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Effective Use of the Internet Research Report - Vermont

Based on research about Internet skill-building projects, this report identifies areas where additional public and/or private investment in Internet skills training can have positive impacts on the well-being of Vermonters and economic vitality of Vermont.

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Executive Summary

The National Telecommunications and Information Administration (NTIA) has been heavily involved in Internet Effective Use projects since 2009. What is Effective Use?

...using broadband Internet in a confident and effective way to achieve personal and work goals, and to participate in civic life.

Laura Breeden, Team Leader, U.S. Department of Commerce, NTIA

Effective Use is not about increasing subscribers to commercial Internet access, although it has been shown that building Internet skills within communities can result in a much higher service take rate.¹ Rather, it is about solving problems, addressing gaps, and helping people make informed decisions. Without Internet skills, a person is less likely to be aware of online resources they would value, and therefore may not see these skills as relevant for improving their quality of life.

The State Broadband Initiative of the NTIA provided grants to all 50 states, plus American territories. The program funded broadband data gathering and mapping, as well as programs that trained citizens in digital and Internet skills. The NTIA also administers the nationwide Broadband Technologies Opportunities Program, which funded the Vermont Council on Rural Development's *eVermont Community Broadband* Internet skills project plus infrastructure-building projects in Vermont. NTIA reports and annual conferences have provided opportunities to consider lessons learned beyond Vermont's borders.

Dozens of Vermont entities are involved in digital skills training, including the Department of Libraries and local public libraries, K-12 classrooms, the Community College of Vermont, adult basic education organizations, the Vermont Small Business Development Center, the Vermont Council on Rural Development and many more. Vermont entities have, as always, created valuable solutions, but the task continues to grow. As a result, the need for digital skills training exceeds current program delivery.

Summaries in this report of a small selection of projects, mostly in other states, are primarily focused on new adopters of digital skills, and address relevant issues here in Vermont. Taking time to look at ways other states have made progress may fuel new Vermont efforts by infusing programs with fresh ideas. Solutions developed based on successes elsewhere but targeted to Vermont, with its micro-cultures and rural communities, can build additional capacity. As the future unfolds in an ever-changing digital landscape, there is no status quo. New programs and expanded existing programs are the vehicles for meeting real-world needs. This report informs a discussion about supporting a fully engaged Vermont citizenry who are interested in and adept at effectively using the Internet.

¹ See page 19, Toledo Cowlitz Broadband Initiative Project Summary

Background

In this second decade of the 21st century, it's fair to say that most people take everyday use of the digital world for granted. However, it is not part of everyone's life and it's worth remembering that our digitally infused world is very new.

22 years ago (1992) – The World Wide Web was made available free to anyone.

37 years ago (1977) – Off-the-shelf consumer/small business computers were introduced. They didn't become ubiquitous until much later, of course.

While today's students have never known a world without commonly used digital tools available, almost half of Vermont's population are over the age of thirty and would not likely have learned to use computers and the Internet in elementary school.² This fact raises many questions that impacts Vermont's economic vitality today and will grow in impact over the next decade. How many of this group still cannot readily use computers or tablets? How many do not because they lack even the most basic computer/Internet skills? How many citizens are technically “digitally literate” but don't have all the skills required to get and keep good jobs? Maximizing business reach throughout the global economy is not intuitive and digital marketing techniques are evolving. Are our small business owners able to stay up-to-date and adapt to the changing marketplace? How many parents lack understanding about the impact on their children's lives of not having well-developed digital skills?

On the other end of the spectrum, many youth are adept at "figuring things out" on digital devices but are not learning common office software or the coding skills in demand by the technology sector. How does this lack of digital skills not only impact individual lives but also the very vitality of the Vermont community as a whole, now and for decades to come?

While this report can't completely answer these questions, articulating them provides a framework for understanding the relevance of projects highlighted throughout it. The report focuses primarily on adults who, for a variety of reasons, do not have the digital and Internet skills needed to fully engage in the benefits of our connected society.

Definitions

Effective Use: the ability to access the Internet through a variety of portals (e-mail, social media, websites, etc.) in order to communicate for personal and business purposes. This term is sometimes associated with "broadband adoption," or subscribing to a broadband Internet service. In this report, *Effective Use* does not refer to subscriptions.

Digital Skills: the ability to use a variety of devices, including smartphones, tablets, laptops and computers. Basic skills may be limited to texting or sending emails. The definition includes all skill levels including business applications such as spreadsheets, word processing and calendar management, as well as coding and programming.

Internet Literacy: the knowledge to select effective search terms, evaluate the legitimacy of websites, and determine the likelihood that information on a site is accurate vs. advertising or personal opinion. The ability to use the Internet safely is also part of having good Internet skills.

² 43.3% of Vermont residents are over 30 according to the 2010 Census
<http://quickfacts.census.gov/qfd/states/50000.html>

Articulating the Need for 21st Century Internet Skills

In order to begin to answer the questions posed on the previous page about Vermonters over thirty years old, the Department of Libraries and the State Broadband Initiative in Vermont invited representatives from a diverse group of organizations to create a Digital and Internet Skills Roundtable. The first meeting was in December 2013. In breakout sessions, with a guided framework of questions and discussion, Roundtable members compiled the following responses about commonly experienced and widely understood factors.³

Why do Vermonters need digital skills (use of computers, tablets, smartphones)?

- Basic computer and screen/keyboard interactions are required in simple transactions of daily life (ATMs, purchase transactions, etc.).
- Using digital tools to streamline personal and professional tasks adds efficiency.
- Many jobs require at least basic computer/tablet skills.
- Education at all levels requires computer skills.

Why is it important for citizens to have effective skills for using the Internet?

One Digital and Internet Skills Roundtable member summed it up by saying the Internet provides "information transportation," regardless of one's ability to travel. 21st century digital skills include Internet search and analysis, as well as critical thinking skills needed to determine accuracy and relevancy of information found on websites.

- Rural residents can access resources not available locally or within an easy drive.
- Effective use of the Internet is crucial for the survival of businesses: business-to-business interactions, marketing, human resources, product management and internal workflow efficiency.
- The Internet expands business reach into global markets.⁴
- Workplace Internet skills are vital for finding job openings, applying for jobs, performing effectively at work, and making the most of opportunities for mobility within business sectors and for advancement.
- Assistive Technology available on the Internet opens vistas to jobs and a more engaging environment for those with physical or visual challenges.
- Internet skills provide the opportunity to take online courses, whether enrolled in college or for continuing education.
- Students of all ages need skills to do research, store data, and complete multi-media homework assignments.
- In educational settings, the Internet exponentially expands on-site libraries, curricula, and software and research resources.
- People with mobility and other challenges can work from home with the right skills and broadband connections.
- By accessing "Do It Yourself" guidance, people of all ages can save money.

³ See Appendix 1 for a list of organizations that participated in the 2013 Roundtable session.

⁴ "60% of the services the US exported in 2011 (\$357 billion) were 'digitally deliverable.'" Anthony Wilhelm, Dept. of Commerce, 2014 data, *Broadband Communities*, May-June, 2014 Issue, p.48

- More and more government services are moving online. For instance, getting a Graduate Equivalent Degree (GED) is available only online as of 2014.
- Affordably staying connected with family at a distance through digital devices, both inter- and intra-generationally, strengthens personal support systems.
- Getting an education or taking workplace skills readiness classes can be accomplished online without paying for transport or childcare, often making the impossible, possible.

Research on Internet Usage

This report is based on aggregated state and national research on Effective Use. It has been considered carefully and integrated over the past year and a half. Although no data-driven metrics were found relating to Vermont Internet skills *training* efforts, anecdotal data is available and supports a number of results more formally documented by programs in other states.

However, in Vermont, Internet technology and broadband access data has been gathered by a number of entities. The Center for Rural Studies at the University of Vermont has included questions on telecommunications in its *Vermonters Poll* since the 1990s. The Agency of Education, the State Broadband Data and Development project, and the Public Service Department have done surveys that track changes over a period of years. Some of this data captures the proportion of households that have access to the Internet - but do not subscribe to an Internet service - and are therefore less likely to utilize Internet resources.

