

# DIGITAL STRATEGY 2019

SMARTnorthumberland: An intelligent community





# About this report

This document presents the County of Northumberland's first Digital Strategy. It provides information about the overall goals, results of the consultation process, key focus areas and an action plan for implementation.

## Acknowledgements

The Digital Strategy team would like to thank all of the passionate residents, community stakeholders, County staff, and subject matter experts who contributed to the development of this Digital Strategy.

# Alternate formats

If you require this information in an alternate format please contact the Accessibility Coordinator at 1-800-354-7050 ext. 2327.



# EXECUTIVE SUMMARY

SMARTnorthumberland represents a planned, coordinated effort to shape the introduction and use of new technologies in County workplaces and the community. Using information and technology to build an inclusive, prosperous and secure community, this strategy focuses on the critical success indicators of broadband, knowledge workforce, innovation, digital equality, sustainability and advocacy. It is through this alignment that Northumberland County can move towards a more `intelligent community.'

County employees, businesses and residents informed us of their opinions and ideas. These included:

- Broadband availability and capacity as a number one concern
- Internal and community readiness as an important success factor
- Increased collaboration between the County and its member municipalities
- Concerns about security and privacy
- The importance around effective communication and engagement
- Acknowledgement of the potential economic development opportunities and benefits

# Our vision

SMARTnorthumberland: an intelligent community.

# Our mission

To use information and technology to create inclusive prosperity, tackle social and governance challenges, and enrich quality of life.



To achieve this, we will focus on three areas and 10 action items:

#### Workplace focus

- Build the digital infrastructure
- Modernize the workplace
- Transform lines of business

#### Service focus

- Expand community engagement
- Enhance digital service delivery
- Establish an Open Data Initiative

#### Community focus

- Address broadband challenges
- Establish a digital governance framework
- Pursue innovative opportunities
- Facilitate digital literacy

A number of implementation plans are identified that will lead to achieving these action items. Some are short term investments, others longer term developments. In all cases, these plans will be delivered in a manner that identifies the benefits, addresses the risks and details the return on investment (ROI).

Technological change is happening rapidly, and is disrupting the ways that we communicate, do business and live our lives. We can stand by and watch it happen, or we can take an active role and shape it for the benefit of our community. This strategy is a plan to do just that.



# TABLE OF CONTENTS •

PROJECT BACKGROUND	.1
ENGAGEMENT: WHAT WE HEARD	2
Key Themes	
First Choice Preference to Access Information and Services	.4
Challenges to Implementation	.4
Preference for Online Services	.5
AN INTELLIGENT COMMUNITY	6
Broadband	.7
Knowledge Workforce	.7
Innovation	.7
Digital Equality	.8
Sustainability	.8
Advocacy	.8
VISION, MISSION AND GOAL	.9
THE THREE FOCUS AREAS	10
ACTION ITEMS	11
Workplace Focus	11
Service Focus	13
Community Focus	14
IMPLEMENTATION PLANS	17
Workplace Focus	17
Service Focus	19
Community Focus	20
THE PATH FORWARD	22
	24



# PROJECT BACKGROUND o

In 2017, Northumberland County decided to look at the opportunities that technology, and specifically a digital strategy, might offer to the County as a whole. With the ever-growing pace, reliance on technology and technological advancements, governments are recognizing and utilizing these technologies to improve internal business processes, engage and service its residents and create economic value through innovation. In the fall of 2018, development of the County's first digital strategy began.

The initial goals for the development of that strategy were:

- To improve the organization's use of newer technologies to assist with data-driven decision-making
- To create or enhance a digital service delivery model for businesses and residents who interact with the County
- To enable the deployment and use of technology in the community and to facilitate innovation

An engagement firm was contracted to assist with facilitating the engagement component of this strategy to ensure that input was received from local stakeholders. The intent of this phase was to grab a quick `pulse' of staff, businesses and community members' thoughts and opinions regarding technology in the workplace, government and community.

This engagement plan included:

- An industry review of digital strategies for similar-sized organizations
- Interviews with Northumberland County directors
- A facilitation session with Northumberland County Council
- Focus groups and interviews with:
  - Northumberland County staff
  - Local businesses
  - Educational institutions and non-profit organizations
  - Residents
- A general public survey

A culmination of these activities, in conjunction with general industry practices surrounding digital strategy development and digital transformation, led to the identification of the core components of this strategy. This strategy is a living document whose priorities and action items may change as time progresses.

