

Community Technology Consultation Report Prepared by Deb Hutchison Koep, Deputy Director Received by Library Board June 15, 2016

Through the Community Technology Consultation process, the West Vancouver Memorial Library sought to connect with West Vancouver residents, partner organizations (including schools and businesses), funders and stakeholders in order to understand community technology needs and identify responsive services, programs, spaces or tools that would be embraced by the community and potential funders. Our aims were to more fully understand how residents of West Vancouver use and will use technology; to surface, scope and prioritize technology initiatives; and to align technology investments with community priorities.

Demographic research and an environmental scan provided broad context. Interviews, focus groups, surveys, events and other engagement tools yielded thousands of pieces of feedback and hundreds of suggestions for how to proceed.

This report summarizes our activities and key findings.

Supporting details are included in several appendices.

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Key Findings

Through our research and consultation, we learned that technology is of interest to the whole community of West Vancouver – all ages and all types of families. People in our community:

- Feel technology is important
- Have a generally optimistic and positive attitude toward technology
- Feel pretty good about their skills

At the same time, there is discomfort around technology, particularly the pace of change and fears that it may worsen isolation or leave people behind. People want to be competent and up-to-date, but frustration can lead to anxiety and fear.

The community has shared values of community connectedness and vitality, support for youth, health and wellness, and the environment – but is also struggling with change and particularly intergenerational and inter-cultural understanding.

Generally, people are curious about technology, but they do not always see applications for themselves. Most need to see something in action or hear how it might be used – to encounter a possibility that resonates with their personal interests or makes sense in their lives – before they can begin to engage. Once engaged and inspired, they're off and running.

To address community concerns and priorities, we should look at opportunities to:

- Use technology to address physical and social isolation
- Support technology access, adoption and application to address the digital divide
- Focus on applications in areas of broad community interest like health & wellness, arts, environment, community and business
- Use technology to address or mitigate community tensions
- Explore programming with cross-generational aspects
- Build enriching and engaging programs for youth

As our community changes, we should give special consideration to:

- The needs of both seniors and newcomers, since these groups will continue to be major demographics in our community
- Investments in multilingual content, services and communications

We can work with community expectations of libraries, and of our library in particular, by:

- Acknowledging that there is an appetite for opportunities to try out emerging technology, and the Library is seen as a good venue to introduce technology to the community
- Recognizing that the community expects to encounter emerging technologies in the library
- Building on the perceived educational role of the library

As a trusted community institution, we can help our community cope, adapt and thrive by:

- Making confidence and resilience an outcome for digital literacy programming
- Ensuring our service models support digital citizenship, information and research skills and design thinking
- Leveraging our trusted leadership position to introduce and champion new technology and to facilitate and ease change
- Participating in conversations about district-wide WiFi
- Offering opportunities to engage in creative problem solving using technology

As technology continues to develop, our community increasingly needs and expects us to build on what we already have and do by:

- Improving ease of access and delivery
- Investing in digital content to satisfy growing need
- Delivering digital offerings that are multi-platform, easy-to-use, personalized and just-in-time
- Offering opportunities to experiment with emerging technology
- Increasing availability of one-to-one, on-demand technology support services
- Increasing and expanding loanable technology for all ages
- Offering levelled, progressive instruction

Through conversations with current and potential community partners, we know there are opportunities to work in partnership to:

- Explore developing a shared basic curriculum and learning framework for digital life skills with other tech educators
- Support the maker community through partnerships
- Engage in community technology projects
- Access expertise

In choosing priorities to move forward, we should keep in mind:

- We should respond in relation to both breadth and depth of appetite some interest is intense but shallow; some is less intense but deep
- Demand for space, equipment and programming to supplement and build on school maker spaces
- 3D printing, virtual reality and robots generate the biggest buzz
- Creating digital content with technology is of interest across ages, demographics
- Digitization is of high interest, but only among adults

At the same time, we should also pay attention to larger technology trends in our environment, and respond by:

• Ensuring our digital properties and resources are optimized for mobile and multi-platform use

- Investing in improvements to library experience that improve usability and convenience
- Actively seeking to use disruptive technologies like AI to transform services

To address these pressures, we should:

- Increase our capacity to develop, deploy and maintain new technologies
- Capture, analyze and use our own data to improve and personalize our offerings
- Explore and invest in capabilities to support "push" services
- Address the awareness gap around existing library digital services and content

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Background

The community technology consultation process sought to connect with community members, partner organizations (including schools and businesses), funders and stakeholders in order to understand community technology needs and identify responsive services, programs, spaces or tools that will be embraced by the community and potential funders. Our aims were to more fully understand how our community uses and will use technology; to surface, scope and prioritize technology initiatives; and to align technology investments with community priorities.

At its first meeting, the Key Stakeholders Working Group (comprised of Library Board and Library Foundation Board members and senior staff) added their hopes for the community technology consultation process:

- To gain clarity about community needs and aspirations
- To ground and inform our decision making
- To ensure our technology initiatives are highly successful, future-focused and sustainable
- To generate and uncover ideas
- To integrate the perspective of newcomers

In order to develop a profile of our community's needs and aspirations when it comes to technology, we used an array of research methods, including:

- Demographic research, literature reviews and environmental scans to identify and assess trends in technology developments, Library services and our community
- Interviews with staff and key stakeholders to elicit their experiences of community attitudes, frustrations, needs and desires, as well as the role of the Library, with respect to technology
- Interviews and focus groups with community, school and business partners as well as key demographics to expand our knowledge of community technology needs and priorities beyond the Library sphere
- Engagement with the public through the technology fair and an array of onsite, online and offsite consultation and survey activities to understand community aspirations and gauge the degree and quality of interest in various technologies

Community Trends

Library staff reviewed a number of key statistical and demographic reports about West Vancouver to assess the community's current composition and how it is changing. Data sources included the Federal Census, BC Stats, New to BC, the Health Authority, Canada Post, West Vancouver Schools, and the municipality, as well as various community and Library survey results. We also reviewed the Urban Futures report on demographic, housing and employment projections commissioned by the municipality.

The full report is included in <u>Appendix A</u>.

Our research identified a number of distinctive factors that characterize our community. West Vancouver stands out in our region in that it has a significantly higher proportion of older residents (65+) than other Lower Mainland municipalities. West Van is generally wealthier, too: the average income is about double the regional average. However, 12% of households report incomes under \$20,000/year. A highly educated workforce has high rates of home-based work and self-employment and enjoys low unemployment.

Culturally, our community is diverse with a large immigrant population, especially from Europe and Iran. Immigrants from China make up the largest proportion of recent immigrants. Generally speaking, recent immigrants are younger and better educated than past generations of immigrants or their Canadianborn counterparts.

The population is healthy, active and feels a strong sense of community belonging, though transportation and social isolation present challenges.

Looking ahead, projections based on current trends suggest that West Vancouver will see steady population growth, but at a slower rate than the rest of the region. Nearly three quarters of that growth will be aged 65+, with slower growth among the working-age population and a 4% decrease in the school-aged population. The dominant population appears to be shifting from families with young children to older residents. There will also be growth in the immigrant population. *(NB: Policy changes at the District may affect these projections and others based on the same assumptions).*

Socioeconomically, it is projected that West Vancouver will see increases in disabilities as the population ages, and a higher proportion of older adults living in non-family environments (e.g. residential care). It is also projected that income distribution will become increasingly unequal.

Technology Trends

A great deal of research on technology trends was synthesized in the Technology Trends report prepared by Library staff in November 2014 in support of the 2016 – 2020 Strategic Plan. That report,

drawing on research from Gartner, Pew, Comscore and CIRA, among others, identified a number of trends driven by the consumer marketplace, namely:

- Ubiquitous access via mobile devices and networks
- Increasing connectedness via mobile devices and social networks
- Proliferation and increased consumption of digital content
- High consumer expectations of digital experiences
- Technology enabling crowdsourcing and the share economy
- Intensifying interest in commodification and, at the same time, a movement toward open source

Specific technologies driving change included:

- Mobile networks and devices enabling ubiquitous computing and connectedness
- Cloud computing facilitating anytime, anywhere access to content and services
- Big data combined with sensors, wearables and the Internet of Things, giving objects digital presence and spawning intelligent, responsive environments

The report also identified two potentially disruptive and transformational technologies on the near horizon:

- Artificial intelligence and machine learning, which many predict will augment or replace a great deal of work currently done by humans
- Emerging interfaces, such as touch and voice command, which may ultimately replace keyboards, mice and monitors and transform our relationships with technology

To update that research, Library staff revisited key sources to identify new trends and re-assess the trends already identified. A full report is included in <u>Appendix B</u>.

In terms of technology use, we learned that Canadians, especially those over 35, continue to use desktops at a higher rate than their counterparts globally, but mobile use continues to rise while desktop use is decreasing. Interestingly, while there is an increase in mobile-only users globally, there has been a decrease in home broadband access, suggesting more are relying on public Wi-Fi. Nearly half of Canadians are multi-platform technology users, regularly accessing digital content from more than one device.

When it comes to content, Canadians are avid consumers of online video – a greater percentage of Canadians watch online video than other nationalities, and Canadians spend more of their time watching. Use of this format is increasing. Digital content use through libraries is also on the rise, with growth in all areas and especially e-audiobooks, streaming video, and digital magazines and newspapers. Despite projections that apps would decline in favour of browser-based activity, apps currently account for over 85% of time spent on mobile devices, and the app economy continues to grow in both value and numbers

The research update confirmed and expanded on a number of trends identified in the 2014 report, notably:

- Digital mesh the confluence of connectedness, the internet of things, wearables, sensors and AI – is creating continuous connectedness among people, information, apps, services and devices. The emerging result is an "ambient user experience" where physical, virtual and digital environment are blended and change as users move about.
- Smart machines and machine learning this AI technology made a huge leap in March 2016 when AI AlphaGo beat top-ranked Go player Lee Se-dol against everyone's expectations. "Deep learning" in machines is analogous to how humans learn and means they can learn autonomously. While machine learning will play a big part in addressing the processing challenges of big data, it also stands to be highly disruptive socially and economically.
- **Robots and autonomous agents** autonomous vehicles and virtual personal assistants continue to advance with machine learning and deep neural networks
- Virtual reality several consumer products have or will hit the market in 2016. While the technology is currently focused on gaming, it has implications for education, travel, health and more. "Mixed" or "augmented" reality is also developing, seeking to overlay digital information and images over the real world
- Additive manufacturing (3D printing) this technology is maturing, using an increased range of materials and finding application in a variety of areas.

We also looked at trends in the not-for-profit, business and education sectors and noted that organizations across the board are directing additional resources to digital strategy. Several technologies have been identified as strategically important in the mid-term, notably digital delivery and data mining, analysis and visualization. In the education sector, big data and mobile technology, together with the overall pace and trajectory of technological change, are having major impacts, driving shifts toward digital learning, increased personalization, and a growing market for continuous learning.

Library Trends

The November 2014 Technology Trends report identified myriad technology-powered initiatives in libraries locally and internationally including:

- Makerspaces and digital content creation labs where community members can gather and share tools and knowledge in order to learn and create
- Support for self-publishing, from book printing machines to ebook platforms
- Local history and memory projects
- Digital literacy programming, including coding and computational thinking
- Expanded digital collections
- Data aggregation and mining to improve services

In updating our technology trends research (<u>Appendix B</u>), we learned that, increasingly, the public sees libraries as a place to learn about and access technology. We also completed an environmental scan of technology at libraries both locally and further afield. The full report is included in <u>Appendix C</u>.

Current library initiatives we encountered during our scan largely fell into the following categories:

- Emerging technology and early adoption (e.g. innovators-in-residence, access to products early in their development)
- Digitization and preservation
- Digital literacy support and programming
- Makerspaces (e.g. bookbinding, sewing, 3D printing, laser cutting)
- Share libraries (e.g. tools, sewing machines, games, musical instruments)

In the Lower Mainland, libraries are investing in new technology for digital content creation and seeing positive responses from their communities (VPL's Inspiration Lab, North Van City's Digitization Station). North Vancouver City's next development will be an audio/video production studio, while North Vancouver District is looking at repurposing space for an "innovation lab" at their Lynn Valley location. Both of these initiatives will likely roll out in 2017.

Some unique innovations we found included:

- San Diego Public Library's biotech lab
- Orange County Library System's Melrose Centre for Technology, Innovation and Creativity, which features a variety of simulation technologies where patrons can log training time

Community Consultation Overview

The consultation aimed to be broad, soliciting input from staff and key stakeholders, community and business organizations, key demographics, schools and the general public. The following table illustrates the range of activities we used and the thousands of points of contact we generated.

Audience	Method	# sessions/meetings	# participating			
Library Staff	Focus group	3	14			
Key Stakeholders	Focus group	2	5			
District staff	Interviews	4	8			
Community/business	Interviews	12	23			
organizations						
Community/business	Focus groups	2	4			
organizations						
Schools	Interviews	4	11			
Schools	Web survey (students)	n/a	150			
Public	Graffiti walls	4	412			
Public	Tech Fair	1	533+			
Public	Tech Fair – Exit Survey	n/a	183			
Public	Tech Fair – Sorting	n/a	133			
	Exercise					
Public	Web survey	n/a	142			
Public	Web survey – Chinese	n/a	25			
Public	Intercept survey	n/a	89			
Public	Survey – web (2015)	n/a	709			

Consultation: Stakeholders, Community Organizations & Businesses

We engaged with a variety of stakeholders, community organizations and businesses in order to learn what they could tell us about community needs and aspirations.

Staff – Focus groups were held with library managers and staff to elicit their knowledge about our community as well as planned initiatives and possibilities. We asked staff to share their observations about the community's attitudes, frustrations, needs and desires when it came to technology, as well as their thoughts about what technologies could potentially disrupt or transform library services.

Key Stakeholders – Members of the Library Board and Library Foundation Board were invited to focus groups to share their perspectives as both stakeholders and community members. As with our staff focus groups, participants were asked to describe their perceptions of community needs, then to share their thoughts about the role and value of the library with respect to technology.

District – To expand our knowledge of community technology needs and priorities beyond the Library sphere, we interviewed municipal staff from key departments, specifically:

- Communications & Community Relations
- Community Services (Community Centres, Seniors Activity Centre, Youth Services)
- Economic Development
- IT Services

Community Organizations and Businesses – Staff interviewed representatives of selected business and community groups to ask about their clients' needs and priorities, their perceptions of the community's values and aspirations, and their thoughts about how the Library might better support their clients or their organization. Groups to contact were identified and prioritized by the Key Stakeholders Working Group and the Staff Advisory Team. We interviewed staff from the following organizations:

- Capilano University
- First Nations Technology Council
- GLUU Technology Society (a local non-profit teaching technology to seniors)
- Kay Meek Centre
- North Shore Employment Services Centre (WorkBC)
- North Shore Multicultural Society
- Silver Harbour Seniors Centre
- Vancouver Maker Faire Society
- West Vancouver Community Foundation
- West Vancouver Chamber of Commerce
- West Vancouver Seniors Activity Centre (Advisory Board members and volunteers)
- Zen Launchpad (a North Shore makerspace and incubator)

To supplement our conversation with the North Shore Multicultural Society about the specific needs and aspirations of newcomers, we also held two focus groups with newcomers from our Library Champions program.

Together, these conversations created a picture of the community's current aspirations and preoccupations, both generally and with respect to technology.

Community Preoccupations & Aspirations

Changes are underway in the community. Community services staff are seeing a significant increase in the use of free and low cost programs (e.g. Family Place, Strong Start), suggesting there may be financial barriers preventing people from accessing conventional private preschool programs. A number of organizations indicated they are encountering more individuals experiencing physical and mental health issues; and that people's care needs are becoming more complex as they choose to stay in their homes. Transportation continues to be a challenge for many.

The community is experiencing the challenges of integrating cultural and generational diversity as new people move into the area. Some of our interviewees described what they perceived as an expectation that newcomers to the community should conform to community "norms" and a reluctance to explore and appreciate differences. The need for settlement services in the community has grown (North Shore Multicultural Society has increased their service in West Vancouver from one day per week in 2014 to four days per week currently). One District staff member shared some research that suggests the most affluent members of the community may also be the most transient, which adds a further dimension.

Another shift that was observed was in volunteerism. While many residents remain eager and willing to volunteer, they increasingly prefer to do so at their own convenience.

The community also has a lot in common. Residents share aspirations to remain healthy and active, to eat well, and to reduce their environmental footprint. Across the board, we heard about high expectations for the community's youth; residents believe in their capacity to solve the problems of the future, and they are supportive of any program that supports their development. Equally broadly, we heard that this community demands excellence in services, preferring that information come to them rather than having to seek it out.