Projects involved with digital skills training have found that those individuals who have not subscribed to broadband at home and do not use digital communication such as email, and/or do not access websites, represent all ages, all economic backgrounds and ethnicities, and reside in both cities and rural areas. However, research finds that those less likely to have Internet skills are more likely to⁵

- live in rural areas (14% less than urban residents),
- have lower than average income,
- have parents who do not use the Internet, and/or
- are over fifty years old.

In a February 2013 speech, Lawrence E. Strickling, Assistant Secretary of Commerce for Communications and Information, provided additional information.

... over 30 million households have not adopted broadband at home. This is a very troubling statistic in light of the importance of broadband access to our citizens and our economy. Our survey results indicate the reasons consumers give most often for not subscribing are

1. *they do not need broadband or are not interested in it;*
2. *cost is the second most frequently given reason, followed by;*
3. *lack of an adequate computer.*⁶

⁵ NTIAs Digital Nation Report, via Anthony Wilhelm, *Broadband Communities* magazine, May-June 2014, p. 48 "Open for Business in the Global Economy,"

⁶ <http://www.ntia.doc.gov/speechtestimony/2013/remarks-assistant-secretary-strickling-broadband-summit-federal-state-joint-con>

Vermont Research

Vermont Poll, Center for Rural Studies, University of Vermont

Strickling's summary of reasons for non-adoption of broadband Internet has consistently been mirrored in Vermont over a recent period of 15 years. In 1995 almost 25% of Vermont non-adopters cited a lack of interest or relevance as the reason for their decision not to access the Internet.⁷ When compared to national data gathered in 2010, this percentage of non-adopters and the reasons behind non-adoption have not changed significantly.

Not surprisingly, income plays a role in access to personal digital devices in Vermont. Both the 2010 and 2014 University of Vermont's Center for Rural Studies Vermont Poll illuminate relationships between income and having digital devices.

Households with an income of less than \$25,000 are significantly less likely to have a computer or other digital device than the next higher income bracket of \$25,000 - \$50,000. However, in the past four years the percentage of households lacking devices dropped from 27% to 14%.

Household Income	2010 % with Computer	2014 % with at Least One Digital Device
Less than \$25,000	56.7	71.6
\$25,000-\$50,000	81.6	85.7
\$50,000-\$75,000	90.6	89.8
\$75,000-\$100,000	96.8	98.7
More than \$100,000	98.7	100 (+/- 4.5%)

Overcoming Barriers to Learning

To reach and engage those who are beginners or non-users, the challenge is not simply to let people know where they can find learning opportunities to become effective Internet users. The bigger challenge is reaching the thousands of Vermonters sitting on the sidelines because they don't have experience with the relevance of Internet resources for their own quality of life. Additional factors that stand in the way of Vermont having a full roster of connected citizens include those who would like to learn computer technology and Internet skills, but (1) are afraid to try, (2) cannot afford a computer or tablet, and/or (3) cannot afford monthly broadband charges.

Beliefs about Internet Relevance

The bottom line is that those who do not know "what they are missing" cannot make a considered choice as to whether or not the Internet has value. Advocates who have the resources they need - time and materials - to communicate throughout our communities and institutions about the negative impacts of not having Internet access and the value of attaining and using effective digital skills, can build awareness of how critical these skills are to Vermont's economic future. Without that broad understanding, there will not be a strong enough foundation for Vermont to transform significant digital *exclusion* into mainstream digital *inclusion*.

⁷ *Vermont Poll Reports* http://www.uvm.edu/crs/reports/report_archive/VTPoll_1995_IT.pdf

Addressing the Need

Based on the outcomes of existing projects that target non-adopters, it is clear that widespread "digital inclusion" requires both communication with statewide scope that creates an upswell of interest and support, plus community-level engagement to reach those who have been excluded from opportunities that come with Internet usage.

Personal Uncertainty about Learning

Anyone who has tried to teach digital skills to a parent, grandparent or friend, has likely been faced with emotional responses of fear and frustration. Before even beginning a learning effort, emotional barriers can keep people from trying to learn: fear of new technology, fear that they will be seen as "stupid" by those who are skilled, and/or fear of being targeted by Spam generators and the hackers they hear about in the news.

Addressing the Need

One-to-one mentoring establishes a relationship that has been shown to allay these kinds of fears. Some projects have found that group classes for beginners are often not well-attended and may have a high drop-out rate. Continuing and expanding opportunities for individual mentoring will add more and more people to the ranks of effective Internet users. This one-on-one approach is not an easy - or inexpensive - fix, but it has a proven track record.

Finding Training and Mentoring Opportunities

Vermont has a wealth of talented, dedicated, experienced organizations, mentors, and teachers who now offer digital skills training, but it can be hard for people to find out where they can get the training they seek.

Addressing the Need

As one important step, the Vermont Department of Libraries (VTLIB) is currently engaged in creating an inventory of existing digital and Internet skills mentoring and training programs with the help of members of the Digital and Internet Skills Roundtable. The first phase is expected to be completed by the end of 2014.

The inventory will form the basis of an online clearinghouse with easy-to-access information about resources across the state. In addition to creating the online clearinghouse, VTLIB recognizes that alternative methods to access the information, such as printed materials, will also be needed.

Once the clearinghouse is launched, outreach efforts to connect those looking for skill development with the information offered by the clearinghouse will be required.

Capacity of Current Training Resources

Again, many Vermont organizations are engaged in teaching and mentoring, but resources are limited. With approximately 25% of our residents not yet using the Internet, the need for training surpasses the current capacity to train them. Finding additional funding sources for expanding and sustaining programs is critical. The need will not go away in the foreseeable future; this is an issue that spans generations.

Addressing the Need

While many effective programs using excellent curricula are right here in Vermont, we have lacked the capacity to capture adequate metrics to determine which curricula and which programs are most effectively changing the way people access information in order to improve their lives.

Results-based Accountability (RBA) is making strides in integrating metrics into the way organizations do business. Many not-for-profits as well as the State of Vermont use RBA. However, gathering and analyzing data takes staff time - and perhaps additional funding. Most organizations do not have access to either of these resources.

Anecdotal and data-driven surveys are the building blocks of "telling the story" about how real lives are changed forever by connecting to education, family and friends, healthcare information and improved workforce skills via the Internet. When able to gather good datasets and use the power of documented personal stories, organizations have a better chance of finding sustainable funding.

Program Examples

Programs that engage people in learning and using digital skills have a varied focus. In terms of geography, they range from the citizenry of rural areas to those in big cities, and one included here encompasses a whole country. Examples highlighted in this report give a clear picture of program designs that have worked elsewhere. They provide ideas that Vermont organizations may wish to consider as a foundation for developing and/or expanding local programs. (The Vermont Council on Rural Development's *Digital Economy*⁸ and *e-Vermont*⁹ projects are excellent in-state projects.)

Many programs were focused on people who had access to broadband, but were not using it because they (1) did not see the relevance to their own lives, or (2) did not yet have the skills to effectively use resources available on the Internet. These same factors play out in Vermont as demonstrated by the *eVermont* and *Vermont Digital Economy Project* initiatives work with library patrons.

One filter for choosing the report's program examples is whether or not the projects were able to develop either anecdotal or data-driven metrics regarding outcomes and impacts on participants' lives. Metrics are critical for determining the potential value of similar efforts in Vermont.

Additional program examples are available through the federally funded Broadband Technology Opportunities Program (BTOP) Toolkit summary of programs.¹⁰ Details about a subset of BTOP projects can be found in National Telecommunications Information Administration Case Studies.¹¹

⁸ Vermont Digital Economy Project <http://vtrural.org/programs/digital-economy>

⁹ eVermont <http://e4vt.org/>

¹⁰ <http://www2.ntia.doc.gov/BTOP-Reports-toolkit>

¹¹ <http://www.ntia.doc.gov/report/2014/public-computer-center-and-sustainable-broadband-adoption-case-studies>

Sectors to Be Highlighted

General Public	Veterans
Senior Adults	Vermont Education
Residents with Low Incomes	Vermont Government
Low-Income Families with School-age Children	Vermont Healthcare

The first four sectors comprise a common focus for digital skill-building programs across the country. They have strong resonances with the work that organizations in Vermont are doing in digital skills training. While program examples included are primarily national, rather than local, there are two Vermont projects highlighted.

