of manual work a year. With the MyAvatar project we are saving an estimated 486 hours of work per year. Between Verizon, Gov delivery and Peoplesoft User id creation over 124 runs those 3 processes have saved 7872 minutes of labor.

THIS PERIOD:

MINUTES
SAVED
7476

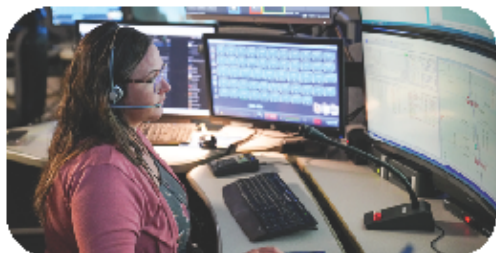
AUTOMATED
RUNS
106

CUSTOMER SUPPORT AND GOALS

We support our customers with quick responses if anything in the automation has failed, we are immediately notified by email to fix any issues quickly. We assist in answering questions related to finding automations and showing the cost savings of automation.

On the Automation Team we are always looking for processes that can be automated to assist customers with their current workload and provide a cost savings with automation.

To serve the mission critical public safety technology needs of our first responders and citizens.



HIGHWAY PATROL

- In car technologies
 - Radios
 - In car ruggedized computers
 - Dash Cameras
 - Body Cameras
- Computer aided dispatch
 - First responder GPS Tracking
 - Mapping
 - Dispatched events from state radio
- TraCs
 - Citation System

CORRECTIONS SECURITY

- Doors/Cells, Alarms, Intercoms
- Video security
- Key Management
- Fence & Perimeter Systems
- Radio Management

STATEWIDE INTEROPERABLE RADIO NETWORK (SIRN)

The ability to communicate is critical in an emergency. Goals of SIRN are to increase interoperability, increase radio coverage, decrease the number of disparate radio systems, and modernize the features and functionality of the radio network.

Key benefits include:

- 140 total cell tower sites, include 45 Department of Transportation radio towers and adding 95 towers, which will reduce congestion and enable better in-building penetration.
- 20,000 Radios for emergency responders, law enforcement, fire, ambulance, state agencies (HP, G&F)
- Open spectrum means there will be no channel scarcity, which will lessen interference and eliminate VHF skip.
- Compliant with federal standards and FBI security policy that requires ALL communication of FBI criminal justice information to be encrypted (e.g. warrants, missing persons, wants & any information obtained from NCIC.)
- The ability to communicate with ANY PUBLIC SAFETY PERSONNEL, AS NEEDED, ANYWHERE, in the state.
- 95% coverage for mobiles and 85% coverage for portables for each region with 95% reliability within the state.
- 230,000 calls to 9-1-1 each year. 9-1-1 calls are received every 2 minutes, 24 hours a day, 365 days a year

Visit SIRN2020.nd.gov for more information

NDIT Data Science and Analytics

Realize the power of your data for the citizens you serve!

The NDIT Data Science and Analytics team provides data science and advanced analytic services to assist you on your journey navigating the new data normal.

Move Toward Analytic Maturity

Data maturity provides greater insight, improves operations, and helps Team ND more effectively serve the citizens of North Dakota. A strong analytics practice can improve service quality and decision making. Wherever you are on your data journey, the Data Science and Analytics (DSA) Team can help you leverage your data in a powerful way to unlock new insights and innovations. With the DSA Team's knowledge around data science and advanced analytics, you can explore the utility of your existing data to maximize use, identify and problem solve any existing gaps, and facilitate data practice that allows you to turn ideas into reality.



Increase the Power of Your Team

The DSA Team provides objective peer support to your staff so they can gain confidence while developing a deeper understanding of new methods and tools. Additionally, DSA can help refine your existing practice so that your analysts can answer more complex questions. We can help your team streamline existing data processes and create analytic models to reduce the time needed for manual maintenance. The DSA Team can help you give your subject matter experts the support they need to drive innovation and soar to new data-driven heights.