Common concerns in the community are about housing diversity, isolation, and how to ensure community vitality. One interviewee suggested that resistance to change in the municipality is related to the high quality of life here – residents fear any change will negatively impact the quality of life they enjoy. Interesting, another interviewee related that many newcomers to the community have chosen to live here based on what they've heard about how great the community is, and they are happy about changes in areas like housing diversity, business vitality, and the waterfront because they are" in it for the long term."

Technology Needs and Aspirations

Looking specifically at the technology-related needs and aspirations of the community, some of the same themes are repeated. For example, the community's demand for service excellence is reflected in high expectations for digital delivery of service, the latest technology and just-in-time information – residents want a digital experience that is intuitive, responsive, seamless and easy. Similarly, concerns about isolation were raised, with some expressing fears that increased use of technology was resulting in increased social isolation.

West Vancouver is unique in its high proportion of Apple users – both anecdotal and empirical evidence indicate that iOS and Mac are more prevalent in this community than elsewhere in the region. Mobility and consistent access to high-quality WiFi are important for all sectors of the population, especially because many do not have a data plan, and cellular reception can be a challenge in parts of the community.

When it comes to social media, we heard varying perceptions. Community services staff felt the community is generally very connected via social media – especially for urgent and emergent info – while economic development staff think a "good chunk" is not embracing it. Community Services staff also reported that parents, especially mothers, seem very savvy and connected via social media. This may reflect different preferences for certain types of information and engagement.

Asked to characterize the community's current relationship with technology, most interviewees reflected a sense that there is a spectrum of attitudes – many residents are resilient and adaptable, but others are fearful or frustrated. There is uncertainty about the future and ambivalence about the pace of change. Generally, it was felt that the community sees technology as a tool, a challenge and an opportunity – and therefore readily adopts technology, given the right support. At the same time, folks tend to be complacent – seeing the benefit of technology when it is demonstrated, but not necessarily seeking it out.

Inadequate equipment and lack of full mobile functionality were both cited as reasons why people are challenged by technology. Many struggle with passwords and mastering the sequence of steps required to carry out a desired action. Obsolence and the rapid pace of change exacerbate these struggles.

Specific Needs - Seniors

We learned more about the specific aspirations and needs of older adults in West Vancouver through conversations with Community Services, volunteers from the Seniors Activity Centre, and GLUU Technology Society.

Generally, West Vancouver seniors have a strong desire to remain in the community as they age, to "age in place". This can be challenging as they cope with increasingly complex health challenges and transportation issues that can lead to increasing isolation. As a result, companionship and a place to go to connect and interact with others are very important. Health and wellness, and remaining active are also important.

When it comes to technology, some older adults are keen to learn while others are fearful or concerned about technology. Negative feelings are often based in fear that they will break an expensive technology or anxiety because it will make them feel stupid. When technologies change unexpectedly, or are difficult to navigate, that fear and anxiety increase. Seniors are also more likely to be concerned about online privacy and security.

Those we interviewed stressed that the difference is not necessarily age but rather attitude or mental model. Also, as people age, their learning needs may become more complex, with cognitive disabilities (including memory impairment) playing a role.

Older adults, no longer in the workforce or formal education sector, must rely on themselves or family members to set up and maintain technology. We heard from our interviewees that many of the older residents in the community have retired after a life spent relying on an IT department; and many of the older women who didn't work outside the home rely on their husbands to manage technology. In both cases, taking on the work of updating, maintaining and troubleshooting technology is intimidating.

District staff see among older adults a strong appetite to use technology to connect with family. Others added that there is strong social pressure to learn technology – a general acceptance that technology skills are necessary. There are more and more pressures to be online – for example, to schedule medical tests or apply for government benefits. As wearables and "smart home" technologies become more common, this demographic will likely be significantly impacted.

Generally, seniors want to learn but they can't or don't want to pay. Affordability – of devices, content and ongoing access – can be an issue for older adults on fixed incomes. Free access to technology help, digital content and high-speed WiFi through the Library is therefore of high interest. Many are currently paying for content that they could access for free through the Library. Digitization and digital conversion was also identified as high-interest – specifically, "how not to pay twice" (e.g. for music on CD).

Tablets, and particularly iOS (iPads), are thought to be the technology of choice for this demographic.

There are two main service needs common among older adults. One is for one-to-one, supportive assistance in navigating to the content they want or achieving their specific goals (whether Skyping, sending an email, paying a bill or making an appointment) – while they understand that technology can be used to achieve their goal, they often need in-depth support to actually do it. The other need is for context and awareness: to see how a given technology makes sense in their lives so that they can decide whether they would like to learn how to use it. As many migrate to tablets, they aren't aware of what they could do and don't make use of functionality available to them.

Support through change is also important. There is a tendency among seniors (and others in the population) to get to a point where they feel competent with technology, then stop. But when things change, they can become lost or frustrated.

Passwords present a particular challenge for this demographic, especially when cognitive or memory disabilities are a factor. The patchwork of programs and services (e.g. through the Seniors Centre, Library, Cap U) is also difficult to navigate.

Specific Needs – Newcomers

In conversations with the North Shore Multicultural Society, as well as participants from our Library Champions program, we learned about the technology needs and aspirations of newcomers.

Immigrant newcomers come with a variety of needs and skills. Currently, those arriving from Iran are perceived to have generally good language and technology skills while those from China have more challenges, especially with language. Persian newcomers are more likely to be looking for work than Chinese newcomers, and Chinese families are more likely to be dispersed, with fathers working abroad. DWV staff are noticing a larger number of Russian immigrant families with financial needs using their facilities, and NSMS staff report a small but growing Arab community with families from Lebanon and Palestine.

Generally speaking, newcomers are looking for social interactions. They want to find a sense of place and community, develop English skills and find meaningful work based on their education, experience and passion. If they are not seeking employment, then they are often looking to develop their language skills and pursue interests. Navigating government services online can be challenging for many.

Most newcomers feel a strong connection to their home countries and use technology to stay connected. The Chinese community, in particular, uses WeChat to connect locally and globally.

For those just learning English, the main barrier is language. The Library's communications and services are largely in English – making it challenging to participate or even be aware of programs and services. This also prevents newcomers from asking for help, because they either don't know how to or they feel embarrassed. Likewise, most of our digital content (streaming video, ebooks, etc.) is in English. Many use tablets or phones and struggle to find compatible ESL materials in our collection.

The consensus among interviewees is that children of newcomers are doing well with technology, but their parents are challenged to keep up. Older family members are especially vulnerable.

Specific technologies mentioned as being of interest to this demographic included digitization and digital conversion and emerging technology like 3D printing and virtual reality.

Specific Needs – Business & Employment

Information about the needs of local business and job seekers surfaced during meetings with the First Nations Technology Council, the North Shore Employment Services Centre, the Chamber of Commerce, Capilano U, and the West Vancouver Community Foundation.

The local business community is coping with the challenge of driving customers to community businesses. They see PR, and especially social media, as a means to do this, but lack the skills and capacity to manage social media, produce YouTube videos or create effective web presences. There is an interest in expanding tourism as a means to attract customers past downtown or Park Royal.

Ubiquitous, fast WiFi access throughout the community is a key want. The idea of accessing equipment, spaces and learning resources like Lynda.com through the library is appealing, but there is an awareness gap.

Specific technology-related interests that were identified during our conversations included: basic video production, social media management, marketing and websites, resources for market research and learning tools like Lynda.com.

On the employment side we learned that key challenges in our community include discrimination against older workers (it is often assumed they don't have the technology skills needed) and non-recognition of foreign credentials. Some jobseekers still need basic skills such as file management and basic information retrieval. The current talent shortfall in BC's tech sector is a potential opportunity if people can gain the necessary skills.

Specific Needs – Tech Sector

To learn more about the tech sector's presence on the North Shore, we spoke with Zen Maker Labs (located in North Vancouver) and the Vancouver Mini Maker Faire (based in Vancouver, but with members from throughout the region).

Interest in making varies. There are curious people who want to see things in action or try before they buy, parents who are looking for enriching experiences for their children, and passionate makers who want to share their interests with others. "Hard-core" makers are being hired by large IT firms.

We learned that a lot of maker spaces have "grown up" from their initial startup funding and are struggling. Maker equipment needs to be updated, upgraded and maintained, so a strategy for sustainability is essential. Zen and others in the sector are looking to partner with libraries and schools because they have what we don't (equipment, skills, curriculum) and we have what they don't (space, funding, audiences, reach).

Libraries can play a role in supporting the maker movement by communicating about new technologies and positioning them, as well as promoting maker activities in the community. There is also a need for more places for passionate makers to teach tech (for free).

Role of the Library

During our conversations, interviewees shared their perceptions of the role and value proposition of the library with regard to technology and our community. Thoughts varied, but collectively identified a number of themes:

- **Facilitating and connecting**: the Library is seen the "heart of the community", a place that brings the community together and where residents can encounter stories of the community, build intergenerational and intercultural connections, and increase understanding and belonging
- **Collaboration hub**: the Library is perceived as a gathering place, a community hub and a platform for community, classroom and even global collaboration

- Free, open and accessible: free access to technology equipment, support and instruction and digital content are important, especially to those who struggle. The Library is trusted, safe, non-commercial and welcoming.
- **Teaching and learning**: the Library has an important role to play in promoting technology literacy in the community. We can act as part of a learning network by helping people get started then referring them to other services, as a potential partner in building job skills, or even an academy in our own right.
- **Human connection**: the Library balances technology with the human touch, offering empathy and human connection to augment residents' experiences of technology.

Respondents repeatedly stated that they saw the Library playing a leadership role in the community, offering guidance in a time of change and helping people to understand not only what's new, but also what's important by providing context. Some even saw the library as a potential test bed for technology, actively participating in iterative technological development.

Consultation: Schools

Consultation with the schools included interviews with the following:

- Michelle Davies, teacher and grad student studying educational technology and learning design
- Sean Nosek, Director of Innovation and Learning (SD45)
- Cari Wilson, District Innovation Support Teacher (SD45)
- SD45 Teacher Librarians (representing 11 elementary and secondary schools)

During these conversations, we asked about varying attitudes toward technology among staff, students and parents. We discussed the skill and equipment needs of students and how the Library might support them, and learned about innovative technology-based programs in the schools. In addition, the Head of Youth Services attended the DPAC meeting to promote the technology consultation and encourage parents to come to the Technology Fair.

Through these conversations, we learned that West Vancouver schools have actively adopted technology as a subject of study and a pedagogical tool. Teachers see the possibilities in technology to enhance learning, and many are embracing coding and computational thinking. Often, with new technology, once they see what it can do, they are on board.

Teachers and staff report that students are comfortable in a technology-infused environment; they are "fearless" and tend to be keen and intuitive users of technology. Parents are positive about digital literacy and technology, wanting their kids to be prepared for the world they are moving into, and are less likely to have concerns about screen time and ergonomics than they did in the past. Digital citizenship and internet safety continue to be priorities for parents. Some parents are expressing nervousness that they are falling behind their kids.

There are a number of initiatives underway in schools. Maker spaces and related programming are of high interest currently – notably, "making" includes arts, crafts and books in addition to technology. Pedagogically, maker spaces are about learning through play: they offer and promote unstructured, self-directed, generative exploration, and open opportunities for mentoring and cross-generational connections. The School District endorses maker spaces as a philosophical direction, but there is no formal plan or budget to implement them. Instead, development is on a local basis, through PAC funding or other projects like innovation grants. Of note, all high schools now have 3D printers.

Schools are also shifting curriculum to emphasize coding, recognizing that technology is not just something to consume but something that can be manipulated to solve problems.

Preliminary research by one teacher indicates that robotics, 3D printing and building/engineering (with lego, woodworking) are the highest-interest subjects among students in grades 6 through 12. She emphasizes that it is important to combine high-tech with low-tech (e.g. robotics and sewing, computer programming and lego), because cross-pollination and unexpected juxtapositions tend to inspire creativity and innovation.

For all our expectations that digital natives are expert technology users, there are gaps – like typing, saving to PDF, and common productivity functions. Students stumble on technical terms, how to share a file, how to print and basic document formatting. Teachers are considering whether there may need to be a curriculum piece, possibly in grade 4, to standardize basic skills.

Protocols like how to construct professional communications and citing sources can also be a struggle. Also, students can be very gullible when searching and are often challenged to draw the information they need out of the mass of information available and to isolate the main ideas. Like other segments of the population, kids also have issues with passwords and usernames.

As schools continue to move toward increasingly self-directed learning, students often struggle to move beyond idea generation. They need support to get from "I want to do x, but I don't know how to get started" to moving forward on a project. Design thinking skills are increasingly important.

Post-secondary

Our conversations with Capilano U about the needs of post-secondary students did not add much to our understanding, though we did learn that a major challenge can be access to textbooks and research tools. There may be opportunities to work together on collaborative licensing of databases. And some students would benefit from being able to borrow equipment like laptops, projectors, wireless hubs and other tools from the public library.

Consultation: Public

To gather feedback from the public, we used a variety of mechanisms including:

- Graffiti walls (onsite and online)
- Technology fair
- Surveys (online, offsite)

Graffiti Walls

Graffiti walls aim to inspire thoughtful feedback with focused and thought-provoking questions and at the same time enable people to see their own responses in the context of others' responses.

Over four weeks, we posted a series of questions on flipcharts in the Library (one flipchart each at the main entrance and the entrances to the Youth Department and Community Computing Centre), and asked the same questions via pop-ups on our website and through social media. To supplement these results, Board member Felicia Zhu translated the questions into Chinese and solicited responses from Chinese-speaking newcomers.

The four questions were:

- What technology would you like to use/learn about at the Library?
- How is technology changing our community?
- What technology should the Library invent?
- How does technology help or inspire you?

There were 412 total pieces of feedback collected over the month. A full report can be found in <u>Appendix D</u>. Overall, we saw that most respondents entered into the spirit of the exercise. A few enjoyed pushing the envelope, and there was a consistent presence of expressions of discomfort with technology.

What technology would you like to find/use/learn about at the Library?

Responses to our first question varied widely and many were unique. The largest overall category was games and gaming, with 27 different responses. Other frequent suggestions were 3D printing, equipment and classes, Photoshop and desktop Publishing, digitization equipment, and various apps and tools for creating music and art (both analog and digital).

There were many suggestions for classes on various subjects: coding, programming, web development and excel. Several asked for more of what we already offer, such as computers, Kindles and digital content. A number suggested applications to augment current Library service, such as a seating map that shows where seats are currently available in the Library or an app that allows for self-checkout.

Some unique suggestions included requests for co-working space and "kits to invent technology". A few responses were future-focused — two people asked for "robot librarians" and two more for a time

machine. 15 of the comments were contrarian, such as "more books being read" or "forget technology — too much now" or "less of it".

How is technology changing our community?

Responses to this question were mixed. About half expressed generally positive, hopeful thoughts about technology and the changes it brings. The other half of the responses was split between strong concerns and expressions of ambivalence that saw both pros and cons to technology.

The positive comments had several themes. Many spoke about using technology to build communities and connect with people, as well as the greater ease of global communication, increased awareness of the world around us, and increased access to information for research and learning. People also mentioned the positive environmental impacts of using less paper and needing to drive less, and the positive impact of technology on health and medical advances.

By contrast, other respondents shared their worries about disconnectedness and isolation, commenting that they encounter less face-to-face communication, and that people seem more easily distracted and addicted to their technology. There are concerns that those without technological savvy are shut out. Some commented that life feels less simple and there is less play. Some are concerned that people have lost critical thinking skills and have become lazier. The cost of technology was also a concern.

What technology should the Library invent?

This question spawned a lively debate on our website about the role of the Library in supporting learning, with many respondents suggesting classes or talks on various technology topics, and others asserting that the provision of (print) resources should be the Library's sole purview.

Holograms, robots and teleportation were frequently mentioned as folks struggled to imagine future technology. One joker wrote "flux capacitor" (the technology that powered Michael J Fox's flying, time-traveling DeLorean in the movie Back to the Future).

While the responses ranged widely, some themes emerged:

- Technology for finding materials: e.g. robots to find books, GPS enabled books, and 3D maps to guide you to your books
- New interfaces for searching: voice commands, neural interfaces
- Technology for connecting, especially around reading: e.g. online community for book trading hosted by the Library, a way to connect with like-minded individuals, a book discussion app, book recommendation engines
- Classes on subjects, including coding, graphics, digitizing, computational thinking, Wordpress
- Increased ease of access and delivery, e.g. robot delivery of materials, robot staff, universal translation tools

A number of people also suggested improvements to physical space, such as more light and comfy seating. Existing technologies were also mentioned, including maker spaces, 3D printing and sphero robots. One individual suggested a curated library of podcasts.