Because Vermont Veterans have contributed often and long in the wars of the past 14 years, it seemed appropriate to include a relevant project completed in New England.

The last three sectors – education, government and healthcare - are presented as summaries only and pertain solely to Vermont. While the role of Internet access within these sectors also continues to grow, researching programs within them was beyond the scope of this project because there is no centralized source for reporting. However, efforts were made to gather relevant general information, which is summarized in those sections of the report.

Sector 1 - General Public

Digital Literacy and Public Libraries

In 2013 the Digital Literacy Task Force of the American Library Association's Office of Information Technology Policy issued this definition:

Digital literacy is the ability to use information and communication technologies to find, understand, evaluate, create, and communicate digital information, an ability that requires both cognitive and technical skills.

The Public Library Funding & Technology Access Study, 2011-2012¹² provides data on library-based digital literacy training, compiled from survey data submitted by 7,252 U.S. libraries. (47.3% of respondents were rural libraries.)

- More than 90% of public libraries offer formal or informal technology training.
- 44% of U.S. libraries offer technology classes.
 - 87% offer basic computer skills training (using a mouse, etc.).
 - 73% offer training in general software applications (i.e. spreadsheets, word processing).
 - 86% offer training in Internet skills (web browsing, email, etc.)
- Over 70% of libraries reported that staff provided assistance to citizens in completing E-government forms

The report also states: "For the third consecutive year (2011), libraries report that services for job-seekers [was] the top-rated Internet service."

As has been noted elsewhere in this report, Vermont public libraries have long been leaders in providing public computer and Internet access, as well as skills training to citizens of all ages by (1) offering on-demand help to individuals using library computers and Wi-Fi; (2) providing one-

¹² http://www.ala.org/research/plftas/2011_2012

on-one assistance to individuals by appointment;¹³ and (3) offering group classes on basic computer and Internet search skills, plus a wide variety of online learning resources – everything from Excel to Photoshop.

Though much of the digital skills training for citizens taking place in Vermont libraries - and elsewhere - focus on beginning computer and Internet skills, the need for lifelong learning to keep abreast of the evolving digital landscape is ubiquitous. In addition, a range of cognitive skills to understand, evaluate, create, and share information are necessary components of being a savvy digital citizen.

The Vermont Department of Libraries has been following the work of state library agencies elsewhere in the U.S.¹⁴ Many of them received federal BTOP grants in the Public Computing Center funding category. According to the Vermont State Librarian, Vermont can learn a great deal from looking in more detail at some of those projects¹⁵ and studying the lessons learned from their practical experience.¹⁶ Below are descriptions of two projects geared toward the general public that have resonance in rural Vermont.

General Public Program Examples

Project 1 - *Broadbandexpress@yourlibrary*, E-Mobile Public Computing Center/Training Facilities, New York State Library

Background

The New York State Library created public computer centers in 30 public libraries and through collaborations with community colleges and other “community anchor institutions.” The centers provided free programming on topics such as digital literacy, job training, and small business skills.¹⁷

The libraries used funding

- to extend hours,
- upgrade Internet connections,
- add more than 800 new computer workstations, and
- provide online job search resources in 41 counties.

The project also included purchase of five E-mobile training facilities to provide mobile access to computer technology and digital literacy training in 17 rural counties. These vans are equipped with laptops, high-speed Internet and trained personnel.

The *Clinton Essex Franklin Library System E-Mobile* program in three counties located just across Lake Champlain from Vermont highlights outcomes in the north country of New York, an area that has similarities to rural counties in Vermont. Participant experience with computer technology/digital skills prior to training was reported as

- 33% having no experience
- 63% having some experience, and
- 4% having extensive experience.

¹³ Vermont Digital Economy <http://vtrural.org/programs/digital-economy>, eVermont <http://e4vt.org/>

¹⁴ The State Library Guidebook: Support for Digital Literacy in Public Libraries (WebJunction) www.webjunction.org/content/dam/WebJunction/Documents/webJunction/DLG_Complete_v2.pdf

¹⁵ www.webjunction.org/content/dam/WebJunction/Documents/webJunction/DLG_AppendixC_v2.pdf

¹⁶ See above, DLG_AppendixA_v2.pdf

¹⁷ <http://www.nysl.nysed.gov/libdev/nybbexpress/index.html>

Project Goals

1. Increase public access to high-speed broadband services in high-need communities
2. Provide technical support and resources to support job search and career advancement
3. Advance the use of e-services for training, employment, digital literacy, and education
4. Stimulate employment and provide job opportunities

Outcomes¹⁸

The program helped 493 unemployed people with resume writing, networking, interviewing and searching for jobs, and 46 people reported obtaining jobs.

In addition to the workforce development outcomes above, the library provided digital literacy training to 673 individuals.

Participant comments provided additional insights into the benefits of the program.

"After all the years I had my laptop, you showed me more in 1/2 hour and I think I like [my] computer now. Your [patience] with me was remarkable and you made me feel not stupid. I can't wait till the first Wednesday of next month to meet again."

"My only regret with today's session was that it didn't happen a year ago! The information presented was relevant and detailed."

Lessons Learned as Reported by Library Staff

"We have learned a number of things through the experience of offering help with digital literacy and job search in the Adirondack region:

- Flexibility in scheduling is needed because demand for classes with a workforce development focus is unpredictable in our area. Sudden crises arise when individual employers cease operations, requiring an increase in class sessions, and demand dips significantly when those events have passed.
- The facilities and populations of the region do not lend themselves to large classes. Small classes and individual instruction, however, work very well here. Job search clients, in particular, need personal service and do not tend to come to a group class.
- A regular schedule is important so that residents know when to expect a class to be available.
- Don't overload patrons with too much information. People who have not had much experience with technology need to start slowly.
- Hands-on practice is essential.
- Advertising through libraries and other partners has been our best way to let people know about the classes. Placing free listings in local papers was second, followed by flyers placed in the community."

Project 2 (General Public) - *Bridging Colorado's Great Digital Divide*, Colorado State Library

Background

The Colorado State Library (CSL) received federal BTOP funds plus matching funds from the Bill & Melinda Gates Foundation to install or upgrade Public Computer Centers in libraries and community centers in 88 high-need (high poverty rates, ethnic diversity, limited access to

¹⁸ http://www.nysl.nysed.gov/libdev/nybbexpress/obe/reports/cefls_f.pdf

broadband/computers) areas throughout the state, both urban and rural.¹⁹ The local libraries provided 10% match, purchased equipment, offered public training, and promoted broadband adoption and digital literacy. An extensive “Train the Technology Trainer” program was developed for Public Computer Center staff and volunteers.

While these Centers were primarily in public libraries, they weren't limited to libraries. Locations also included a museum, town hall, general store, and other spaces.

57 Public Computer Centers reported offering 1,364 computer classes - over 2,744 hours - to 8,625 participants. 60% of the classes were about basic computer and Internet use.

Other classes covered these topics:

office software skills	job seeking skills
multimedia (HTML, Photoshop)	English as a Second Language
preparation for GED testing	genealogy
foreign language learning	grant seeking
access to government benefits	mobile device usage

Centers also added capacity to offer free "open-access" time on computers. This did not involve training, simply the ability for the public to use a computer connected to the Internet.

Project Goals

1. Increase digital literacy
2. Support job search and career advancement
3. Serve vulnerable populations (including the unemployed, underemployed, non-English speakers, seniors, and people with disabilities)

Computer Classes for Workforce Development

Rural vs. urban residence and gender were two of the factors reported on for the populations who went to a Public Computing Center to take classes to gain skills to look for employment.²⁰

33% of women and 42% of men were job seekers.