# ENGAGEMENT: What we heard or

Our engagement approach relied heavily on primary qualitative data, allowing us to have fulsome one-on-one or small group conversations to identify and delve into key themes.

We leaned into the community's influencers those organizations and individuals who are already engaging with different demographic and stakeholder groups, and have a strong understanding of their needs and ideas. We reviewed the digital approaches of a number of comparable organizations and also completed a small, local, online community survey which generated a reasonable and valid sample of respondents. The data clarified critical issues and the specific preferences of those currently comfortable with digital services and solutions, while representing those who are not.

"We know that if we change the medium, we can dramatically change how we do business."

# Key themes

#### Communications and engagement are changing

There is a general understanding that information sharing and participation is vital to the community. Digital solutions should be seen as rapidly growing complements to traditional face-to-face activities.

#### County staff are ready

There is a lot of enthusiasm and potential among County staff for this initiative, and they will be an excellent source of ideas and skills. There is awareness that this requires significant investment in both dollars and time, and a risk if it proceeds without.

#### Economic development is dependent on a robust digital infrastructure

There is a clear understanding in the community about how a digital strategy can positively impact business attraction and retention efforts in the County. Concerns about the availability and affordability of broadband in the County from a business attraction viewpoint were voiced. Digital infrastructure was identified as a catalyst for youth retention, incubating business innovations and supporting new ways of working.

#### Intermunicipal collaboration

Community members had a clear sense of how more collaboration could be of benefit; and a continued enthusiasm to integrate more closely at the municipal level was identified.

#### On the project itself

There is a strong commitment to this project from a number of different groups but also an understanding that this will take time and may have significant costs to be successful.

#### Security and privacy

There is a demonstrated understanding and expectation that security would need to be a core component of any digital work. A community cybersecurity strategy was identified as an item that could create value for local businesses and the County.

#### The community is ready

There is an aging/retirement population that prefers consistency and familiarity but with an awareness that change is inevitable. In addition, the economic development sector has high expectations to compete and attract talent.

# Engagement Snapshot

- 19 one-on-one interviews
- 5 workshops
- 8 comparable community reviews
- 323 online survey responses



## First choice preference to access information and services

There is a general understanding that information sharing and participation is vital to the community. Digital solutions should be seen as rapidly growing complements to traditional face-to-face activities. Survey results indicate that 47% of respondents prefer to access information and services online.



# **Challenges to implementation**

4

When asked about potential challenges to implementing this strategy, our respondents identified the following:

Challenge	Score
Broadband access	3.59
Delivering digital services efficiently	3.54
Budget constraints	3.43
Technology modernization challenges	3.42
Privacy or security concerns	3.35
Ease of managing data	3.33
Community engagement	3.29
Public acceptance/willingness	3.17
Different services from County/municipality	3.11
Internal policies/processes	2.96
Available talent	2.60

## Preference for online services

The following services were rated as the most desired for online service availability:



#### Top 10 responses

Emergency preparedness and notifications

Pay for garbage tags

Shared County/municipal calendar Location and info about community services

Report an issue

Receive waste pick-up reminders

Interactive maps

Community Wi-Fi

Access Council information/updates

Business directory

"More education is about what we do as a county and how we function as an organization. We can use technology to better communicate, but underlying this is a more clear sense of who does what. We need to get ahead of this if we want them to use our digital tools properly. It needs to be joint with the municipalities."

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# AN INTELLIGENT Community

The Northumberland County Digital Strategy framework incorporates many of the key elements of the Intelligent Community Forum (ICF) approach. This approach focuses on social and economic growth in the broadband era and highlights the benefits of broadband and technology in community-based best practices. It challenges all communities to work towards creating prosperity, stability and cultural meaning in a world where that is becoming ever more reliant on communications and technology. At the base of this approach is what is termed the 'Broadband Economy'—the product of low-cost, high-speed communications and information technology that connects us at both local and global levels.

Broadband is seen as the new essential service that can create inclusive prosperity, tackle social and governance challenges, and enrich quality of life. Northumberland County's Digital Strategy is aligned with this framework in an effort to bring the benefits of broadband and technology to the County.

Below is a set of critical success factors for the creation of an intelligent community that define a conceptual framework for understanding a community's competitiveness in a digital economy. These are broadband, knowledge workforce, innovation, digital equality, sustainability, and advocacy.





### Broadband

Adequate broadband access (high-speed Internet and cellular service) is becoming the new `essential utility' vital to a community's economic growth. Ensuring a commitment to and an adoption of strong broadband connectivity plans is an indicator of an intelligent community.