**Ask questions → Get data → Enhance data → Explore data → Build a process
→ Make data driven decisions**

Service Offerings

Scan for our
website and
example
projects



We offer full service or consultative assistance with the following:

Descriptive Analytics

Quantitative summaries such as counts, averages, percentages, and trends over time that describe programs, services, or populations.

Predictive Analytics & Significance Testing

Statistical or machine learning models used to identify, understand, and analyze data to determine significant predictors, patterns, and to estimate future trends.

Survey Design, Development, and Analysis

The creation and deployment of internal or external surveys to collect data in an unbiased way and a summarization of the insights gained from that data.

Sample Selection

The identification and selection of a statistically valid subset within a population for use in meaningful analysis or evaluation.

Data Visualization

Effective visual presentation to enhance meaning, inspire action, and help convey a data storyline.

Exploratory Data Analysis

An open-ended initial step to data analysis used to better understand data and to assess possibilities, uncover patterns, and discover new insights.

Data Analysis Automation

Code-based or self-service solutions used to streamline routine and time-consuming data analysis tasks to reduce manual effort, free up staff time, and produce quicker results.

Data Science and Analytic Project Development

The definition of analytic goals and activities to ensure the data used for a project is optimal and the analysis plan is appropriate to provide the desired actionable insights.

The North Dakota Health Information Network (NDHIN) is a statewide interoperable health information exchange (HIE) connecting diverse providers, hospitals, clinics, and labs to make electronic health information available on demand at the point of care.

Collaborative. As a state based HIE, NDHIN collaborates with sister agencies. NDHIN played a major role in supporting Medicaid providers and hospitals to receive incentives for adopting electronic health records.

COVID-19 Response. NDHIN provides the infrastructure that supports most of the North Dakota Department of Health & Human Services (ND HHS) public health reporting in ND. During the COVID-19 pandemic, this reporting infrastructure was critical to sustain state and CDC required reporting.

Public Health Reporting. Public health relies on data reported by health care partners, and information technology makes such reporting easier than ever. NDHIN improves the efficiency and quality of public health reporting, facilitates public health investigation, improves emergency response, and enables ND HHS to communicate information to the clinical community.

Electronic Test Orders & Results. Prior to and throughout COVID, NDHIN implemented Electronic Test Orders & Results (ETOR) with large IDNs and out-of-state reference labs. This allowed test orders to go out and come back electronically with the capability of being imported to the electronic health record.

Patient History. Patient information from NDHIN is used to inform healthcare decisions and receive alerts when a patient's health status changes. NDHIN provides a patient's cumulative medical record including critical information such as current problems and medications.

Newborn Screening. NDHIN created a care coordination module to support the ND HHS Newborn Screening Long-term Follow-up (LTFU) program. This program allows ND HHS and the birthing centers of ND to coordinate in the care of ND children diagnosed with newborn screening disorders.

Advanced Directive Registry. Registry developed by NDHIN to allow ND citizens to securely store and share their health care directives. The registry is a self-service tool allowing you complete control over your health care directives. Uploaded advanced directives are viewable by providers in NDHIN portal.

Records for 1.49 million patients

Over 5,000 Clinical Users at

400+ Healthcare Locations
 open to all North Dakota providers

North Dakota Hospitals

- All Acute Care Hospitals
- All Critical Access Hospitals
- ND State Hospital

North Dakota Clinics

- Federally Qualified Health Centers
- All Rural Health Clinics
- Local Public Health Units
- Long Term Care Facilities
- Pharmacies
- Chiropractors
- Correctional Facilities
- EMS

Additional Data Connections

- ND State Lab
- ND Department of Health & Human Services
- Immunization Registry
- Autism Registry
- Disease Surveillance
- Reportable Conditions
- Newborn Screening

National Networks:

- eHealth Exchange
- Carequality
- Patient Centered Data Home (Regional HIE)

An advance directive is only valuable if its available when you need it. Unfortunately, often when people travel their advance directive isn't readily available. Or over time, as changes are made, there ends up being multiple, conflicting copies of an advance directive.