46% of urban and 29% of rural users were seeking jobs.

Outcomes

Colorado's Library Research Service gathered a wealth of metrics through surveys done during the project about usage of open-access computers and participation in computer classes.²¹

Workforce-related responses to surveys of participants in computer classes showed a variety of reasons for taking the classes and on outcomes.

“The skills I learned today will help with my current job and any future ones. I can use these same skills at home. Thank you for the opportunity.”

“I received a promotion at work thanks to [the instructor] and computer skills I am learning.”

“The classes offered at the computer center empower me to use the Internet and computers to promote myself as an educated candidate for potential jobs.”

“I am currently seeking a job as an Administrative or Executive Assistant. I need to use PowerPoint, so now I have a good intro.”

¹⁹ <http://www.cde.state.co.us/cdelib/btop>

²⁰ See Footnote 8, page 9

²¹ http://www.lrs.org/documents/btop/BTOP_Outcome_Evaluation_CloserLook.pdf

"The HTML & CSS Basics class allowed me to learn a skill that I had no experience in prior to this class. The option of providing this type of class would not be possible without a convenient and updated technology lab."

Open-Access Computer Use

Survey respondents were split almost equally between rural and urban sites, and male and female. 56% did not have regular access to a computer elsewhere.²²

From the program's report, visitors to the Public Computing Centers usage consisted of

- 52% communicating with someone,
- 38% looking for work,
- 28% searching for information about personal interests,
- 18% using government resources,
- 17% seeking business resources,
- 17% searching for health information,
- 15% using library databases, catalogs, etc.,
- 11% doing school work, and
- 11% managing personal finances.

The Open Access survey also gathered responses to the question: "Please tell us how the computer center helps you or your community." Representative responses are below.

"Accessibility to a computer is essential in today's world. When you are denied that, due to circumstances, etc., you can feel, and in many ways are, cut off from the world. I am grateful to the [library] for this service."

"At this center I am able to do all kinds of things for our business. I file my sales taxes, check our bank accounts, and I recently applied for a loan and did all the paperwork here."

"I am a low-income senior and cannot afford a laptop so having a computer available is not only convenient but a necessity."

"When money is tight & you are trying to cut expenses, it is wonderful to have an option for Internet access."

Project 3 (General Public) - UK Online Centres, *Learn My Way* Curriculum & *Community How To* Website, Tinder Foundation

Background

The Tinder Foundation, located in the United Kingdom (UK), is "a staff-owned mutual and social enterprise" working toward a mission of making "a better world for everyone through the use of digital technology."²³ They work with a diverse population of people who share a need for getting, or improving, their digital and Internet skills and the organization has a number of initiatives. The goal is to make the United Kingdom a "leading digital nation by 2020." In service of that purpose, the project

- established 120 Online Centres throughout the UK;²⁴
- created *Learn My Way* online curriculum for basic digital and Internet skills, with the most utilized being online basics and email (141,789 logins in a recent 12 month period);

²² See Footnote 8, page 9 of the report.

²³ <http://www.tinderfoundation.org>

²⁴ <http://www.ukonlinecentres.com/>

- manages the *Community How To* website, a central resource for members to share effective digital tools for communication, event management, project management, fundraising and more, and;²⁵
- manages the Digital Research Network, which connects people and organizations interested in research tools and sharing research results.²⁶

This extensive project has funding and scope that would challenge any state in America to take on, let alone the entire nation. However, the basic parameters have many parallels to projects described in this report. One example is a factor identified as an important part of its success. They choose to be located where people normally congregate: public housing, places of worship, fish & chips shops, community centres, public libraries, cafes, and schools.²⁷

Outcomes

The Tinder Foundation has done follow-up surveys and related research that demonstrate economic value, as well as personal benefits to participants' quality of life.

Digital Inclusion

1.2 million people who weren't digitally connected when the project began are new users of online resources at a cost of £30.25 (approx. \$51.68 US in 2014) per person.

The reported impacts of *Learn My Way* curriculum on learners (1270 surveyed) were that

- 91% reported improved quality of life;
- 91% reported "increased enthusiasm for wider learning;"
- 81% said they "feel better equipped to make career, training or learning decisions;"
- 66% reported employment progression (got a job, moved up in a job);
- 70% "feel more engaged with community activities."

Economic Impacts

It is rare to see digital skills training metrics that deal with economic impacts and yet that is a powerful tool for underscoring the benefits of training. The Tinder Foundation evaluated economic factors based on 1,200 surveys per year:²⁸

- 84,280 people have become employed, "saving government a total of £678M" (approximately \$1,158,247,732 U.S. in 2014).
- 13% already working "went on to study for a qualification, resulting in wage increases totaling £8.6M" (approximately \$146,916,379 U.S. in 2014).
- 132,440 people have engaged in volunteering, "adding value to UK economy."

²⁵ <http://www.communityhowto.com>

²⁶ <http://social-digitalresearch.ning.com>

²⁷ Several United States BTOP projects have also indicated the importance of bringing training to public gathering spaces.

²⁸ From a presentation by Helen Milner, Tinder Foundation, at the 2014 Schools, Healthcare and Libraries Broadband Coalition conference. http://shlb.pbworks.com/w/file/80081081/Helen_Milner_Capitol_Thurs_230.pptx, Slide 17

Sector 2 - Senior Adults

Background

A number of studies that focus on what older adults need to stay healthy have reported that a key factor is having active connections with other people. The Internet is one way to stay connected, even if physical mobility is limited. Nationally, the percentage of adults over age 65 who use the Internet is much lower than those under 65 years old.

The Pew Charitable Trust reported, as of April 2014, that 59% of American adults ages 65 and older use the Internet or email. That's 6% more than in April of 2012.²⁹ In the 2012 Pew Internet survey, Internet users are defined as those who say "yes" to at least one of the following three questions: (1) "Do you use the Internet, at least occasionally?" (2) "Do you send or receive email, at least occasionally?" (3) "Do you access the Internet on a cell phone, tablet or other mobile handheld device, at least occasionally?"

The high number of older adults who don't use the Internet or email raises important issues about negative impacts possible for those not connected.

Results from a number of studies highlight issues of disconnection in general:

"Among participants who were older than 60 years, loneliness was a predictor of functional decline and death."³⁰

"Over 1,100 seniors without dementia at baseline were measured on their social activity levels and then tested periodically on their cognitive functioning over a 12-year period. The rate of cognitive decline was 70 percent less in people with frequent social contact than those with low social activity."³¹

"We found that mortality was higher among more socially isolated and lonelier participants."³²

These research results point to methods of gaining benefits for individuals, families and the economy at large through finding and funding effective ways to get adults over 65 online to use email and social media so that they can stay connected even when physical mobility may be reduced.

Senior Adult Program Examples

Project 1 - Older Adults Technology Services

Background

Older Adults Technology Services (OATS) is a 501(c)(3) nonprofit organization whose mission is to, "engage, train and support older adults in using technology to improve their quality of life and enhance their social and civic engagement." Collaborating with over 30 partner sites across New York City, OATS has been providing a variety of computer courses that have engaged over 7,000 older adults since 2004.

²⁹ <http://www.pewtrusts.org/en/imported-delta/reports/2014/04/03/older-adults-and-technology-use>

³⁰ <http://archinte.jamanetwork.com/article.aspx?articleid=1188033> (Archives of Internal Medicine)

³¹ Abstract published by the National Center for Biotechnology Information of the National Institutes of Health <http://www.ncbi.nlm.nih.gov/pubmed/22040898>

³² Proceedings of the National Academy of Sciences, Feb. 15, 2013
<http://www.pnas.org/content/110/15/5797.abstract?sid=4b66dc66-4023-4ab5-9889-0c96cd780b7f>

The New York Academy of Medicine completed a study about the effectiveness of the OATS curriculum. Results showed that the impact of training is not limited to virtual connections. Not only did the elder citizens in the program learn to communicate online, but a notable percentage of them had more in-person contact after completing their training than they did before they were able to connect with friends and family online.