How does Technology Help or Inspire You?

Respondents shared that technology inspired them through increasing and simplifying access to information and research resources, especially for school and health. Many felt that technology opens new possibilities and improves or simplifies daily life, even allowing more room for creativity by freeing the mind from automatic tasks. It also improves access to entertainment. A number of respondents felt technology improves communication and community, by helping those with communication disorders, enabling easy communication around the world and by allowing people to form connections within their community. A number of responses spoke to the potential of technology to solve problems and inspire innovation.

Technology Fair

The main purpose of the technology fair was to provide information about current and emerging technologies so that residents could give an informed response. We also aimed to inspire residents to think beyond their current needs and wants. Throughout the fair, we listened to hear what captured peoples' imaginations and to "read between the lines" to assess what it is about technology that compels or repels them.

Staff developed content, displays and activities for the following booths (digital and physical):

- 3D Printing Creating in a New Dimension
- Coding Computational Thinking in the Digital Age
- Translation on Demand Communicating with the World
- Digital Services that Come to You The Library at Your Side
- Virtual Reality & Augmented Reality
- Tech Skills Development Learning 101
- Digitization Preserving the Past
- Library of Things Why Own when you can Borrow?
- Video and Audio Dream, Create, Record
- The Interconnected World How Big Data is Shaping our Lives

In addition, we invited the following guests from the local community and not-for-profit sectors:

- 3D604 (3D printing)
- Gluu Technology Society (digital life skills for seniors)
- Tinkerine (3D printing)
- Vancouver Maker Faire
- West Vancouver Schools
- Zen Launchpad (3D printing, 3D scanning)

To attract visitors and supplement the booths and displays, we ran a series of programs all day on Saturday. In total, 49 people attended the following four hands-on programs:

- 1,2,3 Code
- Introduction to Raspberry Pi
- Introduction to HTML and CSS
- Cancel that Subscription!

Over the two days of the fair, there was a palpable sense of excitement. The diversity of the "booths" and their locations throughout the Library building, together with the passport program, ensured that everyone encountered something new. Interactive activities and opportunities to experience technologies in action were especially successful. Anecdotal reports from staff suggested that many visitors spent several hours visiting the various booths. We saw many people we don't frequently see at the Library, and visitors were diverse and included many families, including mothers, fathers and sometimes grandparents.

We gave out 533 passports, which we used as a proxy for attendance. Since many families chose not to take a passport for every family member, this number is likely a conservative estimate of attendance and the actual number may have been closer to 700 or 800.

Throughout the fair, we embedded a variety of activities to engage with and gather feedback from participants. One of our guests, Cyri Jones from Zen Launchpad, wrote to us afterward to say: "It was really impressive how the whole thing was organized and how many people you attracted. I really liked how you integrated the marketing research/public consultation into it, with some pretty advanced techniques too. I teach marketing research at Cap and don't usually see organizations doing much beyond surveys, so cool to see the ranking cards and some of the other things you were doing. It was very innovative and maybe you should develop a "library tech consult event in a box" for other libraries!"

We gathered feedback during the fair through 3 main mechanisms:

- **Booth feedback** reports from staff and guests as well as attendee feedback solicited at each booth used to assess responses to specific technologies
- **Exit survey** written responses to the fair overall used to assess the degree and depth of interest in various technologies when considered together
- **Prioritization exercise** a card-sorting exercise used to gain insight into attendees' perceptions of how and to what extent the library should play a role in various technology initiatives

A full report on the feedback from the Technology Fair is included in <u>Appendix E.</u>

Booth Feedback

We more than met our goal of at least 30 interactions at each booth. Booths reported well over 100 contacts over the course of the fair, and for those with interactive feedback mechanisms, we recorded anywhere from 23 to 260 responses.

Key findings from the booths included:

- The greatest "buzz" was generated by 3D printing and virtual reality though every area had its admirers
- Often, parents were initially interested on behalf of their children but rapidly became engaged themselves
- People appreciated guidance in understanding what a technology was, how it worked, and what they might do with it and their interest deepened as they learned more
- There was a high degree of interest in digital collections
- Many were interested in being able to access and experience emerging tech through the library

Exit survey

183 people (nearly 85% of those who submitted a completed passport) completed the exit survey to share their reflections on the fair. They shared their responses to three "starters":

- I was inspired by...
- I want to learn more about...
- Comments

I was inspired by...

169 respondents shared what inspired them. Many named more than one technology. 3D printing was the most common response, named by 68 respondents (more than 40%), followed by virtual reality (43 respondents or 25%) and robotics (26 respondents or 15%). All of the other technologies featured at the fair – including coding, translation, augmented reality, digitization, sound and video and library digital services – all received multiple mentions. The raspberry pis also got a lot of attention. 18 respondents simply said "everything".



I want to learn more about...

3D printing kept its first place spot among the 158 who responded to "I want to learn more about..." though with a slightly lower percentage (35%, or 56 respondents). Interestingly, virtual reality fell to 4th place (9%, or 15 respondents) while coding jumped to 17% (27 respondents); robotics dipped somewhat to 13% (21 respondents). Digitization and library digital services were more frequently mentioned, and several people expressed interest in learning about new technology in general.



Comments

127 respondents added comments. Most of these were compliments about the fair, like "Wonderful fair and good opportunity to learn about technology in a comfy environment" and "Very interesting for all young people from 10 - 90 years".

Many expressed their appreciation for opportunities to try out 3D printing and virtual reality glasses. Robots and coding were also singled-out for mentions. Several people felt they learned something new.

Others shared their thoughts about why the Library was the right venue for this event and expressed interest in seeing more of the same in future. Some examples: "Great way (direction) for the library to be moving in; truly a "cradle of learning" for the new world we live in" and "Excellent fair, great exposure for families and children. Keeps the library relevant."

Prioritization Exercise

Participants were given seven index cards, each containing a potential role for the Library, and were asked to sort them into priority order. The roles were:

- Community technology projects (examples: mapping community data; hackathons)
- **Delivering library services digitally** (examples: improved ebook access; personalized reading recommendations; delivery by drone)
- **Digitization and digital conversion** (examples: scanning slides, photos and documents; converting home videos to digital formats)
- Introducing new technology (examples: emerging tech talks, lectures; technology fairs; recommended apps)
- Spaces and equipment for innovation and collaboration (examples: maker spaces; 3D printing)
- **Technology skills development** (examples: computer literacy programs; coding classes; online learning)
- Video and audio production and editing (examples: recording oral histories; creating short videos)

The intention of this exercise was to give people an opportunity to respond more holistically to the technology fair, and more generally about the role of the Library with regard to technology. Feedback from this station suggested that people appreciated this opportunity to gather their thoughts. Staff observed lots of thoughtful consideration and enthusiasm for the activity. One participant said "It's great to have discussions about technology".

133 people participated in this activity over the two days of the fair. Not everyone sorted every card.

By overall weighted score, the rankings were:

- 1. Introducing new technology
- 2. Technology skills development
- 3. Delivering Library service digitally
- 4. Spaces and equipment for innovation and collaboration
- 5. Digitization and digital conversion
- 6. Community technology projects
- 7. Video and audio production and editing

	1	2	3	4	5	6	7	score
Community technology projects	5	9	21	22	21	21	29	416
Delivering Library service digitally	27	12	17	17	22	15	19	529
Digitization and digital conversion	10	20	11	22	22	25	15	464
Introducing new technology	37	29	21	15	8	13	10	658
Spaces and equipment for innovation and collaboration	25	15	19	18	13	12	22	517
Technology skills development	24	33	26	18	11	9	5	624
Video and audio production and editing	9	5	11	24	27	28	24	405

All seven roles received rankings across the spectrum, so clearly each has a constituency in our community. In one case, a mother and daughter each completed the activity only to see the daughter's first priority was the mother's last and vice versa.

Also, those roles that received lower overall rankings tended to be more specific — it may be that when people didn't see a direct need for that role based on their current needs and understanding they ranked it lower than other roles that were more general or values-based.

Surveys

To complete our public consultation, we used a number of surveys to round out our understanding and to reach a broader audience, including offsite users. In addition to mining the results of the online survey we carried out in 2015, we ran two additional surveys: one through our website and one offsite or "intercept" survey.

2015 Online Survey

The 2015 Library website survey was conducted in tandem with our onsite survey to inform the 2016 – 2020 Strategic Planning process. During the survey period, 709 people responded to the website survey, yielding a margin of error of +/- 3.65%, 19 times out of 20.

The survey included several opportunities for open-ended feedback, which staff analyzed to identify eight major themes with implications for the Community Technology Consultation. People want:

- To be able to easily view, borrow and access more resources from other libraries (including other local libraries and academic libraries)
- More robust, accessible and searchable digital collections, including ebooks, video, music and magazines/newspapers (half of all comments were about digital content)
- A streamlined login and the ability to interact with us online for all their needs
- Personalized recommendations and more of what's new, what's hot, samples
- More accurate and complete information in our catalogue records (nothing less than Amazon)
- Access to online resources and for them to be easy to find
- Online communities of learning and shared interests
- Improved and additional infrastructure, e.g. charging stations, multimedia booths

The full analysis, including specific suggestions reflecting language used by respondents, is included in <u>Appendix F</u>.

Website Technology Survey

We ran a special community technology survey through our website in early May 2016. Over ten days, we received 142 responses. In addition, Board member Felicia Zhu translated the survey into Chinese and distributed it through her network. This survey was answered by a further 25 people.

To gather feedback from our secondary school population, we created a modified version of the survey and distributed it through our School District contacts. 150 West Vancouver students responded to this survey.

Reports from all three surveys are included in <u>Appendix G</u>, <u>Appendix H</u>, and <u>Appendix I</u>.

Technology skills and attitudes

In the general population, people are roughly equally divided between those who perceive themselves to be reasonably skilled and confident with technology, and those who experience some degree of difficulty. Among high school students, however, respondents were much more likely to rate their skills, knowledge and ability highly.

A very small percentage in any of the groups felt they had "little or no technology skill or knowledge." Those responding in Chinese were much less likely than members of the other two groups to consider themselves "highly skilled with technology" and able to "make technology work".



We also asked the general and Chinese-language respondents to describe their feelings about technology and saw that both groups felt strongly that:

- It is important to know about technology and stay current (56.8 60%)
- Technology can help us to solve important problems in our community and globally (50 56%)

Large numbers of these groups (37.8 – 48%) reflected that they enjoy learning about new apps and technology tools. Non-Chinese language respondents were more likely to say they felt frustrated by technology (17.6% versus 0%) or that it is difficult to keep up with new technology (41.2% compared to 16%).

Technology Interests

We asked people to tell us about their degree of interest in various technologies, asking them to describe themselves on a scale from "not interested" to "curious" to "interested" and finally "bring it on!"

Recording and editing sound (e.g. music, oral histories and podcasts) was the only activity to be in the top 5 across all three surveys. On the general survey, digitization scored the highest overall, while blogging and self-publishing was number one on the list for Chinese-language respondents and virtual reality scored first among students.

Respondents to the general survey tended to be relatively evenly spread across the spectrum. Curiosity was the most common response, and people seemed most curious about smart technology, artificial intelligence and 3D printing. A large minority indicated they were not interested in robots and drones. Only digitization had a reasonably strong contingent of "bring it on!" responses.

Chinese-language respondents were more likely to say "I don't know" than other respondents. There was strong interest among these respondents in both visual storytelling and sound production, as well as blogging and virtual reality. There is also some burgeoning interest in coding and programming.

Students were more likely to see immediate applications for emerging technologies including virtual reality, drones and robots and 3D printing. They also had a strong interest in developing websites. Digitization was of least interest to this group.

Role of the Library

Asked to prioritize the roles the Library can play when it comes to technology, all three groups gave the highest overall score to "using technology to improve library services". They also agreed that "helping people learn how to use technology and keep technology skills up to date" was a high priority. Adults tended to give higher rankings to "keeping the community informed about changing and emerging technology" while students gave a higher ranking to "providing equipment that is impractical or expensive for people to have at home." "Bringing people together to solve community problems with technology" had a lower priority across the board.

Of note, though, all roles had high degrees of overall support (two-thirds of respondents or more rating "very important" or "somewhat important"). The role with the greatest degree of ambivalence (with the largest numbers giving ratings of "somewhat unimportant" or "not at all important") was providing equipment like 3D printers and digitization equipment.

Technology Access

Asked what equipment or tools they would like to have access to through the library, 3D printers and related equipment were number one for respondents. Tools for audiovisual production were also of high interest, including among high school students. Emerging technologies like VR, drones and robots

were frequently cited across all demographics. Digitization equipment was frequently mentioned in the general survey.

Among the many other suggestions, specialty printing and desktop publishing came up quite often, as did laptop lending.

We included a specific question about access to technology for students, to determine if and how the library can better support their after-school and out-of-school learning.

We were gratified to see that a minority of students felt they didn't need anyone to teach them about technology, and in fact more than half felt the library was a good place to learn about technology. They were highly interested in accessing technology for play and experimentation through the library and somewhat less interested in specific applications or hardware.



Technology aspirations

Answers varied widely to the question "What projects or pursuits would you like to do if you had the right technology and knew how to use it?"

Among adult respondents, desktop publishing (including website development) rated highly, as did digitization. Video (and in the case of students music) production was also broadly interesting to people. Gaming and game design came up frequently among students. We were interested to see that art and animation had several mentions across demographics. Interesting, emerging technologies tended to fall lower down the list for this question.

Learning priorities

We asked adults to share with us their current learning priorities – what was on their minds or igniting their interest. Answers were diverse, but we saw some commonalities: health and wellness, arts and crafts, environment, politics and community and business.

Technology inspiration

We asked students what inspired them most about technology and learned that the creative, generative and problem-solving aspects were what most captured their imaginations.



Intercept Survey

To be sure that we were capturing public feedback from non-library users. two-person teams conducted surveys out in the community over four half-days. Locations included Park Royal, Ambleside/Dundarave and the Seawalk, Caulfeild Village, Gleneagles and Horseshoe Bay.

We used a variation on the Harwood ASK exercise to surface people's aspirations and anxieties about technology, then to weave their responses into a "community narrative". The full version is included in <u>Appendix J</u>.

Community Narrative

Many people, in fact a large majority, describe themselves as "average" or "intermediate" technology users. They know enough and are able to do what they need to get by. A few see themselves as experts or particularly keen learners and a few describe themselves as below average or lagging.

People feel it is important to be able to use technology to navigate daily life — such as online banking, email, calendars, basic searching, games and news, and various applications for work — and to keep connected and stay in touch with family and friends as well as business associates. They believe they need to continue learning about technology in order to stay up to date, remain active and engaged, and maintain their skills. Many acknowledge they need to deepen their knowledge by learning more about what they already use because they are not using it to its full potential.

With the right technology and skills, people would pursue diverse interests, including photo management, editing and digitization; technology for work, including small businesses; blogging, posting on forums and engaging via social media; coding, web development and app development; and language learning.

But they're concerned about maintaining their current level of ability and discouraged by the rapid pace of change, the challenge of continuously adapting, and the need to learn new successive generations of devices (especially tablets and smartphones). People don't see the need to learn about new things when they can't see an application, but feel worried that they might be missing out on something important. Privacy and protecting one's identity online are challenges for some, as is troubleshooting when issues arise. Many feel anxiety about relying on their children for tech support; parents expressed a desire to keep up with their kids.

As people talk more about these concerns, they talk specifically about finding time to learn, their specific learning preferences (e.g. visuals, step-by-step manuals, one-to-one support), and their fears about retaining information. They wish technology could be easy to learn and easy to use.

People need support for their learning. In particular, they would like to see more courses and classes that are applicable and relevant, offered on more subjects, and scheduled more frequently and at more convenient times. Classes should be buttressed by other learning supports like videos and documentation or manuals. Personalized service and support, available close to home, would be welcome.

Many see the Library and Library classes as a starting place to learn about technology; a sizeable number go to a child or partner for help; a few use their workplace tech support; only two go to a commercial or retail service for assistance.

There were few notable differences between the responses of Library users and non-users, except that non-users were less likely to mention the Library as a starting place to get help with technology.
At a Glance:

- 42,728 total population (BC Stats¹)
- 8% children 0 9 (2011 Census)
- 13% youth 10 19 (2011 Census)
- 23% seniors 65+ (2011 Census)
- 4,788 businesses (District of West Vancouver, 2014)
- 18,703 households (Canada Post)

Age and gender:

Over the last few decades West Vancouver's demographic has shifted from a higher number of families with young kids and teens to greater populations of older residents (65+). As of the 2011 census, 25% of West Vancouver's population was 65+, significantly higher than nearby regions (13.5% in Metro Vancouver; 14% in North Van City and 16% in North Van district)².