That's why the NDHIN created the ND Health Care Directive Registry, a secure way to store and share your advance directive.

What is the ND Health Care Directive Registry?

A registry that was developed by the North Dakota Health Information Network (NDHIN) for ND citizens to securely store and share their health care directives. The registry is a self-service tool allowing you complete control over your health care directives.

What types of health care records can be saved in the registry?

- Health Care Advance Directive
- Physician Orders for Life Sustaining Treatment
- Medical Power of Attorney

What types of health care records should NOT be put in the registry?

- Wills
- Medical Health Information
- Any information you would not like health care providers or others with access to your pin to see



How it works

The ND Health Care Directive Registry works by allowing you to securely store your advance directive online. Once it's securely stored online, you can use your home printer to print access cards to give to your healthcare provider and store in your purse or wallet.

Who can see it? Is it secure?

Yes, the information you put into the registry is only available to health care providers and the people you share you access card and pin number with. Never share your PIN with anyone you do not want to see your information.

How do I get started?

Go to www.nd.gov/hdir/login

You access your account by logging in with your ND Login Registration. If you do not have a ND login, one can be created by registering on the login page.



Sample PIN Card



4.5 Billion

KNOWN cyber threats per year
(North Dakota)

21 days

to detect an **UNKNOWN** attack
(global)



252,000

Users on STAGEnet on any given day.
This is equivalent to the size of Starbucks,
a Fortune 30 company.

Overall coverage has increased and continues
to move upward toward "All of STAGEnet"

- 263% increase in coverage of antivirus (EDR) in the last two years
- 429% increase in devices scanned over the past two years
- 4% reduction in insurance cost from North Dakota Insurance Reserve Fund (NDRIF) to entities that adopt our security tools

NORTH DAKOTA IS ATTRACTIVE TO AN ATTACKER



UAV/UAS

Nationally recognized leader in Unmanned Aerial Vehicle research and development



MILITARY

Strong military presence in North Dakota, some of which interacts with State network



ENERGY

Number two in the country in oil production



AGRICULTURE

ND is considered to be a development pioneer in Precision Agriculture



BANK

Only state-owned bank with \$10B in assets

RANSOMWARE IS AN INHERENT RISK TO THE STATE

\$2.7 Billion per Biennium

2022 THREATS TO ND BY THE NUMBERS

- 23,167 reported phishing emails for 2022
- 82% increase in ransomware-related data leaks
- 34,000 new vulnerabilities each month
- 182,000 vulnerabilities are backlogged, equaling 7.5 years amount of work at current team capacity

THE NDIIT CYBER TEAM IS CURRENTLY:

- Defending 252,000+ people every day
- Detecting / preventing over 4.5 billion threats on STAGEnet per year
- Handling more than 95% of these threats via automation
- Performing tasks with ½ the staff of a similar sized Fortune 30 company

A TIGHTER DEFENSIVE LINE MAKES:

NORTH DAKOTA CYBER STRONG

- DEFEND** – Defend against threats to North Dakota's citizens and critical infrastructure
- DELIVER** – Deliver world-class, highly automated and intelligent cybersecurity services
- ADOPT** – Adopt a whole-of-government approach to cybersecurity
- PREPARE** – Prepare today's students & workforce for tomorrow's threats

STRIVING TO EFFICIENTLY PROTECT THE STATE OF NORTH DAKOTA

PROBLEM: WORKFORCE SHORTAGE FOR CYBER TALENT

- In 2020-21, there was an average of 2,230 job postings in the last 12 months
- In 2020-21, ND universities only graduated 289 students with a degree in Computer & Information Sciences

SOLUTION: RECRUITING AND TALENT ACQUISITION

- Expand Internship and Apprenticeship programs to attract and retain a cyber workforce
- Establish student Security Operations Center with North Dakota colleges and universities
- Align with ND colleges and universities to ensure students are developing the right skills for the modern workforce
- Continue to generate student interest in cybersecurity by growing programs like Cyber Madness