Outcomes from the Report³³

Internet Use

Prior to taking the OATS course the percentage of participants who said they used the Internet regularly to get information was 22%.

Often - 12.5% Very often - 9.4%

In the six-month follow-up, the percentage who used the Internet regularly went up to 78%.

Often - 51.6% Very often - 26.6%

Access to Information

In the post-course OATS survey:

89% reported that their ability to access information increased as a result of the training (56% significantly increased; 33% somewhat increased).

71% reported searching for health information online. (Health and medical information was the most common type of information searched for on the Internet.)

Social Connections

OATS training and the resulting increase in computer literacy had a positive impact on participants' social and civic engagement.

44% felt their awareness of scheduled social activities had increased as a result of the OATS training.

24% reported that the number of social activities they participated in had increased.³⁴

Project 2 (Senior Adults) – Library Intern Program, Vermont Digital Economy Project, Vermont Council on Rural Development

Background

The Community College of Vermont (CCV) and Vermont Department of Libraries (VTLIB) coordinated an Internet Intern Program as a pilot in 2011 and 2012 for the Vermont Council on Rural Development's BTOP-funded *e-Vermont Community Broadband* project. Because it was so effective, a similar program has been part of the Council's current Vermont Digital Economy Project (through August 2014). The Internet Intern Program, located in 24 public libraries, provides anecdotal data that reflect the relevancy in Vermont of the Older Adults Technology Services results in New York City.

The trend has been that a digital skills “student” either has a very specific problem/issue and comes to see an intern for one tutorial session, or the individual needs a broader range of skills and returns multiple times (over 3) to continue to work on developing them.

³³ New York Academy of Medicine, *A Social Impact Findings Report*, p. 4
http://oats.org/files/NYAM_Study_Final.pdf

³⁴ New York Academy of Medicine, *A Social Impact Findings Report*, p. 5
http://oats.org/files/NYAM_Study_Final.pdf

Public libraries have been a source of computer skills development for decades. As of June 2014, the Internet Intern program has involved:

25 CCV student interns 24 public libraries 988+ one-on-one tutoring sessions

What skills were they were looking for?

46% - Computer operation/applications 26% - Email 26% - Internet browser use

The majority of participants tutored (72%) were over 51 years of age.

22% were aged 51-60 50% were over 60 years old

Outcomes

The CCV students who served as interns submitted information about the individuals they tutored. [This article in the Vermont Digital Economy Project e-newsletter](#)³⁵ is one of many examples of how an initial goal of connecting with family members led to gaining skills to access important information through websites for their personal well-being.

Other excerpts of reports about those who had repeat tutoring sessions expand the dataset.

“This was Michael's first visit.... He said that for someone his age, it was getting past that initial hurdle of feeling uncomfortable and not knowing what to expect that held him back at first, but now that he knows how helpful it is, he feels comfortable, and even excited, about coming in each week to really focus on one concern or question at a time.”

“This patron has been in one other time and she plans on coming back in to have help with social media, uploading pictures, email use, downloading eBooks, and learning how to use various features and apps on her iPad.”

“R’ came in today for a brush up on what we went over 2 weeks ago. He also was interested in learning how to do more directed searches using search engines Bing and Google.”

In some cases, patrons reported about their tutoring sessions directly through a VTLIB survey available on the library's website.

Over 90% (88) of those reporting directly indicated they would return for more sessions with the CCV Intern.

25% (24) said they would seek out a class to continue to learn.

One example of a patron's survey submission shows how multiple sessions build skills.

"The first time I came to the library we used a computer and I learned how to turn it on, use a mouse, [learn] about browsers, the Internet, and set up my first email account. The second visit we went over how to access my email again and he helped me pick out a great tablet and was even able to save me money. On the next visit we set up Skype so I can talk with my grandkids and kids, and dealt with virus protection. We went over the store where you can buy apps and also went over checking my email again. At this visit [he] felt I was good enough to fill out the (program's) survey without issues."

Another patron expresses the big picture shared by many regarding the overall impact to her life: "Using a computer and learning new skills is empowering."

For more information about the program, contact the office of the Vermont State Librarian.

³⁵ http://vtrural.org/programs/digital-economy/updates/northfield-internet-intern?utm_source=Digital+Economy+Project%3A+June+10&utm_campaign=VDEP+31st+Newsletter&utm_medium=emailhttp://vtrural.org/programs/digital-economy/updates/northfield-internet-intern?u

Conclusion

Concerns have been expressed about Vermont's "aging population" in a number of contexts. Research from across the United States shows that a high percentage of the population over the age of 60 does not have digital and Internet skills. Although there are no large studies of Vermont's elder population, there is significant anecdotal data gained through the VTLIB/CCV Intern program. Based on these national and state resources, it is fair to conclude that a large group of this state's seniors do not have adequate Internet skills to connect with friends and family, or to find information that will benefit their health and wellbeing.

At this point there are not enough programs in Vermont to reach this vital group of senior citizens, nor is funding available for efforts to reach out to this group to discuss Internet relevance. Therefore, a great many are excluded from the benefits of having Internet skills that can reduce isolation and increase access to information that is meaningful to them.

The digital exclusion of older Vermonters raises policy questions. Can giving seniors the skills they need to effectively use the Internet keep them healthier, and reduce healthcare costs for the larger economy? Will Vermont find methods to maximize and expand the digital skills training resources now available throughout the state to make sure this population has the tools they need to thrive?

Sector 3 - Residents Whose Incomes Are Low

Background

The Vermonter Poll statistics on page seven of this report show that those with low incomes are significantly less likely to own a digital device. In addition, they are less likely to have access to Internet services at home. Either one of these two factors alone makes it very likely that people within these households are not gaining the benefits of digital communication. As a result, they also may not see the relevance of digital communication to their lives.

Organizations in Vermont such as the Northeast Kingdom Learning Services, Vermont Adult Learning, and many others have been teaching digital and Internet skills to people whose incomes are low for many years. Projects outside Vermont may have program structures of interest to Vermont entities and worth considering in terms of creating additional, or reconfigured, training programs. More importantly, the project summaries include metrics illustrating outcomes and impacts. These are not readily available for Vermont projects.

Project - Toledo Cowlitz Broadband Initiative, Toledo Telephone Company, Washington

Background

The population of this region in Washington State is disproportionately low-income, unemployed, undereducated, and older. Before the project, fewer than 50% of households and 20% of the nearby tribal area subscribed to broadband. The Broadband Technology Opportunity Program funded the project and it provided:

- A free laptop
- Free broadband for 2 years (5MB minimum) and free installation
- At least 40 hours classroom training
 - Basic to Advanced Microsoft Office Skills
 - Social Media, EBay, etc.
- Transportation to trainings, if required

Outcomes

- Broadband use increased from a baseline of not quite 40% to 87% (600 out of 750) Toledo Telephone customers.
- Most program participants were switching to paid services as their two-year-long free broadband came to an end.

This project identified "Lessons Learned about Outreach" that led to this project's success in gaining active participation from community members. Quoted from their BTOP report:

- Direct mailers don't work
- Door-to-door contact works
- Face-to-face works, i.e. community events, school district meetings, senior centers, church gatherings
- Newspaper articles are better than paid ads
- Articulating specific relevance of Internet to people is important³⁶

Sector 4 - Low-Income Families with School-Age Children

Unexpected cross-generational benefits have been found in more than one project when digital skills development connects families, students and schools. The first program example, *Technology Goes Home* in Boston, deals with this directly in the project scope. The second program, *Connect Your Community*, had a more general target audience, but outcomes from that project showed a similar connection between digital skills and parental engagement with their children's teachers and school administrators.

The third example for this sector is an initiative available through Comcast Cable's *Internet Essentials* initiative, which is active in Vermont. The Comcast Foundation funded a research study about the nationwide program.