Based on the 2011 census this aging trend is continuing, with an increase in people age 55+, and a decline in adults 30-59 as well as children/youth age 10-19 compared to the previous two censuses. The demographic is fairly even for gender across age groups, except in the 75+ category where 5% of the population is male, and 8% is female; this is likely in large part due to the tendency for women to live longer than men. ³

Diversity:

West Vancouver is a diverse community with a large immigrant population⁴. As of 2011, 41% of West Vancouver's total population were immigrants (not born in Canada) compared to 40% of Metro Vancouver's total population. 24% of West Vancouver's population emigrated to Canada prior to 1971.

¹Based on 2015 estimate: file:///C:/Users/Imeshgini/Downloads/2015%20Sub-Provincial%20Population%20Estimates%20(1).pdf

² http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/2011%20Age%20Distribution%20%28one%20page%29.pdf

³ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/Age%20and%20Gender%202011.pdf

⁴ As defined by the city: "Immigrant population includes Canadian Citizens by naturalization and landed immigrants who have not yet obtained Canadian Citizenship by naturalization (some will have lived in Canada for many years while others will have arrived recently). Nonimmigrant population refers to people who are Canadian citizens by birth. Although most were born in Canada, a small number of them were born outside Canada to Canadian parents."

As a percentage of the total population, the immigrant population has shown growth over the past 3 decades, growing from 32% in 1991 to 41% in 2011.

The most common places of birth for West Vancouver's immigrant population are Europe (33%), Asia and the South Pacific (32%), and the Middle East (19%). Between 2001 and 2011 there has been a decrease in the proportion of immigrants born in Europe (from 38% to 33%) and "Other" (13% to 2%) and an increase in the proportion born in the Middle East (from 9% to 19%). Compared to the region, West Vancouver has a higher proportion of immigrants born in Europe (33% compared to 19% in Metro Van) and the Middle East (19% in West Van compared to 3% in Metro Van) and a lower proportion of immigrants born in Asia and the South Pacific (32% in West Van compared to 65% in Metro Van). The largest immigrant population in West Vancouver is from Iran (19%), while the largest group of recent immigrants in West Vancouver were born in China (34.1%), which was also the largest group in Metro Vancouver (23.8%)."⁵

As NewtoBC points out in its West Vancouver Community Profile, based on the 2011 census, workingage recent immigrants (25-64 years) make up 58.2% of the recent immigrant population. 35.6% of recent immigrants are at core working age (25-44). This is notably higher than the comparable proportion of Canadian-born residents in this age group (13.0%). The recent immigrant population in West Vancouver is also highly educated, with 67% of recent immigrants age 25 to 64 having a bachelor's degree or higher, compared to 53.4% of their Canadian-born counterparts. 54.5% of recent immigrant seniors (65+) had a bachelor's degree or higher, compared to 42.5% of Canadian-born and 36.1% of immigrant seniors. ⁶

Disability:

West Vancouver's 2004 "Profile on Disability in West Vancouver" is based on the 2001 Census Long Form, and so is somewhat out-dated by this point.

Disability was defined as "difficulty hearing, seeing, communicating, walking, climbing stairs, bending, learning" or "a physical condition or mental condition or health problem reduce the amount or the kind of activity this person can do." 15% of respondents listed as having some sort of disability in 2001.

Age is a major contributing factor, with the percentage of citizens reporting disability going up as ages increase. Based on the correlation between disability and older age groups, and increasing numbers of the older population, the 2004 profile projected that number of people with disability would be 17.5% by 2021.

⁵ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-andstats/Cultural%20Diversity%202011.pd

⁶ http://newtobc.ca/wp-content/uploads/2014/09/West-Vancouver-Immigrant-Demographic-Profile-10.2014.pdf

There is also a correlation between income and disability: "people who experience difficulty with or a reduction in activities are more likely than the remainder of the population to have annual incomes under \$30,000 (55% compared to 48%); and less likely to have incomes above \$70,000 (15% compared to 23%)."⁷

Breakdowns of disability by type are not available at the municipal level; however a breakdown across Canada for people ages 15+ shows the most common disabilities relate to mobility (23%), pain (22%) and agility (21%), followed by hearing (10%) and seeing (6%)⁸.

Health Profile:

Health profiles for citizens age 18+ in the "District of West Vancouver and Lions Bay Community Health Profile" (conducted between June 2013 and July 2014) show the West Vancouver population relatively quite active, with 58% of the population getting 150+ minutes of weekly physical activity (compared to 44% in Metro Vancouver). The numbers are even higher for older citizens (65+) at 63%. Older citizens also stacked higher numbers for amount of daily screen time, interestingly enough, with 51%, compared to 42% in the 40-64 age range and 48% in the general Metro Vancouver population. So while the population of West Vancouver is on the older side, this demographic is clearly very active and engaged, both physically and technologically.

West Vancouver residents also express a strong sense of community belonging, with 74% overall and 82% in citizens 65+, compared to 56% overall in Metro Vancouver (although it should be noted these numbers go down with recent immigrants and those with lower household incomes.⁹

Employment & Education:

West Vancouver's "Employment, Labour Force & Education in West Vancouver" fact sheet is based largely on the 2011 census.

West Vancouver has a 4% unemployment rate compared to 5% for the region. Notably, West Vancouver has one of the highest rates of home-based work in the region; 18% of West Vancouver's employed labour force (3,235 people) work at home in West Vancouver compared to 8% in the region. It also has a high rate of self-employment, with 27% of the labour force in this category compared to 12% regionally.

West Vancouver's work force is highly educated, with the highest level of schooling for the 25-64 population higher than the regional average: 56% have a university level education compared to 34% for Metro Vancouver. A lower percent have a college level education, trades certificate or diploma than

⁷ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/Disability.pdf

⁸ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/Disability.pdf

⁹ Myhealthmycommunity.org West Vancouver and Lions Bay – Community Health Profile

the region as a whole (18% versus 27%). Those with no certificate, diploma or degree are also lower (2% versus 8%)¹⁰

The Urban Futures "Demographic, Housing & Employment Projections: District of West Vancouver" looks at current employment trends based on statistics from the National Household Survey in 2001 compared to 2011 and notes:

- There were 13,009 jobs located within the District of West Vancouver in 2011
- The largest industry sectors in 2011 were education and health (27% of all jobs); finance, insurance, real estate & other professional and business services (20%); and trade (retail & wholesale) (13%)
- Employment in West Vancouver declined from 14,744 to 13,009 jobs (a net loss of 1,735) from 2001 to 2011 ("While the sharp recession in 2009 would have played some role in this, it is worth noting that unlike in West Vancouver, employment in Greater Vancouver as a whole recovered from the economic downturn, with employment in the GVRD having grown by 18 percent between 2001 and 2011"¹¹).
- The largest decline was in trade (43%); the "other industries" category (primary, manufacturing and transportation, warehousing and utilities) fell by 34% (the number of jobs in the primary sector fell from 147 in 2001 to 0 by 2011)

Income:

West Vancouver is a relatively affluent municipality, with about double the regional averages for individual (\$83,401), household (\$166,221), and family (\$208,075) income averages. 34% of West Vancouver individuals earn over \$60,000/year (compared to 21% regionally) and 44% of West Vancouver households earn over \$100,000/year (compared to 28% regionally).

Despite high incomes overall, a substantial number of West Vancouver individuals and households are in lower income brackets, with 33% of individuals earning less than \$20,000/year and 12% of households earning less than \$20,000/year."¹² Income averages are increasing at a higher rate than income medians, suggesting a level of unequal income distribution.

Gender seems to be a major factor in distribution; the average incomes of males in West Vancouver are over double that of females (\$122,650 versus \$49,651). While women in West Vancouver have higher individual incomes compared to the region, 38% still earned less than \$20,000/year in 2011.

¹⁰ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-andstats/Employment%2C%20Labour%20Force%20%26%20Education%202011.pdf

¹¹ Urban Futures Demographic, Housing & Employment Projections: District of West Vancouver draft report

¹² http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/Income%202011.pdf

Seniors also present lower income averages, with 51% of seniors in West Vancouver earning under \$30,000 a year (again here a higher proportion of females age 65+ earn under \$30,000/yr (64%) compared to males (34%).)¹³ In 2005, 1450 seniors were on income assistance in the West Vancouver—a 20% increase since 2000 (the seniors population increased by 6% during this period).¹⁴

Family and Household:

The average household size in West Vancouver declined from 3.0 in 1971 to 2.5 in 1991 and stabilized at 2.5 until 2011. These numbers are consistent both with rates in Metro Vancouver and national trends, as an aging population and declining birth rates following the baby boom have led to a decline in household numbers - a trend that has been offset in recent decades by immigration¹⁵.

There is a higher percentage of persons 65 years and over living in non-family environments (33%) compared to the population as a whole (15%). Non-family persons 65 years and over are more likely to live alone (87%) compared to the non-family population as a whole (77%)¹⁶.

Schools:

The West Vancouver School District has shown a great deal of commitment and innovation in embracing technology as a pedagogical tool. Their 2015-2018 Strategic Plan emphasizes a desire for further learning opportunities centred on technology and innovative learning spaces like makerspaces, including the following goals:

- "Augment student and staff access to current technology to enhance student learning"
- "Continue to develop innovative learning spaces, including learning commons, makerspaces and classrooms that align with self-regulation research"

As part of the WVSD – District Literacy Plan, the District Achievement Contract includes a goal to improve the digital literacy of all students. Inspired by the "Hour of Code¹⁷" initiative there have been efforts to introduce more coding into regular programs and curriculum to increase digital literacy¹⁸. The

¹⁷ https://hourofcode.com/ca

¹³ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/facts%20and%20stats%20summary%20june%2008%281%29.pdf

¹⁴ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/facts%20and%20stats%20summary%20june%2008%281%29.pdf

¹⁵ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/Family%20and%20Household%202011.pdf

¹⁶ http://westvancouver.ca/sites/default/files/dwv/assets/gov/docs/facts-and-stats/Family%20and%20Household%202011.pdf

¹⁸ http://westvancouverschools.ca/news/good-ideas-tend-to-spread

extra-curricular "Ignite Your Passion" program is open to students in grades 6-7 and is intended to help facilitate the transition to secondary school by creating new learning opportunities and sparking new interests. Two of the five courses offered are technology-based: "All Hands on Tech" teaches and facilitates coding, digital imaging, and 3D modelling; "Big Bad Bot Builders" focuses on robotics and mechatronics, and is run by Todd Ablett. Todd also runs a highly popular after-school robotics club. He has been leading robotics programs at school for years, and won the Prime Minister's Award for Teaching Excellence in 2010/2011 for his dedication to innovation in teaching.

The Caulfield Elementary School iDec (Inquiry based Digitally Enhanced Community) program is unique among schools in the Metro Vancouver. Combining self-directed study and current technological tools, it is "based upon leveraging digital opportunities within an inquiry based learning environment."¹⁹ This program received national attention in the 2011/2012 school year by becoming a finalist for the Ken Spencer Award for Innovation in Teaching and Learning.

Projections

In their "Demographic, Housing & Employment Projections: District of West Vancouver " report, Urban Futures has created a series of long-range projections of population, housing and employment in West Vancouver for the District's planning department. Spanning 2011 to 2041 and combining quantitative and more qualitative data, the information is not exact but more of a "planning scenario".

Overall, growth in West Vancouver will be significant for the district, but at a slower rate compared to the Greater Vancouver Area. Possibly more significant than growth is the changes predicted for age, dwelling, and employment structures.

Population projections:

- Increase from 43,287 residents in 2011 to 53,969 residents by 2041 = 25% increase
- 10,682 people would be added over this 30-year period, with an average of 356 people being added annually to 2041 (compared to 172 per year between 1981 and 2011)
- Average annual growth between 2011 and 2041 would be 0.7% (versus 0.4% between 1981 and 2011)
- Compared to the region, growth is expected to be slower, with West Vancouver's share of the regional population falling from 1.8% in 2011 to 1.6% by 2041
- The retiree segment of the population (65 and older) is projected to grow by 72% through the addition of 7,833 residents (almost three-quarters of the growth projected for the population as a whole)
- West Vancouver's working-age population (25-64) would grow more slowly between 2011 and 2041, at 16% (3,311 people), while the under-25 population is projected to contract by 4% (-463 people)

¹⁹ http://go45.sd45.bc.ca/schools/caulfeild/About-iDEC/Pages/default.aspx

• The school-age (ages 5 to 17) population, which forms the basis of public school enrolment, is projected to fall by 276 children (4%)

Of note, looking at the 2041 projections for West Vancouver compared to the region: those aged 20-44 would represent 31% of the region, but only 19% of West Vancouver residents; the 45-plus group would represent 65 percent of West Vancouver residents by 2041, compared to 52% of the region.

Housing projections:

- West Vancouver's occupied dwelling stock is projected to grow from 16,980 units in 2011 to 21,816 units by 2041 (28% increase resulting from 4,836 additions being made to the stock over 30 years)
- The region's occupied dwelling stock is projected to grow by 60 % over the coming three decades, meaning that West Vancouver's share of regional housing would fall from 1.9% in 2011 to 1.5% by 2041
- The fastest relative growth in housing is expected to be in apartment formats, with the number of these units growing by 72% by 2041
- The proportion of single detached units is expected to fall from 58% to 47% of all units between 2011 and 2041 (this would largely be offset by an increased prominence of apartments, which would go from representing 29% of all units in 2011 to 39% in 2041)

Employment projections:

- Employment is projected to grow by 44% between 2011 and 2041
- West Vancouver's share of regional employment is expected to remain fairly stable at 1.1%
- The fastest-growing sector is expected to be finance, professional and business services; the slowest-growing sector is expected to be public administration
- The rate of growth in the potential need for office space (43%) would exceed the overall growth in employment at a usual place of work outside of the home (42%), while commercial and institutional space needs would each increase by only 41%

Seniors projections:

- The need for seniors housing is projected to increase by 70% between 2011 and 2041, going from 759 to 1,292 spaces in supportive and assisted living facilities (533 additional spaces) over the period. This would outpace the projected growth rate of West Vancouver's total population (25%), its 55-plus population (51%), and the overall projected demand for private housing (28%)
- Due to an older and aging populating, the prevalence of most disabilities in WV is expected to increase more rapidly than the 25% increase projected for the overall population, and also faster than the 29% growth projected for the population aged 15-plus
- The greatest relative increase would be in the number of adults in West Vancouver with a hearing disability, expected to increase by 57% by 2041

Overview

As of 2016, there were an estimated 3.4 billion internet users worldwide²⁰. In 2013, Canada was globally ranked the 2nd heaviest users of the internet in terms of average number of hours spent online (41.3 hours/month); first in number of web pages viewed; and 16th in terms of global internet penetration at 87%, ranking it 2nd amongst its G8 counterparts. As of 2016, Canada is ranked 21st in terms of global penetration at 88.5%21.

Across Canada there is a divide between urban and rural internet access (100% vs. 86%). There is also an economic divide, with 95% of Canadians in the highest income quartile having access to the internet, compared to only 62 per cent in the lowest income quartile. Usage varies as well from province to province, with British Columbia and Alberta lead the nation in household internet access with 86%.

Finally age is a major factor. Compared to the US and UK, Canada has the lowest digital audience in the 55+ category (16% compared to about 25% for the other two countries) and the highest percentage of users aged 18-34 ("millennials", 40%) and users aged 35-54 (44%)22.

Device usage is split fairly evenly in Canada (about 50-50 for mobile and desktop), but more skewed to mobile in the UK (56-44) and US (61-39).

Consumer-Driven Trends

Much of the data found in the "Consumer-Driven Trends" section of the Technology Trends Report Nov 5, 2014 is still relevant. The sections on "Crowdsourcing & The Share Economy" and "Commodification of the Commons" remain largely the same. However, there are some updates that can be made, particularly around the statistics for the "Mobile Networks" "Connectedness & Social Networks" and "Content Consumption."

Note: The information below comes primarily from "ComScore: Canada Digital Future in Focus 2015" (<u>https://www.comscore.com/Insights/Presentations-and-Whitepapers/2015/2015-Canada-Digital-Future-in-Focus</u>) except where otherwise noted.