Broadband is the backbone that allows technology to create a digital overlay to the physical world, creating new ways in which we work, live and play. Strategies available to municipal governments to provide residents with access to accessible and affordable broadband connectivity range from policy, to partnerships, to direct competition with traditional providers.



## Knowledge workforce

Economic value is created by a workforce that is able to make effective use of specialized knowledge and skills—that in turn, creates an attractive business environment for potential employers in this new digital age. Facilitating the development of a qualified knowledge workforce through collaborative relationships with local educational institutions and businesses is essential. In addition, creating an attractive community culture through investment in beneficial digital transformational activities, provides the community with a competitive advantage in developing and attracting talent.



#### Innovation

Information and technology are the foundations of the majority of economic growth in the 21<sup>st</sup> century, and require three core components to be successful: knowledge, access to talent and access to markets. Creating relationships between business, government, and local institutions helps to keep the innovation local and encourages the development and growth of new smaller companies from which the local economy can grow. To encourage innovation, Northumberland should focus on reducing the complexity around starting and growing a business, creating a digitally-savvy community and a pipeline for talent, and facilitating investment capital.



# **Digital equality**

Every member of the community should have equal access and opportunity to participate in the digital economy. Socioeconomic, educational, disability or locational factors should not exclude any resident from having access to these new opportunities, and albeit a formidable goal, should be a consideration for any intelligent community. This translates to activities around access to technology, affordability of technology offerings, and the development of a base-level digital skill set for the community's residents.



# Sustainability

Improving our current living standards, as well as ensuring that our children can do the same, is the core of sustainability. At a time when consumption and waste levels are at their highest and are having negative impacts on our environment, investment in innovative and alternative technologies that can alleviate some of these pressures can also provide both economic and environmental benefit to the community.



## Advocacy

Change can be difficult. Building a common understanding of the challenges faced by a community and a vision for dealing with them can encourage people to be advocates instead of resistors to positive change. Working collaboratively as a community of residents, businesses, governments and institutions, will not only help to achieve our common goals but will also allow us to present a public identity to the world to demonstrate our attractiveness as a place to live, work and grow.

An intelligent community suits Northumberland well as a framework and an aspirational goal, given the county's mix of urban and rural landscapes. This strategy will endeavor to meet the needs and desires of both while remaining focused on higher, interconnected and collaborative goals. As action items are identified in this strategy, they will be aligned against these indicators as a means of ensuring balance and alignment.

"We need to move quickly enough to be seen as innovative and work slow enough to catch late adopters. Pace matters."

# VISION, MISSION AND GOAL

# Our digital vision

SMARTnorthumberland: an intelligent community.

# Our digital mission

To use information and technology to create inclusive prosperity, tackle social and governance challenges, and enrich quality of life.

# **Overriding goal**

Aligned with the concept of an intelligent community, this strategy will act as a road map to coordinate existing digital transformation activities and introduce new technology-supported ideas and opportunities to Northumberland.

Technology is the means, our approach is the strategy.



# THE THREE Focus areas of

# Workplace

The workplace focus area pertains to action items related to securely modernizing internal operations at the County in order to better position ourselves for the support of digital service delivery, digital transformation activities, and to facilitate data-driven decision-making.

## Service

The service focus area pertains to action items related to increasing community input in government decision-making processes and enhancing or creating online service delivery channels, or information consumption opportunities for our residents and businesses.

# Community

The community focus area pertains to action items related to facilitating the integration of next generation technology and tech opportunities into our community to improve business competitiveness and attractiveness of our community, and enhance quality of life.



"I think the best opportunity for economic development is attracting small businesses. That's hard in the smaller communities that need the jobs but have bad connectivity."

# ACTION

## Workplace focus

#### Build the digital infrastructure

Digital transformational success is based on the ability of our internal technology infrastructure to support these initiatives. Depending on the nature and extent of these activities, this may include data centre revitalization, a reassessment of and upgrades to our network infrastructure to ensure that we have adequate capacity (bandwidth) and redundancy (ability to work through component failure), and a plan to interconnect all of the County's core business locations with a high-speed redundant backbone. It will also include investing in the County's Information Technology (IT) organizational resources to ensure that the appropriate skill sets and structure to support these modernization efforts are in place. As cybersecurity is a concern in all organizations, and will increase as we expand our technological capabilities, we will need to include an investment in our IT security infrastructure. Where feasible, shared services opportunities will be pursued where efficiencies in IT Security and infrastructure service delivery options exist.

"If there's going to be a commitment to technology, it needs to be backed up with resources."