Sector 4 - Program Examples

Project 1 - Club Digital, City of Boston, *Technology Goes Home*

Background

Founded in 2000, Technology Goes Home (TGH) provides under-served residents with 21st century skills development. From its website: "TGH is focused on tackling the entrenched barriers to technology adoption and Internet access in Boston and across the US."³⁷

Statistics here are from a federal Broadband Technology Opportunity Program grant to TGH that established both a community-based program and a school-based program for families in Boston neighborhoods.³⁸ The project goal was to teach low-income families how to use broadband in ways that improve lives.

Before Participation:

- 34% of households lacked home Internet access
- 69% of participating families had never visited their child's school

³⁶ <http://www2.ntia.doc.gov/BTOP-Reports-toolkit>

³⁷ <http://www.techgoeshome.org>

³⁸ In May 2014, the executive director reported this model has been replicated successfully elsewhere.

Since 2010, more than 5,000 Boston households have been trained, and more than 7,000 hours of training were completed at 120 sites. Each participant received:

- A new computer for \$50
- 15 hours of training
- Assistance obtaining free or low-cost Internet service

Outcomes

- One year after TGH, 92% of households had home Internet access.
- 65% of parents got involved with their student's school for the first time.
- 98% of families plan to continue participating in their child's school.
- 85% of students who completed TGH at school regularly use their new computer to do homework and extend learning time.
- 95% say TGH improved their relationship with their school/community site.
- Nearly 90% of program graduates maintained Internet access after completion.
- 98% of participants would recommend TGH to others.

Project 2 (Low-Income Families with School-Age Children) - *Connect Your Community* Northeast Ohio, Detroit, MI, Appalachian Ohio, Winston-Salem, NC, Lexington, KY, and Bradenton, FL.

Background

This BTOP-funded project was active from September 2010 through December 2012. The goal was to reach a significant number of low-income, rural residents who were not using the Internet. It "provided free broadband training, low-cost equipment, support, and affordable Internet for low-income residents."³⁹

Outcomes

Connect Your Community Workforce Survey - October 2011

Among those who undertook training mainly for employment reasons, 44% have since found new or better jobs, received promotions or raises, entered work-training programs, and/or started their own businesses.

In addition, having online skills has positively impacted families with young students:

- 75% help their children or grandchildren with homework as an important part of personal development.
- 67% of newly connected parents use their home broadband connection to communicate with their child's school and teachers.
- 77% said having home broadband access increased the frequency of their engagement with their child's school and teachers.
- 81% reported doing homework or class projects using home broadband connections.⁴⁰

³⁹ <http://www.connectcommunity.org>

⁴⁰ <http://www.connectcommunity.org/wp-content/uploads/2012/10/ACCEL-Reflections.pdf>, page 8

Outreach Lessons Learned

Standard marketing techniques often have not attained the desired threshold of success when trying to reach those who do not believe the Internet has resources relevant to their lives. One sub-recipient project of *Connect Your Community* reported on a direct-access technique that brought good results.

Sub-Recipient Project - Appalachia Center for Collaborative and Engaged Learning

The Appalachia Center for Collaborative and Engaged Learning (ACCEL) partnered with The Frontier Power Company, a rural electric cooperative in Ohio that serves 9000 households in seven counties.

ACCEL found that going to an event and talking directly with people was an effective start to the program. For instance, ACCEL went to Frontier Power's annual membership meeting's social gathering. They distributed a four-question survey that included questions such as: "Can we contact you with information about computer classes?" As an incentive to fill out an ACCEL survey, Frontier members who provided contact information were entered to win a gas card.

Outcome for ACCEL Program

ACCEL did training for 5,558 individuals in local training center locations, such as:

- Churches
- Community Centers
- Job Sites
- Libraries
- Schools
- Senior Living or Senior Centers
- Subsidized Housing⁴¹

Project 3 (Low-Income Families with School-Age Children) - Comcast Cable Internet Essentials

Internet Essentials is available to families with school-age children who qualify for free- or reduced-priced school lunches (household income does not exceed 130% of the poverty level). This initiative was originally scheduled to sunset after three years. In 2014, Comcast announced that it would become a permanent program.

People who qualify for *Internet Essentials* have access to:

- \$9.95 broadband Internet service plan at 5Mbps/1Mbps
- Access to training resources online, in print and in person on how to use the Internet
- The opportunity to purchase a \$150 computer.

Outcomes Analysis and Recommendations Highlights

The nationwide research survey focused on "...1,969 Comcast *Internet Essentials* (IE) users who signed up for the service and started IE service in the six months prior to the survey itself, which was done in the latter part of 2013. The survey found that the population of IE customers is relatively poorer, more Latino, more female, and somewhat better educated than the population at-large without broadband at home." Princeton Survey Research Associates International⁴²

⁴¹ <http://www.connectcommunity.org/wp-content/uploads/2012/10/ACCEL-Reflections.pdf>

⁴² *The Essentials of Connectivity*

IE customers overwhelmingly chose to subscribe to Internet service for kids and their schoolwork, but expectations from other parts of society helped drive the adoption decision.

To understand respondents' reasoning for subscribing to Comcast IE, the survey asked directly why people bought service, the influential factors behind the decision, and whether outside expectations played a role. Given that IE is targeted to educators and families with children eligible for free or reduced-price lunches, it is not surprising that education tops the list of reasons cited for getting Comcast IE.⁴³

When Comcast IE participants were asked their reasons for getting Internet service:

- 98% said their children needed it for schoolwork.
- 68% said to get health and medical information online.
- 63% said they wanted access to music, movies, news, and ...online games.
- 62% said they needed the Internet to find jobs and apply for them.
- 62% said they wanted the Internet to stay in touch with people via email or social media.
- 61% said they needed the Internet to get government and social service information.

In regard to what groups influenced their decision to get home Internet service through the IE program:

- 91% said their children influenced their decision.
- 60% said teachers at their child's school.
- 34% said family members or friends.
- 23% said public libraries.
- 18% cited community organizations.
- 16% said co-workers.

When asked to rate how much the Internet has helped them or their household in various areas in their lives, school work led the list, with 84% saying broadband has helped a lot with schoolwork.⁴⁴

Sector 5 - Veterans

Vermonters have traditionally served in the military in higher percentages than the national average and many of the state's veterans served in war zones during the past 14 years. Generally, information about state, federal and not-for-profit resources geared toward assisting individual veterans and their families are not centralized. Because of this lack of aggregation, it can be harder for veterans who need support to find all available resources.

A project in Massachusetts addressed that issue.

http://corporate.comcast.com/images/Final_IE_Research_Full_Paper.pdf

⁴³ Verbatim from *The Essentials of Connectivity*, p.17 (see hyperlink in footnote 42)

⁴⁴ *The Essentials of Connectivity*, Table under "Finding Four," p.19 (see hyperlink in footnote 42)

The Project - Veterans' Resources and Digital Skills Training

Massachusetts Broadband Institute (BTOP project, with additional funding)⁴⁵

Background

The goal of this project was to create a website that lists or connects helpful resources available to veterans and their families, no matter what entity offers them, whether state, federal, or non-profit organizations. A one-stop, easy-to-use website offers digital and Internet skills training, as well.

The project website is MassVetsAdvisor.org.

- It lists over 400 benefits.
- The easy navigation reduces difficulty for new-users.
- No personal information is requested.
- There are multiple ways to search, based on a person's needs.
- The project included one-to-one training on how to use the Internet.

Outcome

MassVetsAdvisor.org was viewed nearly 200,000 times in its first year by over 33,000 individuals.

Sector 6 – Vermont: Education, Healthcare and Government

Vermont's education community, state and municipal governments, and healthcare providers are shifting to online resources to meet 21st century opportunities and demands. It's a daunting task, with many clear successes and challenges. While it hasn't been possible to identify specific projects and outcomes in these sectors, they are too important not to include them in any discussion of Effective Use of the Internet.

Education and healthcare representatives were invited to separate information-gathering workshops. Group discussion techniques were utilized to identify elements in Education and Healthcare that rise to the top of a list of concerns and of lessons learned.

A survey of eGovernment functions provides an overview of the extent online opportunities or requirements are growing in that sector in Vermont.