²⁰ http://www.internetlivestats.com/internet-users/

²¹ http://www.internetlivestats.com/internet-users-by-country/

²² Comcast (July 2015) – The Global Mobile Report: How Multi-Platform Audiences & Engagement Compare in the US, Canada, UK and Beyond

Mobile and Devices

Desktop

According the Comscore's "Canada Digital Future in Focus 2015," Canada has one of the most engaged desktop populations worldwide (ranking 1st for hours logged globally)²³. While desktop internet usage has flattened, it has not declined since the increase of smartphones. Desktop is still the dominant means of accessing certain types of information: news/information (68%), lifestyles (61%) and retail (60%). This seems to be an exception to the global rule—Comscore's "Global Mobile Report" compares device usage across age demographics in the US, UK, and Canada, and found that "Mobile trumps desktop across demographics. In virtually every case, mobile outpaces desktop for digital media time spent. With one key exception: Canadians age 35+ still slightly prefer desktop."

Mobile Phones

Mobile in Canada continues to grow, with a 5% YOY increase putting Canadians at over 24 million users. This puts Canada at 68% mobile penetration (vs. 55% in 2014²⁴). Smartphones (rather than feature phones) represent over 80% of subscribers, or 4 out of 5 Canadians. Smartphone usage skews towards higher income and younger demographics – in the 55+ age group, 59% use feature phones over 21% smart phone usage, and in households with incomes under 50,000 41% use feature phone vs. 25% using smart phones. It also varies by region/province, with BC posting higher smartphone numbers (15% smartphones vs. 12% feature phones), while feature phones still outnumber smart phones in the Maritimes and in Quebec. The numbers are fairly even across gender.

Millennials are leading the way with mobile (smartphone and tablet) usage, taking up 61% of their digital time (the exact inverse holds true for the 55+ range, with 61% desktop and 39% mobile). Mobile is the dominant means of instant messaging (86%), games (80%), and social media (69%). As of 2014 Android's open-source OS (developed by Google) is the dominant smart-phone operating system globally with 84% of the market; Apple follows with 12%, then Windows Phone at 3%²⁵.

Mobile-only users (accessing digital content exclusively on a smartphone or tablet) have increased as well, with 1.3 million Canadians (about 4%) only using mobile devices to access the Internet. 13% of Americans are mobile-only, up from 8% in 2013; the most significant growth in this shift is taking place among African Americans, those with lower household incomes, and those living in rural areas²⁶. The number of people without broadband access at home is going up (primarily due to cost), while people are increasingly likely to view home broadband as a crucial tool: "Roughly two-thirds (69%) of Americans

²³ https://www.comscore.com/Insights/Presentations-and-Whitepapers/2015/2015-Canada-Digital-Future-in-Focus

²⁴ http://catalyst.ca/2015-canadian-smartphone-market/

²⁵ http://www.internetsociety.org/globalinternetreport/section/2

²⁶ http://www.pewinternet.org/2015/12/21/home-broadband-2015/

indicate that not having a home high-speed internet connection would be a major disadvantage to finding a job, getting health information or accessing other key information – up from 56% who said this in 2010.²⁷

Tablets

Tablet use in Canada seems to be growing at an even higher rate than smartphones, with 9.3 million tablets in Dec 2014 representing a 56% increase since June 2013. However, a newer report on US technology trends (eMarketer report, "US Digital Users: The eMarketer Forecast for 2016") predicts a slowing of tablet growth: "The US tablet audience reached its peak growth in 2012, soaring by 182.4%, but it will expand by just 4.7% this year. Competition from smartphones, phablets and the lack of new tablet features are factors inhibiting further uptake.²⁸"

Below is a breakdown of usage for 2014 desktop, smartphone and tablets in Canada:



Share of Time Spent by Device – Selected Categories

Multi-platform Users

With over 14 million accessing digital content from more than one device a month, Canada is on the verge of joining many other countries with a "multi-platform majority". Total minutes are still divided evenly between desktop and mobile, with mobile use growing and desktop use decreasing.

²⁷ http://www.pewinternet.org/2015/12/21/home-broadband-2015/

²⁸ http://www.emarketer.com/Article/US-Internet-Users-Rely-on-Mobile-Devices-Digital-Access/1013649#sthash.JGKXwWte.dpuf

Connectedness & Social Media

Canadian social media statistics are largely unchanged compared to those presented in the 2014 trends report. A few more recent statistics about North American social media use include:

- 74% of internet users also use social networking sites (Pew 2014)
- In Canada, daily social media usage on smartphones increased 19% from Dec 2013 to Dec 2014 (ComScore)
- over 1.6 billion active Facebook users, or 50% of all internet users (04/2016 http://www.internetlivestats.com/)
- 72% of online adults have Facebook, though growth on the site has largely plateaued (Pew <u>"Mobile Messaging and Social Media"</u> 2015)
- Facebook users highly engaged 70% log in daily, 43% check several times a day (Pew 2015)
- Pinterest and Instagram users have doubled since 2012, with 31% and 28% users respectively
- No social media sites experienced significantly increased usage between Sept 2014-April 2015 (Pew 2015)

Content Consumption

Video

73% of Canadians watch video online, which is a higher engagement than their US counterpart (64%). Canadians also watch 43% more minutes of online video than their American counterparts.

Mobile video viewing went up in Dec 2014 from Dec 2013 (with a whopping 76% increase in those who reported mobile viewing daily). Since last year, there are increases in all types of video viewing (web-based videos 22%, live/on-demand TV 33%, and paid TV/video 41%)²⁹.

According to a 2015 study conducted by Pew Research, "cord-cutting"—households cutting cable subscriptions in favour of online streaming—is on the rise as well, with 15% of Americans cutting their cable subscriptions in 2015³⁰. They also noted a strong generational connection between cable vs. online viewing:

- 65% of those ages 18 to 29 have cable or satellite service at home, compared with 73% of adults ages 30 to 49 and 83% of those 50 or older
- One-sixth of young adults (16%) have never had a cable or satellite subscription
- 19% of young adults "cut the cord."
- 75% of young adults without a cable or satellite subscription say they can access content they want to watch online

²⁹ Canada Digital Future in Focus 2015 (ComScore) https://www.comscore.com/Insights/Presentations-and-Whitepapers/2015/2015-Canada-Digital-Future-in-Focus

³⁰ http://www.pewinternet.org/files/2015/12/Broadband-adoption-topline.pdf

Alternate content is key, with 64% of all those without cable or satellite TV citing alternative access to content as a reason. Youtube boasts over a billion users worldwide, with billions of views per day³¹. In terms of movies and TV, Netflix reigns supreme, with a reported 75 million total subscribers³². A study conducted by the Media Technology Monitor in the winter of 2014 reported that almost 40% of Anglophone Canadians were Netflix subscribers, up from 26% in a similar poll conducted a year prior. ³³ Sites like Hulu and Amazon have been Netflix's main competitors, securing content rights and producing original, exclusive content. Companies like Apple and Google are just starting to get into the competition as well³⁴.

Ebooks and E-Audiobooks

The ebook boom seems to be levelling out, with "ebook sales by the UK's five biggest publishers dropping 2.4% between 2014 and 2015³⁵." The APP reported a similar drop in the US, with sales down 12.3 percent between 2014 and 2015. This correlates with a slight rebound in print sales, which struggled between 2011 and 2014, but grew 0.5% in 2015 in the US and 3-4% in the UK³⁶. Of note, these reports do not include figures for smaller publishing houses or self-published ebooks, focusing only on a fraction of the market. The format that's seen the most growth is audiobooks – APP downloads increased by 38.1% in 2015.

Ebook and audiobook usage in libraries continues to grow. In 2015 Overdrive reported the following³⁷:

- Ebook circulation was 125 million (19% growth over 2014)
- Digital audiobook circulation was 43 million (36% growth over 2014)
- Streaming video circulation was up 83% over 2014
- 33 library systems circulated 1 million or more digital books in 2015
- Lending of digital magazines and newspapers grew significantly in 2015 (introduced in late 2014)
- Reader visits to OverDrive-powered library and school websites was 750 million (up 14% from 2014)

BookNet Canada's 2015 report on "<u>The State of Digital Publishing in Canada 2014</u>" provides a look at Canadian e-book publishing in 2014:

³¹ https://www.youtube.com/yt/press/statistics.html

³² http://venturebeat.com/2016/01/19/netflix-now-has-more-than-75-million-subscribers/

³³ http://www.huffingtonpost.ca/2015/04/08/nearly-40-per-cent-of-ang_n_7027536.html

³⁴ http://fortune.com/2016/04/19/netflix-competition/

³⁵ http://www.cnbc.com/2016/03/03/book-sales-are-in-decline-but-audio-books-are-thriving.html

³⁶ http://www.cnbc.com/2016/03/03/book-sales-are-in-decline-but-audio-books-are-thriving.html

³⁷ http://www.digitalbookworld.com/2016/libraries-lend-record-numbers-of-ebooks-and-audiobooks-in-2015/

- 93% of firms were publishing ebooks in 2014, compared to 89% in 2013
- 49% of publishers offered over half their titles electronically; for juvenile titles it's 61% (up from 49% in 2013)
- 69% of publishers release titles simultaneously rather than holding back the ebook version
- Three quarters of publishers sell ebooks to libraries (up 61% from 2013)
- Overdrive continues to be the most popular vendor at 82% of publishers, but 3M is growing (from 8% in 2014 to 35% in 35%)

Booknet's 2015 report <u>Listen Up: Audiobook Use in Canada</u> looked at audiobook listener trends among adults:

- Demographics skew to women (57% vs. 43%) and younger people (35% 25-24 vs. 25% 35-44)
- 24% find it "easy" to find an audiobook they want, while 30% find it "difficult"
- Users primarily choose audiobooks over other formats because they allow them to multitask, are portable, and can be used in cars
- 19% of audiobook listeners find out about books at their library (compared to 4.4% for buyers of print books); 25% acquire most of their audiobooks through the library
- 31% of users were unaware they could be borrowed from libraries; 16% know they are available but find them too difficult to access from libraries

Apps

Over 85% of time on both smartphones and tablets is spent using apps, rather than browsers. The Internet Society reports that the app economy grew from \$53 billion USD in 2012 to \$86 billion in 2014; they forecasted a rise to \$143 billion in 2016³⁸. In June of 2015 Apple announced 1.5 million apps in the App Store, while Android had 1.6 million. According to <u>AppBrain</u> there are currently 2.1 million Android apps available from Google Play. There were 140 billion apps downloaded in 2014, with a projected 270 billion app downloads in 2017³⁹.

While this growth makes sense with the rise of smart phone usage, FjordTrends predicts the decline of native, stand-alone apps in favour of "atomized brands" that "take a less rigid approach to their products and services, allowing them to be super distributed across various platforms and third-party services, while still retaining their brand identity⁴⁰" (an example is Spotify, which has multi-device and platform compatibility).

³⁸ http://www.internetsociety.org/globalinternetreport/section/2

³⁹ http://gsv.com/wp-content/themes/gsv/i/2020/GSV_2020-Vision_A-History-of-the-Future_Fall-2015.pdf

⁴⁰ http://trends.fjordnet.com/?disappearing-apps



🜔 comScore.

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Specific Trends

Based on internet buzz and trend reports put out by prominent technology sources like <u>Gartner</u>, <u>Marketwatch</u> and <u>Fjord</u> it is clear that many of the specific technology trends from the 2014 report remain top trends, though they may have seen progression or greater adoption since. Some, like cloud computing, have fully arrived and are no longer making top trend lists.

Mobile computing/internet

The hugely disruptive trend of mobile internet continues to be significant, but the technology is well established at this point, with 68% mobile penetration in Canada in 2015⁴¹. Developed areas in the Asian-Pacific exceed 100% (indicating multiple subscriptions). What's interesting is that while numbers are much higher in more developed nations, the rate of increase is much higher in developing nations, where lack of accessibility to "fixed" internet has caused mobile internet to "leap-frog" over the older technology. Mobile device connections in 2013 reached 1.97 billion (28% global penetration), with a forecast to shoot up to 71% by 2019⁴². As penetration in developed nations reach saturation, the growth has slowed significantly.

Trend reports are noting instead shifts in usage patterns, like an increase in multi-device and mobileonly internet access. A 2015 study done by Catalyst into Canadian mobile habits shows that while the

⁴¹ http://catalyst.ca/2015-canadian-smartphone-market/

⁴² http://www.internetsociety.org/globalinternetreport/section/2

number of people using smartphones as their primary device has gone up, "on-the-go" usage—the initial advantage of the technology—has declined while at-home usage has increased. They explain: "As in 2014, battery life and data limits remain the biggest frustrations with smartphones.... People might be conducting more activities at home in part because they are usually connected to Wi-Fi and have easy access to an electrical outlet to recharge as needed. If battery technology improves, and telecommunications companies increase their data caps, this trend may reverse." Indeed self-charging phones is one of the Marketwatch's 2016 technology trends.

Digital Mesh

Gartner's 2016 Technology Trends Report is all about the "digital mesh" – that continuous connectedness with information, people, apps, services and devices – and how IT is evolving to meet the demands of a digitally connected world.

Related:

- Internet of Things basically the same as the 2014 trends report*
- Wearables Since the last report Google has pulled the plug on Google Glass, which was leading the way in smart eyewear. While that trend did not take off, wearables in general are on the rise, jumping 58% from 2014 to 2015 to 39.5 million adult users⁴³. While market penetration is still low (16% of Americans currently using them), Fjord predicts the market for wearable health trackers will grow 600 percent by 2019. Dedicated health trackers like Fitbit currently dominate, with multi-function smartwatches like the AppleWatch remaining competitive. There are lots of other dedicated activity trackers popping up, like the Nuyu Sleep System, which monitors and adjusts body temperature for improved sleep) and the Neatamo June bracelet with measures sun exposure to reduce UV damage⁴⁴.
- The "device mesh" this refers the proliferation and greater connectivity of a variety of digital access points (i.e. wearables and AI in addition to desktop and mobile devices, as well as the greater Internet of Things).
- Ambient user experience this predicts technology moving towards an increasingly
 personalized experience that "blends physical, virtual and electronic environments, and uses
 real-time contextual information as the ambient environment changes or as the user moves
 from one place to another.⁴⁵"

⁴³ http://www.emarketer.com/Article/Wearable-Usage-Will-Grow-by-Nearly-60-This-Year/1013159?ecid=NL1001

⁴⁴ Read more wearable trends at http://www.cio.com/article/3017995/wearable-technology/13-wearable-techtrends-to-watch-in-2016.html

⁴⁵ http://www.forbes.com/sites/gartnergroup/2016/01/15/top-10-technology-trends-for-2016/2/#63cef5a25830

Big Data, Information of Everything

There has been an exponential growth of data since the adoption of internet, devices, sensors and applications. In fact 90% of the world's data has been generated in the last two years⁴⁶. Big Data refers to extremely large datasets that can be mined for patterns and information, which has strong educational, research, and commercial value.

The Information of Everything is the next stage - it the Internet of Things meets Big Data and involves strategies and technologies to process and make use of the mass amounts of date generated by everything in the digital mesh as it evolves and grows (i.e. going beyond textual and A/V information to sensory and contextual information).

Smart machines - Advanced Machine Learning, Autonomous Agents and Things

Smart machines made a huge leap on March 2016 when, in a game of Go, AI AlphaGo beat top-ranked Go player Lee Se-dol against everyone's expectations. Google's DeepMind AI has learned to read and more importantly understand what it is reading⁴⁷. Based on "deep neural nets", "deep learning" in machines mean they can go beyond classic computing and create systems that can learn autonomously to perceive and process the world through data. While this will play a big part in addressing the processing challenges of processing Big Data, it also stands to be majorly disruptive socially and economically. As they grow increasingly capable and intelligent, smart machines could put many people out of work⁴⁸.

Related:

Autonomous Agents and Things - Advanced machine learning and DNNS give rise to autonomous agents and things including robots, autonomous vehicles, and virtual personal assistants. Gartner points that that while "advances in physical smart machines such as robots get a great deal of attention, the software-based smart machines have a more near-term and broader impact. VPAs such as Google Now, Microsoft's Cortana and Apple's Siri are becoming smarter and are precursors to autonomous agents.⁴⁹"

Additive Manufacturing = 3D Printing - Gartner and numerous other sites predict continued advancements in 3D printing technology, particularly an increased range of materials like "advanced nickel alloys, carbon fibre, glass, conductive ink, electronics, pharmaceuticals and biological materials for

⁴⁶ https://www.sciencedaily.com/releases/2013/05/130522085217.htm

⁴⁷ Read more about Google DeepMind: https://www.technologyreview.com/s/538616/google-deepmind-teachesartificial-intelligence-machines-to-read/

⁴⁸ https://medium.com/basic-income/deep-learning-is-going-to-teach-us-all-the-lesson-of-our-livesjobs-are-for-machines-7c6442e37a49#.Inhiowjul

⁴⁹ http://www.gartner.com/newsroom/id/3143521

practical applications expanding into aerospace, medical, automotive, energy and the military.⁵⁰" Biological printing (skin, organs etc.) is progressing from theory to reality, but neither politicians nor the public have a handle on the implications of this yet.