#### Modernize the workplace

New technologies will be introduced that will support or enhance internal business processes to make service delivery more efficient and effective. This will include pursuing cloud-based solutions to give us greater operational flexibility as well as newer technologies to facilitate greater efficiencies in the workplace. Cultivating a culture of innovation while simultaneously improving employee digital literacy in the workplace will offer grass roots opportunities to identify efficiencies that technology may be able to facilitate.

#### **Transform lines of business**

This will include upgrading/modernizing the core critical software solutions and where feasible, automating processes for greater efficiency. Northumberland's website has already been updated to provide our community with an accessible, modern, service-focused interface between residents and the County. The County's Human Resources department is implementing a new software solution which will save countless hours of staff processing time. In addition, the asset management/work order process has become digital, utilizing a mobile app and a paper-free process. The County will actively seek out other opportunities and pursue them as they are identified. Transforming business processes and making effective use of technology will provide the added advantage of data-driven decision-making.

"I've been working with businesses, trying to automate things—move them into selfserve. A lot of them are fairly ready but our technology isn't meeting their expectations."



## **Service focus**

#### Expand community engagement

For government organizations, community engagement is critical when it comes to priority setting and decision-making. Encouraging residents to attend timespecific open houses or focus groups doesn't align with the free time and availability of our community members. Implementing a digital, online solution that is available 24/7 and works around the availability challenges of our residents is one way to allow for greater discussion and discourse that will ultimately assist with government decision-making. This solution will include things like online forums and discussion groups, idea/suggestion sharing and voting, and polling and surveying capabilities. This type of digital solution will help facilitate the needed dialogue between policy makers and residents, where resident input and ideas can be shared at a time and place most convenient for them.

#### Enhance digital service delivery

Enhancing digital service delivery is about providing services to our residents in an accessible, online and always-available manner. It is about offering an additional option but not replacing the traditional methods of interaction (telephone and in person). In addition to the new eCommerce-backed online service delivery options available in our newly revamped website, other potential services that can benefit from this functionality will be actively identified and configured to use this new digital service delivery mechanism. This will also include options that create a level of transparency into government operations such as live streaming of Council meetings and an online view of County vehicle locations.

#### Establish an Open Data Initiative

The value of open data is one of transparency and public oversight. Anonymized internal operational data will offer the community an opportunity to download, analyze, manipulate and use the data to create views, opinions or even solutions. There is a strong trend in municipal government to move towards open data as it both provides a level of transparency of operations and helps to facilitate innovation among our citizens (e.g. creating a mobile app based on our data). The move towards open data will be methodical as a number of infrastructure pieces need to be created and internal business processes adjusted to facilitate this effort.

"Create easy to navigate information in one place."

### **Community focus**

#### Address broadband challenges

Northumberland County has significant broadband challenges. Availability and access to a high-speed broadband network and the capacity to support sufficiently high transfer speeds were clearly identified during the development of this strategy. By connecting and collaborating with our partners, the Eastern Ontario Regional Network (EORN), the provincial and federal governments and regional Internet Service Providers (ISPs), every effort will be made to bring this essential service to as many of our residents as possible. This will include fiber optic connectivity as well cellular-based services. The CRTC has recognized that the 50/10 (50 mbps download/10 mbps upload) standard is essential in today's digital world, and this strategy will endeavor to achieve this standard in cooperation with our partners. Where these collaborative efforts fall short, the County will look for innovative opportunities to improve connectivity for its residents.

#### Establish a digital governance framework

Technology, in particular the newer technologies being deployed today, introduce risk. This is clearly evident by the continued presence of news stories about data breaches, loss of personal information, hacking and questionable privacy practices. As newer technologies are introduced into the County, privacy and security of our community data must be at the forefront. The best way to achieve this is through the development and implementation of a governance framework based on industry-leading best practices in security and privacy control. Any new digital initiatives introduced in the County will need to abide by this framework. In addition, the establishment of a Digital Advisory Committee (DAC) composed of local government, resident and business representatives will advise on any new projects and initiatives ensuring that `checks and balances' are in place to ensure the safety and security of community information.

"One big possible value add would be a cybersecurity strategy from the County that we could all participate in. Lots of people are unaware of the risk to the community and businesses...If Northumberland was very 'secure' it would be a huge boon to business and huge draw for the region."

#### Pursue innovative opportunities

Innovation is the cornerstone of the new knowledge economy. To succeed in this economy, our community must make itself interesting and attractive to developers and entrepreneurs. The more we support innovation and innovative activities, the more successful our community will be.