These sectors touch tens of thousands of individuals' lives and impact the capacity of families to fully fulfill their needs and realize their dreams.

Sector 6 – Subset: Vermont Education

The Agency of Education (AOE) has, of course, been engaged in digital learning for many years, and it is therefore not within the scope of this report to review effective use of the Internet in this sector. However, in the autumn of 2013, as part of a USDA-Rural Development information-gathering effort by its Community Development team, the State Broadband Initiative outreach coordinator was invited to work collaboratively with the USDA to plan an Education Roundtable Discussion event. The AoE Technology Director was also involved in the planning and the event itself.

⁴⁵ <http://www.MassVetsAdvisor.org>

During a two-hour pre-conference session at the 2013 Vita-Learn VermontFest, administrators, technology specialists, teachers and others gathered to discuss topics related to meaningful use of Internet resources in K-12 education. Through a guided, priority-driven small group discussion process, general points were documented and worth noting.

Lessons Learned

- Peer-to-Peer demonstration of techniques is effective because showing how something works well gets others interested.
- Professional development needs to be individualized for each teacher because they have different existing skill bases.
- First identify what one is trying to achieve in the classroom, and then identify technology resources to support the goals.
- Schools need more technology integrationists to model, coach and support within the classroom.
- Providing more access and awareness of online content resources would be beneficial.

Challenges

- Teacher isolation in the individual classroom, where there is limited access to someone who can answer questions immediately, can hinder effective use.
- Schools need to know more about students' access to computers/tablets/Internet at home.
 - Is there broadband Internet available and, if so, how good is it?
 - Is there one computer per student or one device for multiple students?
 - If there is no home Internet access, is there a nearby Wi-Fi access point such as the local library?
- A basic "equity in education" issue occurs when lower income families cannot afford a computer or tablet for each student in the household.
- Even when every student has access to some level of broadband Internet service within a school district, robust broadband capacity is not yet consistent within districts. Those who have only the lower end of the broadband speed range at home may not be able to use some required online software functions to complete homework outside of the school day.
- Not all families who have access to the Internet at home can afford the cost, so broadband availability does not guarantee student access to the Internet at home.

Sector 6 – Subset: Vermont Government

More and more state and federal governmental functions are being made available online. Municipalities are adding websites and/or interactive functions to existing websites. Basic information may increasingly be available primarily through the Internet, leaving those without Internet skills less able to learn about local and state government functions that have value to them.

In order to provide a snapshot of how this move toward eGovernment will begin to impact those who are not using the Internet, a listing of Vermont state government functions available online

was compiled.⁴⁶ Seeing the depth and breadth of Internet-based eGovernment functions provides an overview of instances where digital exclusion exists for those not yet using the Internet.

There is baseline information about the percentage of Vermonters who already access government services or information online. The 2010 Vermont Public Service Department Survey shows activities people do online, including 77% of people surveyed who had visited the State of Vermont website.⁴⁷

Activity	2003	2009
Paying bills or managing your money or finances	37%	65%
Getting health or medical services or information	47%	51%
Downloading music or video files	18%	46%
Visited Vermont's State website in the last 6 months		77%
Frequently		16%
Occasionally		61%

A glimpse of the potential impact of having a fully engaged and digitally skilled citizenry can be found in the United Kingdom's Tinder Foundation projects.⁴⁸ According to their materials:

No-one's 'spark' to get digital skills is to interact with Government online (except to get a job). However, after gaining digital skills via UK Online Centres (March 2014 data):

81% visited central/local government websites.

56% moved at least one (average 3.8) face-to-face or telephone contact with government to an online contact.

The calculation of savings to government because of these online interactions is £232.4M (approx. \$397,015,889 US in 2014).

Sector 6 – Subset: Vermont Healthcare

As noted elsewhere in this report, high-speed Internet is being widely used by individuals to access information about healthcare. The Internet is also an important tool for delivering medical services within the industry itself. A few highlights only begin to reflect the opportunities available now as well as those being developed.

The ongoing process to digitize patients' medical charts, and make them available online for review by patients themselves, presents a huge opportunity. People with Internet skills will be able to be more informed about their own health. This is another example of digital exclusion with the potential for significant downsides for those who do not have digital and Internet skills.

Tools for senior healthcare continue to focus on in-the-home monitoring and communications. Today in Vermont, the primary focus for seniors is with Home Health Agencies centrally monitoring clients. The reported result is that staff visits are often more effective and care is improved.

⁴⁶ Appendix 2

⁴⁷ 2010 Vermont Telecommunications Survey Report, http://publicservice.vermont.gov/sites/psd/files/Pubs_Plans_Reports/State_Plans/Telecom_Plan/2009_DPSTelecomSurveyReport.pdf, page 5

⁴⁸ Tinder Foundation at the Schools, Healthcare and Libraries Broadband Coalition Conference, May 2014, Helen Milner, presenter, PowerPoint Slide 17 <http://shlb.pbworks.com/w/file/80081081/Helen%20Milner%20Capitol%20Thurs%20230.pptx>

Looking to the future, researchers focusing on the “smart house” realm are investigating ways for those with chronic illness to engage in direct feedback to healthcare providers in ways that can keep people at home, where care costs are much lower than in facilities. The potential to reduce hospital stays, and save lives, by identifying nascent problems through home monitoring before they become acute, are also being explored.⁴⁹

Broadband Access/Effective Use and Gaps for Health Care Providers Meeting - 7/2013

Representatives of hospitals, statewide health organizations, home health and hospice, and health centers gathered to discuss successes and challenges while integrating broadband Internet resources into healthcare practice. Two breakout groups engaged in detailed discussions. Below are the key results.

Successes

Hospitals

Telemedicine for dermatology and other specialist consultations to reach areas of the state that do not have those specialists.

Benefit: Primary care doctor's notes, plus x-rays, lab reports, photographs, etc. are sent to the consulting specialist who can review them on his or her own schedule. This frees up appointment time and facilitates getting faster feedback. It also eliminates patients needing to travel to a distant hospital.

Videoconferencing for child psychiatry evaluations (1 or 2 visits).

Benefit: Decreases wait times for evaluation - usually 3 months for an onsite visit. Telemedicine increases a primary care doctor's knowledge about a patient through the ability for him or her to attend the online psychiatric consult.

Providing monthly continuing education training sessions online.

Benefit: Reaches more staff people around the state more efficiently.

Home Health and Hospice

Patients use a monitor every day to input certain health factors: weight, blood pressure, etc. Tele-monitoring nurses at a central office analyze these factors then prioritize patient visits based on need.

Benefit: Daily monitoring of patient health indicators reduces hospital stays from rate of 16-18% for patients without tele-monitoring compared to 12% for one Vermont Home Health agency's clients with tele-monitoring.

Challenges

- Broadband speed and mobile access to the Internet are critical to Home Health & Hospice work – many back roads and rural homes do not have access to adequate broadband speeds and/or lack cellular service.
- Homebound patients need basic Internet skills so they can use software themselves. This is one area where the digital divide is apparent.
- Multiple sites within a healthcare provider's system around the state may not have equal Internet speed and capacity, making data transfer unwieldy.

⁴⁹ University of Missouri Research Project, <http://munews.missouri.edu/news-releases/2014/0611-mu-researchers-use-sensors-to-monitor-older-adults'-health-sync-health-information-between-homes-and-hospitals>

- Homebound patients are sometimes hesitant to allow visiting medical staff to access a home computer to transfer medical data. Secure public places to access the Internet help Home Health staff transfer information without having to travel back to their organization's central office. This is sometimes a significant distance. Even in Chittenden County, a need was expressed for more Wi-Fi hotspots. An online map of Wi-Fi locations around the state would also be helpful.
- Insurance currently does not fully reimburse telemedicine.
- Having enough funding to regularly update technology within institutions for software, hardware, and training is a big challenge.

The Future - Effective Internet Use

Over the next five years and beyond, digital- and Internet-based functions will become more deeply woven into daily life. The range of skills needed to successfully and effectively access and use online resources will become more advanced. In order to increase the number of Vermont citizens who have digital and Internet skills at their fingertips, there must be broad recognition that those skills are no longer optional for any age group, income level or educational status. The banner of lifelong digital learning encompasses everyone.