Virtual Reality, Mixed reality

2016 is set to be a big year for VR, with Sony, Oculus Rift and Samsung all releasing new consumer versions of their products. Though still a niche market of mostly tech-enthusiasts and gamers, as the technology improves and the prices go down VR is poised to become big business in the near future, with applications from education to tourism and health.

While VR is currently all-immersive – it takes you out of reality into its own simulated world – there is increasing talk about "mixed reality," which merges augmented and virtual reality to overlay digital information and images onto the real world. Microsoft's <u>HoloLens</u> is the big name in this tech, with a smaller start-up <u>Meta</u> doing something very similar.

Technology Trends for Specific Sectors:

Public Libraries:

A 2015 study by Pew Research "Libraries at the Crossroads" ⁵¹ showed a strong interest by the American public in investing in technology in libraries:

- 78% of Americans said libraries "definitely should" offer programs to teach people how to use digital tools like computers, smartphones and apps
- 76% said they "definitely should" offer programs to teach patrons about digital privacy and security
- 45% said they "definitely should" and 35% said they "should maybe" buy 3D printers and other new digital tools so people could learn how to use them.
- 75% say libraries have been effective at helping people learn how to use new technologies

At the same time library usage has ebbed slightly in the last few years, as have the numbers of people using library websites, and those using its computers, internet connection or Wi-Fi (27% in 2015 versus 31% in 2012). In the other direction, there has been a significant increase in those accessing library websites from mobile (50% in 2015 versus 39% in 2012).

What patrons want and expect from a library space is seeing a shift as well:

• 30% of those 16 and over think libraries should "definitely" move print books/stacks out of public areas to free up room for "tech centres, reading rooms, meeting rooms and cultural

⁵⁰ http://www.forbes.com/sites/gartnergroup/2016/01/15/top-10-technology-trends-for-2016/#74bce7545ae9

⁵¹ http://www.pewinternet.org/2015/09/15/libraries-at-the-crossroads/

events" (up from 20% in 2012); 40% say libraries should "maybe" do that, and 25% said they should "definitely not do that" (down from 36%)

The ALA's 2014 Digital Inclusion Survey⁵² looks at how public libraries can build digitally inclusive communities through digital access and literacy programs. Highlights show that libraries have by and large embraced basic digital services:

- 98% offer free WiFi
- 90% offer tech training
- 95% offer online homework assistance for youth
- 77% offer online health resources
- 90% offer e-books (up from 76% in 2012)

The average number of public access computers varies based on the library's population: 37 for city libraries, 23.6 for suburban libraries, 17.9 for town locations, and 8.8 for rural libraries. 30.7% of all public libraries experience at least some patron wait times. City libraries face the highest demand, while libraries with smaller populations are challenged trying to maintain up-to-date PACs and other technology offerings (particularly in rural libraries). 62 percent of town PACS and 49% of rural PACs are over 4 years old. Libraries in less populates areas are also less-equipped to maintaining their systems, having lower percentages of dedicated staff for that purpose (78.6% in town locations and 66.2% in rural libraries versus 90.6% in city libraries).

Broadband access also depends on the size of the library/population served:

Median subscribed download speed: • City: 40,960 kbps • Suburb: 25,600 kbps • Town: 15,360 kbps • Rural: 10,240 kbps

Median subscribed upload speed: • City: 30,720 kbps • Suburb: 20,480 kbps • Town: 10,240 kbps • Rural: 3,072 kbps

There is a significant difference at times between these subscribed speeds and tested speeds (tested on PACs after-hours to eliminate high demand as a factor):

Median tested download speed: • City: 42,881 kbps • Suburb: 27,033 kbps • Town: 11,038 kbps • Rural: 7,900 kbps

Median tested upload speed: • City: 19,451 kbps • Suburb: 11,694 kbps • Town: 4,639 kbps • Rural: 1,843 kbps

Though larger systems are better equipped for internet, higher user demand makes them just as likely to report being unable to meet user demand as smaller libraries – 30.9% city libraries reported their

⁵² http://digitalinclusion.umd.edu/sites/default/files/uploads/2014DIExtendedSummary_0.pdf

connection rarely or only sometimes met patron demand, compared to 27% of suburban libraries, 33.3% of town libraries, and 33% of rural libraries.

In addition to infrastructure, physical space is another issue: 87.6% of libraries felt their buildings were poor or fair in terms of adequacy for maker spaces, and 79.1% felt that way about adequacy for work/office spaces for business users (consider this in light of the 2015 Pew study above, which indicated 45% of people thought libraries "definitely should" buy 3D printers and other new digital tools so people could learn how to use them, and 52% indicated they "definitely should" create services or programs for local businesses and entrepreneurs).

The figure below shows a breakdown of the types of technology instruction offered, broken down by library size^{53:}



Figure 3. Public Library Technology Training by Library Size.

Not-for-profit:

The Digital <u>Outlook Report for "Nonprofit Trends and Strategy</u>" points to some useful trends relating to digital strategy in not-for-profits that might also be of interest to libraries.

The report showed that 61.06% of organizations had at least one staff member dedicated solely to online digital strategy, 52.09% of respondents have a team of at least 2-5 people focused on digital strategy. Larger organizations are much more like to have dedicated digital strategy staff. The biggest challenges for smaller organizations are staff shortage (59%) and budget restraints (55%).

Other trends:

• Moving away from mass-marketing towards multi-channel personalized marketing that responds to how patrons interact with the organization

⁵³ <u>http://digitalinclusion.umd.edu/sites/default/files/PLBuildings2015.pdf</u> p. 3

- Using personas -data-driven but fictionalized representations of core constituent segments to guide digital strategy. While not widely popular (23% of the organizations used them), it has shown some early success.
- Social media adoption by organization size: there is a "20% difference between small and large
 organizations that use Instagram. It seems that Instagram takes the additional investment of
 staff time, which smaller organizations are lacking." (No sizeable different for Facebook,
 Pinterest, Direct Mail, Twitter and Email Marketing)
- Increased user demand for visual rather than textual content

Businesses:

The Sept. 2015 "<u>Global Digital IQ Survey</u>" surveyed 2,000 executives (drawn globally from both the tech and business sides of organizations) to find out what actions leaders take to ensure their digital investments deliver. Based on the results of the survey they identified 10 key areas through which to benchmark a company's "Digital IQ". These include the CEO being a technology champion with clear vision; strong support from the executive team; strategy-sharing across the organization; and proactive cyber-security. CEOs were more likely to think long-term, and about disruption in particular – both internal and market disruptions created by new technologies – while collectively businesses seem more concerned with the immediate returns of digital (revenue growth 45%, improving customer experiences 25%, increasing profits 12%). The technologies that are overall seen as most important strategically in the next 3-5 years are cybersecurity, data mining and analysis, data visualization, digital delivery, and private cloud. The report also states that organizations that are digital IQ leaders are "twice as likely to achieve rapid growth and profit growth" than those who lag behind with technology.

Education:

A 2015 report published by Global Silicon Valley (an Asset Management company), "2020 Vision: A History of the Future," looks at education and specifically technology in education. The report identifies megatrends that have been disruptive to education, including mobile, big data, knowledge-as-currency, and "KaizenEdu" based on the Japanese term for "continuous improvement".

Big data has allowed for greater understanding and comparisons of outcomes, making effectiveness on student outcomes more objective than in the past and thus the new marker for evaluation and funding in education. When big data combines with smart machine learning, it also results in more adaptive, personalized learning possibilities. Much as Google, Amazon, and Netflix rely heavily on the invisible technology of recommendation engines, technology can help customize educational experiences to individual students. "McKinsey estimated that increasing the use of student data in education could unlock between \$900 billion and 1.2 trillion in global economic value"*

"KaizenEdu" is tied to the above shift. The report explains that in the Global Knowledge Economy, "you could no longer fill up your "knowledge tank" until age 25 and cruise through life. Effective workers had to refill their knowledge tanks continuously". It also notes that Millennials have a projected average of 15 careers in their lifetime. Learning one specialized trade you will master for the duration of your life is no longer a core competency; now it is being flexible and "learning how to learn." Digital learning can better accommodate continuous learning because it is more affordable and geographically flexible,

allowing people in the workforce to create a learning schedule around their working life (see page 14 of this report for list of prominent online learning sites).

Knowledge-as-currency refers to a shift from employers hiring based on degrees and reputation of colleges to a "personal knowledge portfolio" of demonstrable skills. This paradigm shift demands more continuous learning and skill-collecting (see above), much of which will be online – so watch for a growth in digital badging and certificates.

The hugely disruptive emergence of mobile and smart phones has a huge impact on education as well. As GVS reports, "by 2015, nearly 90 percent of high school students and college students owned a smartphone". Digital learning provides new opportunities to improve educational outcomes – such as through educational apps and online tutoring – while allowing for easy quantification, automated alerts, personalized learning recommendations, and an added social networking component.

With all these trends pointing to a big shift towards digital learning, the reality is that schools have been slow to catch up. This has been partly due to a reliance on older models of teaching, and partly due to inadequate technology infrastructure. In 2015, over 60% of schools in the United States lacked high speed internet: "In a country where we expected free Wi-Fi without coffee, going to school had become the most un-connected part of the day". The report notes a correlation between high speed infrastructure and academic performance globally (regardless of national wealth): "In South Korea, 100 percent of schools were wired with powerful broadband, and in Singapore, connections were 40 times faster than the United States. Both countries were top performers on international assessments like PISA". The educational potential of smartphones is also underused. While 72% of high school students own one, only 43% used them for school work, and only 26% used them in class.

Further Reading:

Lifelong learning & technology: <u>http://www.pewinternet.org/2016/03/22/lifelong-learning-and-technology/</u>

"How Canadian Public Libraries Stack Up" https://www.accessola.org/web/Documents/OLA/issues/214109cef how libraries stack up.pdf

Top 10 Strategic Technology Trends 2016



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Online learning programs (from GSV 2020 Vision report):



Company	Founded	Туре	Impact
Acrobatiq	2013	Adaptive Learning	Adopted by major public university systems including Arizona State
ClassDojo	2011	Behavioral, Engagement + Communication	50M+ parents, students, and teachers in 50%+ U.S. schools
Clever	2012	App Platform + API Layer	25% of U.S. K-12 schools
DreamBox Learning	2006	Adaptive + Game-Based Math Learning	5M lessons completed per week
Edmodo	2008	Learning Management and Collaboration Platform	50M teachers, students and parents
Instructure	2008	Learning Management System + Online Courses	18M teachers and students
iTunes U	2007	Freemium Educational Content Platform	1B+ downloads
Khan Academy	2006	Free Educational Content Platform	15M+ users, 300M lessons delivered
Knewton	2008	Adaptive Learning + Big Data Platform	15B+ recommendations served to 9M+ users
Newsela	2013	Literacy Skills-Building Platform Using Real News Articles	4M+ students in 70%+ of U.S. schools
Remind	2011	Secure Communication Platform	25% of U.S. teachers, 60M messages per month
Think Through Math (TTM)	2006	Adaptive + Game-Based Math Learning	2.6M+ students per year
Turnitin	1995	Student Evaluation, Data and Analytics	24M students across 10K schools

APPENDIX C: Technology Initiatives at Other Libraries

Technology at Nearby Libraries:

Many think of libraries as "analogue" spaces, but libraries are often at the forefront of new technologies. To find exciting and innovative technology programs and services one has to look no further than nearby libraries like VPL, NVCL and RPL:

VPL – Inspiration Lab

VPL's new Inspiration Lab is a dedicated creation centre with special equipment, space, and classes. Recording studios include microphones and recording equipment, video equipment, and a green screen. The digitization centre allows patrons to convert VHS tapes, 8 mm video cassettes, slides, and audio cassettes. The computers are equipped with video, audio, and photo editing software, as well as tools to self-publish e-books.

NVCL – Digitization Station

At North Van City's popular Digitization Station you can learn to convert or 'digitize' photos, slides, documents, camcorder tapes, VHS, vinyl records or music cassettes. Staff show patrons how to use the equipment, and then they work independently to complete their project(s). They also provide software to make new digital content (i.e. digital scrapbooks, family trees, slideshows or movies from old photos, slides and videos).

Also of note is North Vancouver City Library's Seed Club, which lends out seeds to the public. There is also a "<u>Mini Digital Media Lab</u>" program for teens, with weekly drop ins with support and equipment for coding and animation (i.e. Maya 3D animation and other creative software, Raspberry Pi's, iPad minis loaded with Graphic design and animation Apps, and instructions for how to get started.)

Richmond Public Library – Launchpad

RPL's "Launchpad" is an innovative workspace where 3D printing, digital publishing tools and a range of digital services tutorials are available. On top of the 3D printing station there is a "Create & Learn Station" that has Macs and a photo scanner and printer. The digital publishing platform allows the Library to facilitate community generated content (i.e. they are currently calling for digital submissions of cooking recipes).

Technology at Comparator libraries:

West Vancouver is challenged to identify comparator libraries locally because our size, community character and funding are unique. We often look to libraries in the U.S. that are similar in size, capacity and community character for ideas.

Westerville Public Library: The WPL has a "Digital Media Station" that focuses more on software and digital content creation. They have scanners and VHS to DVD conversion hardware to facilitate

digitization, but the more impressive features are a wide array of photo editing, video editing, sound editing, and animation software (web design, photo/video/sound editing) available on both PC and Mac computers⁵⁴. They also have an all ages gaming room with a Wii and X-box 360.

Darien Library: Their Digital Media Library has it all—digitization (VHS, Hi8, Cassette); a 3D printer; lightbox, lighting kit, cameras, mics, camcorder, green screen; plus both PC and Mac computers with a wide range of software (web design, photo/video/sound editing, e-book creation, 3D modeling).

Their TEA Room (Technology, Engineering, & the Arts) is a mini-maker space, a learning lab, & an artist studio designed for children in grades 3 to 6. They offer classes on everything from circuitry to printmaking (equipment includes MakerBot 3D printer, Raspberry Pi, Digital Cameras, Lightbox, LEGO Architecture Kits, Button maker, Rainbow Loom, KAPLA Blocks, SpinBotKits)

Other Libraries/General trends:

In general, digital and emerging technology initiatives in public libraries can be grouped into a few main categories: early adoption of cutting edge technology; preservation, conservation, and digitization; digital content creation; tech skills and digital literary; and maker/share spaces. Many programs and services overlap in multiple categories.

Early adoption/speciality:

This category involves providing access and instruction for products in their early development that people would not generally have access to. 3D printing is a common example of this which can be seen at large library systems like Edmonton, Toronto, and Ottawa, but also in smaller communities like Sudbury (3D printing and 3D scanning) and Kitchener (3D printing and die cutting).

A standout example of this type of emerging technologies in the library is the Arapahoe Library District. Executive Director Nicolle Ingui Davies was awarded LI's "Librarian of the Year award" for 2016 in large part for her commitment to new tech at the ALD:

[T]he libraries feature products in their early development, the beta phase out of reach to a typical household. ALD takes on the costs and risks of early adoption, producing such new technologies as 3-d printers, Go Pro cameras, Oculus Rift Virtual Reality headsets, and many more. ALD was one of the first libraries in the country to get Google Glass.⁵⁵

Other examples include humanoid robots <u>Vincent and Nancy</u>, used to teach programming and coding at the Westport Public Library in Connecticut; <u>DI-WIRE</u> at DC Public Library; and the "Innovator-In-Residence" program at Toronto Public Library (not itself a technology but draws from tech community to deliver programming around cutting edge tech).

⁵⁴ http://www.westervillelibrary.org/technology-center

⁵⁵ Library journal Jan 2016 v 141 no. 1, "Librarian of the Year" Nicolle Ingui Davies. P. 32

Digitization/Preservation tech:

Digitization technologies are becoming more ubiquitous in libraries, from basic flatbed scanners for photos and documents to specialized equipment to digitize vinyl records, cassettes, and VHS tapes. Locally, NVCL and VPL have comprehensive digitization services (see "local libraries" section).