From a digital perspective, the concept of smart cities and smart initiatives are being embraced by communities all over the world. To follow suit and to improve our standing as an intelligent community, we will not only continue to support existing innovation projects. We will also look towards actively creating new opportunities by piloting smart city initiatives as they are presented and making the bold statement that we will submit an application for the next federal

Smart Cities Challenge (a governmentfunded, technology-based innovation challenge to better the lives of our citizens). Creating collaborative relationships with health institutions, educational institutions, libraries, local businesses and entrepreneurs that are willing to locate to or be part of our community will be a central component of this action item. This may include the creation of more co-working spaces and tech hubs throughout the County, development of County-specific mobile applications to provide information and assistance to the community, as well as support for tech-based research and development (R&D) initiatives around artificial intelligence, 5G and other new technologies as they emerge.

"In anything we do, we need simplicity, training and education with this digital work."



#### Facilitate digital literacy

Improving digital literacy is about recognizing that as a community, our knowledge about and ability to make use of newer technologies is limited to our understanding of them. Pursuing any opportunities that serve to provide our citizens and businesses with free (or low cost) educational activities to improve their understanding of technology will help make us more cognizant of the digital world around us and more prepared to participate in the knowledge economy. This may include introductory sessions on technology and the Internet to make our community more aware of the digital world, sessions regarding cybersecurity to make our community safer while navigating through the risks that a digitally connected world invites, or providing our youth and students with opportunities to excel in technology-based careers.

"They're putting information on the website, it's out there but we need to make it easier. There's a communication objective in terms of transparency and access to information."

These three focus areas and 10 action items comprise Northumberland's Digital Strategy. They discuss high-level goals for each action item with more specific implementation plans described in the next section. Northumberland County will address these items in a coordinated planned manner as the County moves toward becoming a more `intelligent community.'



# IMPLEMENTATION **PLANS**

# Workplace focus

To securely modernize internal operations to better support digital service delivery and digital transformation, and to facilitate data-driven decision-making.

#### **Action Items**

1.1 Build the digital Infastructure



Intelligent community indicators:

- Innovation
- Knowledge workforce

Implementation plans	Priority	Term
Upgrade the data centre to meet future needs	Medium	Long term
Create a resilient and redundant network between municipal locations	High	Short term
Ensure the safety and security of our information and data	High	Immediate term
Collaborate with member municipalities in the delivery of IT services	Medium	Ongoing
Ensure adequate IT staff and appropriate skill sets are available	High	Ongoing

"(We) need to be much more analytical as a corporation but it gets into questions of privacy, security, consent—It's a major issue we need to address though."

### 1.2 Modernize the workplace



Intelligent community indicators:Knowledge workforceInnovationDigital equality

Implementation plans	Priority	Term
Modernize the technology used by County staff	Medium	Ongoing
Implement an employee digital literacy and training program	Medium	Short term
Create a culture of innovation in the workplace	Low	Short term

#### 1.3 Transform lines of business



Intelligent community indicator: • Innovation

Implementation plans	Priority	Term
Refresh legacy systems to modern solutions	Medium	Ongoing
Pursue new solutions for efficient data-based decision-making	Medium	Ongoing



# Service focus

To mprove community input in government decision-making processes and enhance online service delivery and data consumption opportunities.

#### **Action Items**

#### 2.1 Expand community engagement



Intelligent community indicator:

Advocacy

Implementation plans	Priority	Term
Implement and promote an online engagement portal	High	Immediate term
Analyze potential benefits of implementing other citizen participatory solutions	Medium	Short term

#### 2.2 Enhance digital service delivery



Intelligent community indicator:

Innovation

Implementation plans	Priority	Term
Aim to have all County services available with online options	Low	Long term
Live stream County operations	Medium	Ongoing

#### 2.3 Establish an Open Data Initiative



Intelligent community indicator:

Innovation

Implementation plans	Priority	Term
Create a data warehouse for outward-facing data	Medium	Short term
Publish open data sets	Low	Long term

# **Community focus**

To facilitate the introduction of next generation technology and tech opportunities to improve business competitiveness and attractiveness, and quality of life.