To be excluded from effective use of the Internet means to lose out on job opportunities, social connections, healthcare information, do-it-yourself skills, advanced education, workplace-related training, and so much more. Can Vermont afford to leave families with low-incomes, the underemployed who lack skills needed to advance in the workplace, people with challenges who need to be able to work at home online, and senior citizens on the sidelines? If not, then how do we ensure there are an adequate number of easily accessible training opportunities available in Vermont to meet the need?

Another question arises about communicating with those who don't use the Internet. How do we get the word out to people who don't know about the wide array of online resources that can benefit their lives? They live in every town and village and on the back roads, disconnected from social media. Without knowledge about what the Internet offers and the ability to use digital tools, or without having affordable access, many citizens will likely persist in their belief that getting more than what is accessible via local and traditional means is too inconvenient, too expensive or just not that important, and their lives will continue just as "they have always been." They will not reap the benefits of the digital age and will be left behind.

The responsibility for identifying ways to provide digital access and skills training to specific populations identified in this report is not within the scope of the SBI grant project. However, it is hoped this report about projects that have proven successful here and elsewhere will spark expanded efforts to bridge the digital divide that prevents full participation by many Vermonters in 21st century information technology. Deciding what the next best steps are rests in the hands of policymakers, not-for-profit leaders, and state and local government.

Appendix 1 – List of Organizations at the Digital and Internet Skills Roundtable Meeting

December 2013

Central Vermont Community Action Council
Common Good Vermont/CCTV Center for Media & Democracy
Community College of Vermont
Game Developers Association
Northeast Kingdom Learning Services
United Way – 2-1-1
Vermont Agency of Commerce and Community Development – Creative Economy
Vermont Agency of Education – Career and Technical Education Coordinator
Vermont Agency of Education – Technology Coordinator
Vermont Council on Rural Development
Vermont Department of Disabilities, Aging & Independent Living - Assistive Technology
Vermont Department of Libraries
Vermont Division for Blind and Visually Impaired
Vermont Small Business Development Center
Vermont Telecommunications Authority

Appendix 2 - Vermont State Government Online Functions

Based on a Study Done January, 2014

Public access to government services and information is becoming more and more available online across the country and in Vermont. Applying for benefit programs, buying hunting licenses, paying income taxes, and signing up for healthcare coverage are a few of the many things that can be done online in Vermont. While the state website includes a great deal of passive information as well as active functions, we've primarily focused on functions available online for this appendix.

The purpose of including the listing is to provide a snapshot of the breadth of resources available online. By increasing online access, government may often reduce labor-intensive one-to-one interactions in certain areas and increase effective budget management. Increasing the digital literacy of a state's citizens may ultimately be cost-effective.

State of Vermont Website Functions

A tab on the State of Vermont home page called *Online Services* identifies access to citizen-initiated functions. The *Featured Services* section includes six categories:

- Business,
- Residents,
- State Employees,
- Subscribers,
- By Agency, and
- A-Z Listing.

Each category has sub-categories that include links to other pages. There are ten sub-categories:

- Driving & Motor Vehicle,
- Facts & Education,
- Health & Family,
- Jobs & Labor,
- Legislative,
- Permits & Licenses,
- Safety & Security,
- State Records,
- Taxes, and
- Travel & Recreation.

The sub-categories also include links. Within these links the state identifies *Action Pages* where a form can be filled out or a search performed.

ACTION PAGES - for Business or Resident Uses

Business

Links in the business category connect to the Agency of Commerce and Community Development, Vermont Economic Development Authority, plus search engines within the Secretary of State website.

Business Functions

1. ACT 250 Database Search
2. Event Registration - Agency of Commerce and Community Development - events sponsored by the Department of Tourism & Marketing, Division for Historic Preservation, and the Department of Economic, Housing and Community Development
3. Bid on a State Request for Proposals
4. Business Name Availability Search
5. Business Tax Filings and Payments
6. Driver and Motor Vehicle Record Lookup
7. File a Corporate or Limited Liability Corporations annual report
8. Food and Lodging Program Inspection Report
9. International Registration Plan Permits and International Fuel Tax Agreement Filings
10. Municipal Highway and Bridges Special Weight Limits
11. Obtain a Criminal Conviction Report
12. Permitting - Filling Out and Submitting State Permit Applications
13. Postings of Proposed Administrative Rules
14. Quarterly Wage and Contribution Reporting
15. Renew Attorney License
16. Search Secretary of State Databases by Individual Name
17. Submit W-2, 1099 & WH-434 forms
18. Uniform Commercial Code and Corporate Database
19. Uniform Commercial Code Filings
20. Vermont Business Registry and Bid System

Residents

As a general overview, the Residents section has the following tabs: citizens, businesses, state employees, tourists, kids and seniors.

The *Senior* links lead to the Department for Children and Families, Department of Disabilities, Aging and Independent Living, Veteran's Affairs, and Public Transportation.

However, many of the links connect to the home page of the respective Department so further searching is necessary once there to find specific sections.

The *Kids* links lead to pages geared toward parents and children through the Offices of the Secretary of State and the Treasurer, plus the federal Centers for Disease Control and Prevention.

The *Tourism* section is geared towards visitors and locals alike through VermontVacation.com, the Division for Historic Preservation, the Department of Forests, Parks and Recreation, and the Agency of Agriculture. There is also a link to a form to request travel information.

Residents' Action Pages

1. 511 Roadway Conditions and Accident Report
2. Buy Hunting and Fishing Licenses
3. Civil Court Cases Online
4. Compare Vermont Hospital Price and Quality
5. Driver's License Reinstatement Fee
6. Find a Childcare Provider
7. Find a Registered Investment Professional
8. Food and Lodging Program Inspection Report
9. GoVermont Commute Calculator
10. GoVermont RideShare and Van Pool Registration
11. Green Mountain Care Health Coverage Screening Tool
12. Job Search
13. Legislative Bill Tracking
14. Lender Licensee Search
15. Obtain a Criminal Conviction Report
16. Online Library Catalog
17. Online Service Savings Calculator
18. Pay Traffic Tickets and Court Violations
19. Police Reports and Public Records Ordering
20. Search of Secretary of State Databases by Name
21. Tax Payment Portal
22. Travel Conditions
23. Unclaimed Property Search
24. Unemployment Claim Weekly Filing Service
25. Vehicle Registration Renewal
26. Vermont Emergency Response Volunteers Registration System
27. Vermont Medical Board DocFinder
28. Vermont State Government Job Opening
29. Vital Records
30. VTrans Event Registrations
31. VTransparency Transportation Assets

Low-Income Residents

Apply for Benefits, Agency of Human Resources, Unemployment

This completes the overview of functions available on the state website in early 2014.

Appendix 3 - Municipal Websites

An inventory of 23 municipal websites throughout the state of Vermont was conducted in order to learn more about what types of information are available to residents through their local government website and what functions citizens can perform online. The following is not an exhaustive list.

As for any organization, there may be an upfront cost in creating a website and doing professional development for using and maintaining it. However, by increasing residents' online access to regular transactions, municipalities may reduce long-term labor-intensive one-to-one interactions in certain areas and increase effective budget management.

Municipal Website Functions

In the sampling of 23 municipalities, three (Walden, Newbury and Rupert) do not have websites.

For the 20 towns researched that do have websites, a majority include a calendar of events, the current town report, a form library, the municipal directory with contact information, local ordinances and policies, minutes of the Select Board meetings, general community information, and employment listings.

Other information included on some town sites:

- The grand list
- Email addresses of town officials
- Access to streaming video of Select Board and other meetings
- Online payment functions for property taxes and dog licenses
- RSS feed or newsletter sign-up list
- Requests for Proposals
- Social media links such as Facebook and Twitter

Town offices in many municipalities are open limited hours. By making a number of regular functions available to citizens via the website when the office is closed, both residents and Town Clerks can benefit.

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