Another notable example is the DC Public Library's "<u>Memory Lab</u>", which offers a hands-off immersive environment for digitization, with comprehensive online instructions both for patrons and for other public libraries interested in starting memory labs⁵⁶.

http://www.washingtonian.com/2016/03/03/dc-public-librarys-new-memory-lab-lets-digitize-old-photos-videos/

Programming & instruction/digital literacy:

Most public libraries provide some degree of tech instruction along with access to internet and computers; this can range anywhere from as-needed tech support to comprehensive digital literacy programming. Many, including our own, provide basic digital literacy courses and offer continued learning through online resources like Lynda.com.

The New York Public Library's "<u>TechConnect</u>" program is an example of extremely robust digital literacy programming. They offer 80 free technology classes from beginner to advanced (with class handouts in multiple languages), including series classes for those who want more in-depth knowledge. Their programming is comprehensive—they include common library tech courses like social media, library resources, e-readers, but also have dedication courses on Google, Macs, Microsoft Office Suite, tech for users with special needs, digital content creation (i.e. photo editing, sound and film editing), and Project <Code>, a 10-week coding course.

Public Libraries are also engaging more with the idea of MOOCs ("Massive Open Online Courses"), most often by providing online information and links to useful resources (i.e. Coursera, Khan Academy). A few are even hosting MOOCs in the library space, merging the convenience and variety of online learning with the social benefits of communal learning (examples include VPL, NVDPL, Calgary Public Library, and our very own library, which hosted a 12-class Python MOOC with good initial turnout but declining numbers as the weeks went on).

Share spaces/maker spaces:

Share spaces lend "things" out for patron use at home, while maker spaces make things available for inlibrary use. Though they often look quite different (maker spaces tends to be very tech-y and cutting edge, while share spaces often have a lot of analogue equipment), they both prioritize sharing resources and knowledge between community members—as part of the "share economy" philosophy—thus there is a lot of overlap and they often appear together.

⁵⁶ http://libguides.dclibrary.org/build

Though the library service model is all about lending, the model for the "share library"/"library of things" that lends everyday objects and specialized equipment comes from independent community efforts. A good local example is the <u>Vancouver Tool Library</u>, which lends bike repair, home repair, and gardening tools, and is entirely community run. There are also independent seed, zine, musical instrument (<u>Joe Chithalen Memorial Musical Instrument Lending Library</u> in Kingston), and even kitchen appliance libraries (<u>Kitchen Library</u> in Toronto and two locations for the <u>Kitchen Share</u> in Portland) across N. America.

Public libraries are starting to catch on, and have the benefit of greater resources and established lending infrastructures. WVML already loans non-traditional materials, including energy meters, Makey Makey kits, Raspberry Pis, and most recently "Wee Musicians" musical instrument kits for youth. 3 other nearby libraries (NVCL, RPL, and VPL) have partnered with community non-profits to create seed lending libraries.

The following two libraries are examples of what comprehensive share and maker spaces in a public library can look like:

Sacramento Public Library - The <u>Library of Things</u> at the SPL is the most established example of a dedicated share space in a public library, with some items for in-library use creating maker space overlap.

Loanable items:

- Sewing machines
- Video Games
- Music Instruments
- Board Games
- Button Makers
- Screen Printer

Items for in-Library use:

- Bike repair kit
- Serger
- 3D scanner
- 3D printing lab
- Book Binding (Espresso Book Machine)

Cincinnati Public Library - CPL <u>has a whole floor dedicated to a maker space</u>. Items are for in-library use but include a mix of high-tech features (3D printing) with more traditional creation (sewing stations):

- Book binding (Espresso Book Machine)
- Mini MakerSpace
- 3D Printer

- Laser Cutter/Engraver
- Sewing Stations
- Media Conversion Stations
- Digital Audio, Video and Photography stations
- Vinyl Printer/Cutter

Also, **Sudbury Library Maker Space** offers 3D printing; 3D scanning; Makey Makey, Raspberry Pi, Arduino; sewing machines; green screen, camera, tripod, software; power and hand tools for building and repair; vinyl cutting. **Kitchener Public Library** offers 3D printing; die cutting; digital conversion; scanner; music station (Ableton Push, virtual instruments).

MORE: http://library-maker-culture.weebly.com/makerspaces-in-libraries.html

Technology Spotlights:

San Diego Public Library – World's first Biotech Lab in a public library!

Outfitted with used and donated equipment from local sources, the Bio Lab meets Basic Safety Level (BSL) 1 standard, the equivalent of a high school laboratory. It currently offers microscopes, centrifuges, DNA copying machines, electrophoresis gel boxes, a vortex miner, and other basic molecular biology equipment, as well as access to the branch's 3-D printer lab and a 50-person classroom.⁵⁷

The Hive at John F Germany Public Library in Tampa, Florida: This space has everything from a robotics testing field to quilting lessons. It includes: makerspace, robotics center, arts center, collaboration space, recording studio <u>http://www.hcplc.org/hcplc/locations/hve/</u>

Orange County Library System (OCLS) - Melrose Center for Technology, Innovation and Creativity: In addition to photography, audio, and video production studios and maker space, they have a simulation lab in which "patrons can log training time in flight, driving, forklift, and excavator simulators."⁵⁸

"[T]he Melrose Center photo studio has been so well used, and its equipment requires such a relatively small footprint-including a Canon T5i Digital SLR Camera, professional lighting and flash equipment, portable backdrops and green screens, and a lightbox-that OCLS is considering installing photo studios in other branches."

This year, to coincide with the center's 1st year anniversary, they will hold "Melrose Awards", recognizing creative work produced in their own studios, from video and audio production to game design, 3-d design and engineering creating in their Fab Lab.

⁵⁷ Library Journal volume 140 No. 16, Oct 1 2015, p 16

⁵⁸ Library Journal volume 140 No. 16, Oct 1 2015, p 17

DC Public Library – While this Library has a few neat features (bartering space for services with community groups, new technologies like DI-Wire) what's nice is that they have some of every category divided up into "labs". In addition to their Memory Lab (see Digitization/Preservation Tech), they have the Digital Commons (computer lab with software-loaded computers and Espresso book machine, plus meeting room spaces); Dream Lab (collaborative space for small organizations/groups, offered freely in exchange for min. 1 hour public programming per month relation to IT/digital literacy); Fab Lab (laser cutting, 3-D printing, CNC machines, DI-Wire); and the Studio Lab (digital production equipment, voiceover studio, main production studio).

Penn State University Libraries, University Park, Pa – One Button Studio: Although not a public library, Penn State University Libraries enabled <u>easy video creation</u> for faculty and students across Penn State campuses, which could have very useful application in a public library setting. With only a flash drive and the push of a single button, users can activate a video camera, microphone and lights to begin recording. In its first year of use, 4,200 people created more than 270 hours of video. The app also reduces production costs due to changes in the type of equipment, as well as the number of staff needed.

Chattanooga Public Library – Partnering with the city and the Open Chattanooga Brigade, the Chattanooga Public Library has created an <u>open data portal</u> that includes municipal and community-contributed datasets. It also hosts data "mash-ups" created by users.

NYPL – Using technology to increase accessibility, NYPL partnered with non-profit organization Benetech to make 370,000 ebooks available for print-disabled patrons⁵⁹.

⁵⁹ Library journal feb 15 2016 volume 141 no. 3 p 21

APPENDIX D: Graffiti Wall Feedback

There were 412 total pieces of feedback collected over the month .

Week 1: What technology would you like to find/use/learn about at the Library?

Total responses: 178 Onsite flipcharts: 154 Website: 17 Social Media: 2 Chinese language: 5

Responses varied widely and many were unique. The largest overall category was games and gaming, with 27 different responses.

- Suggestions around games: gaming corners, specific games, specific consoles, MineCraft (27)
- 3D printing, equipment and classes (14)
- Photoshop / Desktop Publishing (11)
- Digitization equipment, especially slides (9)
- Apps and tools for creating music and art (analog and digital) (6)
- Class(es) on new technology, new apps, "what's new" (4)
- Virtual reality (4)
- Wireless Printing/Print from Home (3)
- Lending laptops (3)
- Artifical intelligence, electronic assistants (3)
- Electric vehicle charging (3)
- E-sports and e-fitness (3)
- Book Making machines (2)
- Device charging stations (2)

There were many suggestions for classes on various subjects: coding, programming, web development and excel. Several asked for more of what we already offer, such as computers, kindles and digital content. A number suggested applications to augment current library service, such as a seating map that shows where seats are currently available in the library or an app that allows for self-checkout. Some unique suggestions included requests for coworking space and "kits to invent technology".

A few responses were future focused – two people asked for "robot librarians" and two more for a time machine.

Fifteen of the comments were contrarian, such as "more books being read" or "forget technology – too much now" or "less of it".

Week 2: How is technology changing our community?

Total responses:57 Onsite/flipcharts: 39 Website: 12 Chinese language: 6

Responses to this question were mixed. About half expressed generally positive, hopeful thoughts about technology and the changes it brings. The other half of the responses was split between strong concerns and expressions of ambivalence that saw both pros and cons to technology.

The positive comments had several themes. Many spoke about using technology to build communities and connect with people as well as the greater ease of global communication, increased awareness of the world around us, and increased access to information for research and learning. People also mentioned the positive environmental impacts of using less paper and needing to drive less, and the positive impact of technology on health and medical advances.

By contrast, many people shared their worries about disconnectedness and isolation, commenting that they encounter less face to face communication, and that people seem more easily distracted and addicted to their technology. There are concerns that those without technological savvy are shut out. Some commented that life feels less simple and there is less play. Some are concerned that people have lost critical thinking skills and have become lazier. The cost of technology was also a concern.

Week 3: What technology should the library invent?

Total responses: 129 Onsite flipcharts: 103 Website: 21 Chinese language: 5

This question spawned a lively debate on our website about the role of the library in supporting learning, with many respondents suggesting classes or talks on various technology topics and others asserting that the provision of (print) resources should be the library's sole purview. Holograms, robots and teleportation were frequently mentioned as folks struggled to imagine future technology. One wag wrote "flux capacitor" (the technology that powered Michael J Fox's flying, time-traveling DeLorean in the movie Back to the Future).

While the responses ranged widely, some themes emerged:

- Technology for finding materials: e.g. robots to find books, GPS enabled books, and 3D maps to guide you to books you to your books
- New interfaces for searching: voice commands, neural interfaces
- Technology for connecting, especially around reading: e.g. online community for book trading hosted by the library, a way to connect with like-minded individuals, a book discussion app, book recommendation engines
- Classes on subjects including coding, graphics, digitizing, computational thinking, Wordpress
- Increased ease of access and delivery, e.g. robot delivery of materials, robot staff, universal translation tools

A number of people also suggested improvements to physical space, such as more light and comfy seating.

Existing technologies were also mentioned including maker spaces, 3D printing and sphero robots. One individual suggested a curated library of podcasts.

Week 4: How does Technology Help or Inspire You?

Total: 48 Onsite flipcharts: 36 Website: 7 Chinese language: 5

Technology inspires people through increasing and simplifying access to information and research resources, especially for school and health. It can open new possibilities and improves or simplify daily life, allowing more room for creativity by freeing the mind from automatic tasks. It also improves access to entertainment. A number of respondents felt technology improves communication and community, by helping those with communication disorders, enabling easy communication around the world and allowing people to form connections within their community. A number of responses spoke to the potential of technology to solve problems and inspire innovation.

APPENDIX E: Technology Fair Feedback

Green = exceeded goal Yellow = met goal Red = did not meet goal

Success Factor	How measured?	Goal?	Result?
A good turnout of regular users with some new visitors and	# attending	150 attending over 2 days	533+ attended over 2 days
reflecting some diversity (age, gender, language, etc.)	staff observation	Visitors include younger (kids, teens) and older (seniors) folks, as well as some newcomers	Staff, hosts, guests reported broad diversity in attendees
Engagement with influential members of our community	Reported by hosts and staff	10 "VIPs"	 13 identified "VIPs" 6 Lib board members including 3 hosts 3 Fdn board members including 1 host 2 politicians (1 MLA, 1 councillor) 2 District managers
Attendees are engaged with the exhibits and	# passports completed	>60% of passports completed	40% of passports completed
give thoughtful feedback	# exit surveys completed	>20% complete exit survey	34% completed exit survey
	# interactions at each booth	>30 interactions/responses at each booth	All but 1 feedback board had >30 responses (up to 260)
	staff observation	Staff report "buzz", engagement, ideas	Staff reported moderate to high degree of interest in all topics and captured stories and ideas

We printed a total of 650 passports and gave out 533 to people attending the fair. Sweeps of the Library showed less than a handful of "abandoned" surveys, so we feel confident that the 533 passports represent a minimum of 533 attendees. We say minimum because staff at the welcome booth reported that often families chose to take passports only for their children, or for one member of a couple. A guesstimate on total actual attendance would be closer to 700 or more.

While we met our VIP target, we had hoped to see a few more VIPs. Our excellent "hosts" ensured VIPs received a guided tour and additional information if needed. Those VIPs who attended generally stayed for at least an hour.

Fewer completed passports were returned than we had aimed for. Staff observed that many people chose to keep their passports as souvenirs; many of the children did not want to give up their collections of stickers from the booths they visited.

On the flipside, more completed the exit survey than we anticipated. Nearly 85% of those who submitted their passports took the time to respond to the exit survey. (see below for results)

We more than met our goal of at least 30 interactions at each booth. Booths reported well over 100 contacts over the course of the fair, and for those with interactive elements we recorded anywhere from 23 to 260 responses.

Fringe benefits:

In addition to setting specific targets for the fair, we identified the following fringe benefits:

- Seeding ideas in the community
- New relationships or partnerships (with guests, vendors, visitors)
- Many staff have the opportunity to talk directly with community members
- Diverse community members coming together
- Greater appreciation for and support of library technology initiatives among participants

Reports from staff, hosts and volunteers indicated that all of these benefits were realized. In particular, we were pleased with the apparent diversity of attendees, people's statements of appreciation and amazement at the event, and the relationships we were able to establish with our guests.

Booth Feedback

Staff and guests were asked to complete surveys at the end of each day to describe overall level of interest in their booth, the aspects or applications of the technology that seemed to inspire the most "buzz", the apparent demographics of those visiting their booth and any other stories or feedback.

Welcome booth:

- Level of interest (Friday, Saturday): 9/10, 10/10
- Kids competing to get all the stickers; all ages wanting to keep completed passports as souvenirs
- Thank yous all around, especially from parents

- People liked takeaways physical (buttons) and digital (apps)
- Buzz: virtual reality, digitization, 3D printing, kids and coding, augmented reality

Digital Services that Come to You:

- Level of interest: 8/10, 7/10
- High interest in ebooks, e-audiobooks
- People surprised (and excited) about Zinio, InstantFlix
- Reluctance to download QR scanner to use bookshelf
- Challenge to overcome previous poor experiences with OverDrive
- People appreciated one-to-one help getting up and running
- FEEDBACK MECHANISM: "How can we come to you?"
 - 122 responses (people could vote for more than 1)
 - Digital collections 50 (41%)
 - Offsite events 24 (19%)
 - Virtual reference 22 (18%)
 - Book lending machines 17 (14%)
 - Book delivery -9(7%)

Virtual Reality/Augmented Reality:

- Level of interest: 10/10, 10/10
- People found the immersiveness of VR most compelling
- Enthusiasm and willingness to try the technology
- Excitement about owning or being able to borrow VR technologies

Digitization:

- Level of interest: 8/10, 8/10
- Appealed largely to adult audiences
- Slides (slide attachment) most interesting; lots of interest in VHS, 8mm conversion also
- Interest in beta, vinyl, cassettes
- Interest in digital-to-digital conversion also
- Patrons came back on Saturday with things to digitize
- Concerns about how long it takes
- Suggestion for a light table to layout slides
- FEEDBACK MECHANISM "What would you like to digitize?"
 - 23 total responses VHS and slides are #1, but many analog and digital formats are of interest

Sound/video:

- Level of interest: 9/10, 8/10
- People buzzed about podcasts, learning PhotoShop, video creation
- Green screen activity a draw
- Kids interested in recording music analog (e.g. ukulele) and digital (e.g. beat box, mixing)
- Oral histories
- People needed to see, hear about examples to understand the possibilities then became enthusiastic
- FEEDBACK MECHANISM "What are you interested in?"
 - o 73 total comments/votes
 - Responses ran the gamut and covered both tools photoshop, green screen, video editing and recording, tripod, microphones – and end products: interviews, Youtube videos, oral histories, song parodies, documentaries

The Library of Things:

- Level of interest: 8/10, 10/10
- People loved the button maker; it was a real draw but maybe a distraction from the booth's content
- People often needed a prompt to get thinking, respond
- Musical instruments, tools, video games, crafts popular on Friday
- Tools, games, kitchen items big on Saturday
- Many not aware of the things we are already lending
- FEEDBACK MECHANISM dotting exercise "What would you like to borrow?"
 - o 260 responses (people could vote for more than one)
 - o Top responses:
 - Board games / video games 44 (17%)
 - Musical instruments 42 (16%)
 - Tools (hand, power) 41 (16%)
 - Kitchen 39 (15%)
 - o Crafts 31 (12%)
 - Sewing machine/serger 19 (7%)
 - Sports equipment 19 (7%)
 - Video camera 14 (5%)
 - Other suggestions included Google Cardboard, gardening equipment, green screen and lighting kit, seeds, airbrush, cameras, and more

Lifelong Learning:

- Level of interest: 7/10, 8/10
- Interest, but not to the same degree as some other topics (3D printing, VR)
- People very pleased to learn about the opportunities if they took the time to engage
- Suggestions for programs: coding for adults, ebook making (kids)
- Request for more sessions (fill up too fast), more practice time
- FEEDBACK MECHANISM: "What would you like to learn about?"
 - o 254 total responses (people could cast more than one vote)
 - Top responses:
 - o iPads and tablets 51 (20%)
 - o Coding 49 (19%)

- Downloading ebooks 33 (13%)
- Security 30 (12%)
- Streaming video or music 29 (11%)
- Self publishing ebooks 28 (11%)
- Minecraft 14 (6%)
- Other responses included new technologies (4), specific apps, specific technologies, digitization, making a video game

Coding/Computational Thinking:

- Level of interest: 10/10, 8/10
- Little Bits and Makey Makeys most interesting to kids
- Adults most interested in Raspberry Pi just seeing what it looked like
- Many kids familiar with Scratch, but not necessarily Pis
- People wanted to borrow kits right away
- Lots of questions about computational literacy for kids
- Very busy!