#### **Action Items**

#### 3.1 Address broadband challenges



Intelligent community indicator:

Broadband

Implementation plans	Priority	Term
Complete a current state analysis of broadband and cellular coverage	High	Immediate term
Participate in collaborative efforts to improve broadband and cellular capacity	High	Short term
Supplement broadband efforts where they don't meet needs	Medium	Long term

#### 3.2 Establish a digital governance framework



Intelligent community indicator:

Advocacy

Implementation plans	Priority	Term
Develop and publish a governance framework	High	Immediate term
Initiate a Digital Advisory Committee (DAC)	Medium	Short term

# "Anything online has to be easy—has to be navigable."



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### 3.3 Pursue innovative opportunities



Intelligent community indicators:Knowledge workforceInnovation

- Sustainability

Implementation plans	Priority	Term
Launch SMARTnorthumberland	High	Immediate term
Create an accelerator/digital hub	High	Immediate term
Actively pursue innovative tech opportunities	High	Short term
Pilot a smart city/intelligent community program	Medium	Short term
Compete in the next federal Smart Cities Challenge	Medium	Long term
Create permanent collaborative arrangements with local institutions	High	Ongoing

### 3.4 Facilitate digital literacy



Intelligent community indicators:Knowledge workforceDigital equality

Implementation plans	Priority	Term
Introduce digital literacy opportunities for our community	Medium	Short term



# THE PATH Forward



Technological change is happening quickly and governments need to be flexible, adaptive and responsive to this change. There is great opportunity for efficiency, transparency and economic growth, as well as potential risk with security, privacy, and financial and reputational concerns. A balanced approach that considers agility, risk appetite and public acceptance is the best path in moving forward. The above diagram illustrates a priority-based method to addressing the action items identified in this strategy moving forward over time. The time frame is flexible as the strategy will continually judge community feedback regarding pace and acceptance, and adjust accordingly. This document will be a live document due to the rapid acceleration of technological change, and will adapt over time as opportunities present themselves and others lose appeal. This strategy, including the priorities and action items proposed above, will be brought to Northumberland County Council for approval. Once approved, work will begin immediately on a number of high priority items starting with a launch of the SMARTnorthumberland brand. It is under this brand that these action items will be publicized and run. This project will be supported by a complete communications and engagement plan that will include launch advertising, promotion and ongoing communication regarding plans and achievements. Once an engagement platform is implemented, ongoing digital engagement will take place via this platform where our staff, residents and businesses will be able to participate in active dialogue to help define the direction and nature of the various action items.

Where funding is required to achieve these goals, we will reach out and search for alternative funding sources and collaborative efforts to remain efficient and lean. Where levy dollars are required, these items will be brought to Council for discussion and approval. Regular Council reports will update the progress and state of the digital strategy, with opportunities to review and adapt the priorities and action items as required. Northumberland County is on the cusp of a technological evolution. We can stand by and watch it happen or we can take an active role and shape it for the benefit of our community. This strategy is a plan to do just that.



# PROJECT GLOSSARY •

\*All definitions in the context of this strategy

**5G** – fifth generation wireless technology engineered to greatly increase the speed and capacity of mobile networks.

**Advisory committee** – a group of informed individuals that advise and guide an organization.

**Advocacy** – engaging people to understand challenges, identify opportunities, and become champions of change.

Artificial intelligence - the ability of a computer or machine to think and learn.

**Broadband** – refers to high-speed, internet access that is always on.

**Cloud/cloud-based solutions** – seamlessly storing and accessing programs and data through the internet instead of on your computer hardware.

**Cybersecurity** – protecting people and technology from unauthorized access or exploitation.

**Data-driven decision-making** – making strategic decisions based on analysis of hard data.

**Digital equality** – universal access to technology regardless of financial, educational, social, disability or geographic factors.

**Digital governance** – a framework to establish accountability, roles and decision-making authority for dealing with private information in a secure manner.

**Digital literacy** – an individual's ability to understand, navigate and contribute to digital platforms.

**Digital transformation** – the process of rethinking and changing how an organization uses technology, people and processes.

Fiber optic - a type of technology associated with high-speed data transfer.

**Inclusive prosperity** – a goal to grow and distribute growth in a way that unites rather than divides.

**Innovation** – the process of translating an idea or invention into a good or service that creates value.

Intelligent community - a community that uses technology to better itself.

**Knowledge workforce** – a labour workforce that creates economic value through its knowledge, skills and ability to use information effectively.

**Open data** – data that can be freely used, shared and built upon by anyone for any purpose.

**Return on investment (ROI)** – the ratio between the cost of an investment and the profit received in return.

**Service delivery model** – delivering services to residents in a consistent and robust manner.

**Sustainability** – meeting the needs of the present without compromising the needs of future generations.

**Technology infrastructure** – the back-end technology components that are necessary to provide IT services.



August 2019 Northumberland County