Translation on Demand:

- Level of interest: 10/10, 9/10
- People inspired by voice recognition and instant translation on camera one gentleman thought it was a trick and needed to be assured it was real
- Multilingual visitors and travelers alike keenly interested
- Most visitors to the booth spoke 2-3 languages
- Appetite for more like this
- Resounded across ages and demographics (though kids were less interested than adults)
- FEEDBACK MECHANISM: Maps: Where in the world do you come from? / Where did you come from today?
 - o 118 completed "where in the world did you come from?"
 - o 27% (32) from Canada
 - o 21% (25) from China
 - o 9% (11) each from Iran and UK
 - Australia, USA, India, Columbia, Russia, South Korea round out top 10.
 - 30 countries altogether, with handfuls from all regions of the world (all continents except Antarctica)
 - o 73 completed "where did you come from today?"
 - 74% (54) from West Van (largest number from Ambleside (17), then Caulfeild (8), Cedardale (8), Hollyburn (6), Park Royal (5))
 - North Vancouver next largest concentration (7)

3D printing (Tinkerine, 3D604, Zen):

- Level of interest: 10/10
- Loved takeaways 3D head scans, whistles, etc.

- Interest in objects with moving parts
- One child inspired to go home and start building structures with straws and other materials
- A lot of parents interested
- Local artists interested in possibilities
- Estimated 100+ people Friday, 200+ on Saturday
- People "amazed", "excited", wildly enthusiastic
- Conversations about impact on economy
- FEEDBACK MECHANISM: "What would you print with a 3D printer?"
 - 35 responses, mostly unique (2 said a "3D printer"!)
 - Toys and figures common, e.g. ninja, dragon, lego
 - Art, architectural and engineering, e.g. jewellery, plane, cityscape, maze, house, iterson 1918 coiling tower, "life-sized car that works"
 - o Some metaphysics, e.g. "me"

GLUU:

- Estimated 30 contacts Friday, 60 contacts Saturday
- Target demographic (seniors) very keen
- People liked the non-profit aspect

Vancouver Maker Faire:

- Estimated 70 contacts Friday, 100 contacts Saturday
- People seemed (pleasantly) surprised and positive about the fair
- Curiosity about local makers
- Electronics, crafting, robots of high interest
- FEEDBACK MECHANISM: "What would/do you make?"
 - 18 responses 4 for lego, then variety: clothes, code, music, minecraft, sewing, stories, art, video games, robots, "tools to make this world better"

Exit survey

183 people completed the exit survey to share their reflections on the fair. There were three questions:

- I was inspired by...
- I want to learn more about...
- Comments

I was inspired by...

169 respondents shared what inspired them. Many named more than one technology. 3D printing was the most common response, named by 68 respondents (more than 40%), followed by virtual reality (43 respondents or 25%) and robotics (26 respondents or 15%). All of the other technologies featured at the fair – including coding, translation, augmented reality, digitization, sound and video and library digital services – all received multiple mentions. The raspberry pis also got a lot of attention. 18 respondents simply said "everything".



I want to learn more about...

3D printing kept its first place spot among the 158 who responded to "I want to learn more about..." though with a slightly lower percentage (35%, or 56 respondents). Interestingly, virtual reality fell to 4th place (9%, or 15 respondents) while coding jumped to 17% (27 respondents); robotics dipped somewhat to 13% (21 respondents). Digitization and library digital services were more frequently mentioned, and several people expressed interest in learning about new technology in general.



127 respondents added comments. Most of these were compliments about the fair:

- "Wonderful fair and good opportunity to learn about technology in a comfy environment"
- "Very interesting for all young people from 10-90 years"
- "Great way to introduce new technologies to people of all ages"

• "Love love loved!!! The event well organized and great info enthusiastic delivery from the many volunteers and presenters"

Many expressed their appreciation for opportunities to try out 3D printing and virtual reality glasses. Robots and coding were also singled out for mentions. Several people felt they learned something new.

Several shared their thoughts about why the library was the right venue for this event and expressing interest in seeing more of the same in future:

- "Great idea starter hands on; picture = 1000 words... re-branding role of library = community hub + IT"
- "Great way (direction) for the library to be moving in; truly a "cradle of learning" for the new world we live in"
- "Thank you! We are looking forward to seeing more tech events"
- "Excellent fair, great exposure for families and children. Keeps the library relevant."
- "I learn so much and I think that is what I expect from library programs like this."

Ranking Exercise

Participants were given seven index cards, each containing a potential role for the library, and were asked to sort them into priority order. The roles were:

- Community technology projects (examples: mapping community data; hackathons)
- **Delivering library services digitally** (examples: improved ebook access; personalized reading recommendations; delivery by drone)
- **Digitization and digital conversion** (examples: scanning slides, photos and documents; converting home videos to digital formats)
- Introducing new technology (examples: emerging tech talks, lectures; technology fairs; recommended apps)
- Spaces and equipment for innovation and collaboration (examples: maker spaces; 3D printing)
- **Technology skills development** (examples: computer literacy programs; coding classes; online learning)
- Video and audio production and editing (examples: recording oral histories; creating short videos)

The intention of this exercise was to give people an opportunity to respond more holistically to the technology fair, and more generally about the role of the library with regard to technology. Feedback from this station suggested that people appreciated this opportunity to gather their thoughts. Staff observed lots of thoughtful consideration and enthusiasm for the activity. One participant said "It's great to have discussions about technology".

133 people participated in this activity over the two days of the fair. Not everyone sorted every card.

By overall weighted score, the rankings were:

- 1. Introducing new technology
- 2. Technology skills development
- 3. Delivering library service digitally
- 4. Spaces and equipment for innovation and collaboration
- 5. Digitization and digital conversion
- 6. Community technology projects
- 7. Video and audio production and editing

								weighted
	1	2	3	4	5	6	7	score
Community technology projects	5	9	21	22	21	21	29	416
Delivering library service digitally	27	12	17	17	22	15	19	529
Digitization and digital conversion	10	20	11	22	22	25	15	464
Introducing new technology	37	29	21	15	8	13	10	658
Spaces and equipment for innovation and collaboration	25	15	19	18	13	12	22	517
Technology Skills development	24	33	26	18	11	9	5	624
Video and audio production and editing	9	5	11	24	27	28	24	405

All seven roles received rankings across the spectrum, so clearly each has a constituency in our community. In one case, a mother and daughter each completed the activity only to see the daughter's first priority was the mother's last and vice versa.

Also, those roles that received lower overall rankings tended to be more specific – it may be that, when people didn't see a direct need for that role based on their current needs and understanding, they ranked it lower than other roles than were more general or values-based.

APPENDIX F: 2015 Online Survey

The 2015 Library website survey was conducted in tandem with our onsite survey to inform the 2016-2020 Strategic Planning process. During the survey period, 709 people responded to the website survey, yielding a margin of error of +/- 3.65%, 19 times out of 20.

The survey included several opportunities for open-ended feedback, which staff analyzed to identify eight major themes with implications for the community technology consultation. The themes are highlighted below, together with specific suggestions reflecting language used by respondents.

The full survey report can be viewed at http://www.westvanlibrary.ca/sites/default/files/uploads/other/2015LibrarySurvey.pdf

Theme 1: Patrons want to be able to easily view, borrow and access more resources from other libraries (including academic libraries)

- Ability to access books from other libraries seems limited
- Ability to easily search for and request books at other libraries
- Be easily able to see availability of item at all lower mainland libraries
- Integrate North and West Van catalogues
- Be able to expand my search to other libraries
- Ability to borrow ebooks from academic libraries
- Able to see books at affiliated libraries including UBC and UVIC
- Access to more scholarly ebooks
- Interlibrary loans seems to have got worse

Theme 2: Patrons want more robust, accessible and searchable digital collections (50% comments were about digital content)

- Feel there is not enough ebook selection
- Not all clear on the difference between collections/platforms (e.g. Library2Go versus OneClick)
- Frustrated with issues downloading
- Ebooks in Chinese hard to find
- Want Farsi ebooks
- Want more teen ebooks
- Most new ebooks are for children
- Want more Canadian ebooks
- Better ebook categories current ones are too broad (want true crime, white collar crime)
- Downloadable ebooks are not meeting needs; selection lacking
- Lack of awareness about downloadable or streaming music
- Interest in movies to download or stream
- We should have heavy focus on digital media

Theme 3: Patrons want a streamlined login and the ability to interact with us online for all their needs

- One account, one password
- Personal login portion of the site very convoluted; would like it to be more friendly and intuitive
- Remember me, my barcode, shouldn't need to type in barcode
- A place where I don't need to submit my library card to see if you have a book
- Don't like having to set up a bunch of digital accounts
- Don't like not being able to pay online, having to go to the old catalogue to pay online
- Calendar of events we can join/subscribe to
- Like ability to add event to ical
- Want video chat or skype option
- Want to request ebooks for purchase
- Moderate interest in ability to contact staff by text message
- Stronger interest in ability to contact staff by email
- Online registration for events and programs
- Like that the website is available 24/7
- Website should be interactive
- Help and FAQs for technology

Theme 4: People expect more than they are currently getting (or seeing) in terms of personalized recommendations, what's new, what's hot, samples.

- Easier way to see if 'my authors' have new books without having to scroll down
- Latest hot topics on books and movies from staff
- See and hear authors speak about their latest books
- Want info on local authors, BC Books
- Want more recommendations for books catalogued by type of book like Good Reads
- Suggestions; if I like x then I'll like y
- People who checked this out also checked out
- Want an Amazon/indigo like algorithm to recommend
- More recommendation lists
- Add a place to enter "my field of interest" in my account and get notified of new books
- Form where you can fill out genres, authors of interest and get recommendations and ability to check off books once you've read them
- I would like to see a way of recommending books to me based on what I've checked out before
- New titles reminders
- Hard to find and use book recommendations
- Lists long and cumbersome to browse through
- Find lists of new items less useful than old system; includes some old items
- Lack of links to other books in the same genre
- More personalized reading lists

- Want more recommendation lists
- Ability to sample a book like in Amazon

Theme 5: People care about the catalogue and catalogue records and expect high standards (nothing less than Amazon)

- Intelligent spell check for authors' names
- Want to see song titles of CDs
- Description of music/CDs like Amazon does
- Ability to scroll through entire audiobook catalogue using word "historical" or "fiction"
- Info not always correct
- Want up to date access to what we have
- Layout too cluttered
- Better access to subject headings
- See when all copies of a book are due not just first two
- Catalogue of just ebooks
- Archive of photos with good key words
- Difficulty of finding issues of magazines
- Wonder why some searches by author or title don't bring up the book
- Don't like being told they can't borrow an audiobook
- Poor detailed description of items
- Better filtering options when going through search results

Theme 6: People want access to online resources and need them to be easy to find

- Simple to use research sites for elementary and secondary students
- Scholarly journal articles
- Courses and programs available online
- More databases
- More Canadian consumer info
- Access to Quicklaw and other legal websites
- Online newspapers (press display) always available
- Search foreign newspapers from website
- Online newspapers like NYT

Theme 7: Communities of learning, common interest

- Interactive area for members to connect in areas of interest e.g. knitting, to learn from each other and suggest books and video tutorials; maybe even meet up at the library
- Online events that people can participate in courses, programs, lecture readings
- Online information about community related history or community project
- Sessions for job hunters

- Blogs, conversations on books
- Online book club

Theme 8: Infrastructure

- Tables with charging ports
- Multimedia booths for personal use
- Updated branch with more advanced study areas
- More touch screen compatible

APPENDIX G: Technology Survey – General

The survey ran from Monday, May 6, closing the morning of Monday, May 16, 2016.

Demographics

The survey was answered by 142 people. A majority of respondents were female (63%). While all age demographics were represented, the largest proportion were aged 50-59 and 60-69.







Feelings, skills, knowledge, and abilities around technology



How interested are you in the following technologies?



Please rank the importance of each of the following role(s) the library might play when it comes to technology



What technology, equipment or tools would you like to have access to but wouldn't buy yourself?



Other responses included:

- Tablets / Smartphones
- Al
- Software for use on personal devices
- Data
- Faster Wi-Fi
- Hosting
- Macs
- Accessibility hardware /software

What projects or pursuits would you like to do if you had the right technology and knew how to use it?





What are you interested in or learning about these days? What's on your mind or igniting your passion? (This can be anything, not necessarily technology)

Demographics

The survey was answered by 25 people. Most were female (88%), and all respondents were between the ages of 30 - 59.

Feelings, skills, knowledge, and abilities around technology





How interested are you in the following technologies?





Please rank the importance of each of the following role(s) the library might play when it comes to technology



What technology, equipment or tools would you like to have access to but wouldn't buy yourself?

Other responses included:

- Specialty Printing
- Digitization
- Library of Things
- Current holdings
- Al
- Mass Storage



What projects or pursuits would you like to do if you had the right technology and knew how to use it?



What are you interested in or learning about these days? What's on your mind or igniting your passion? (This can be anything, not necessarily technology)



APPENDIX I: Student Survey Results

The survey ran from Monday May 6 to Monday May 23, 2016. There were 150 responses.









Other suggestions included:

- 4K monitors/ enabled equipment
- Laptop Lending
- Desktop Publishing
- coding tools
- "High end PC"
- Some interesting quotes:
- "If i had the chance to build my own computer and choose every design aspect that would be so fun, i could put it to use and learn lots from it."
- "i would like to access any type of PC.. that way i could learn more and do much better in school"
- "Professional camera, editing programs, photoshop and some equipment to make school projects the best they can be."





Quotes:

"Ho[w] much work goes into it. Imagine fitting a book about everything, and every person living and much more all in a little phone that perfectly fits into your own hand. That absolutely amazing"

"That there are seemingly endless possibility in the future concerning technology."

We completed a total of 89 surveys over four days:

- 25 used the library rarely or not at all 28%
- 37 used the library frequently 42%

Community Narrative

Many people, in fact a large majority, describe themselves as "average" or "intermediate" technology users. They know enough and are able to do what they need to get by. A few see themselves as experts or particularly keen learners and a few describe themselves as below average or lagging.

People feel it is important to be able to use technology to navigate daily life – such as online banking, email, calendars, basic searching, games and news, and various applications for work – and to keep connected and stay in touch with family and friends as well as business associates. They believe they need to continue learning about technology in order to stay up to date, remain active and engaged, and maintain their skills. Many acknowledge they need to deepen their knowledge by learning more about what they already use because they are not using it to its full potential.

With the right technology and skills, people would pursue diverse interests including photo management, editing and digitization; technology for work, including small businesses; blogging, posting on forums and engaging via social media; coding, web development and app development; and language learning.

But they're concerned about maintaining their current level of ability and discouraged by the rapid pace of change, the challenge of continuously adapting, and the need to learn new successive generations of devices (especially tablets and smartphones). People don't see the need to learn about new things when they can't see an application, but feel worried that they might be missing out on something important. Privacy and protecting one's identity online are challenges for some, as is troubleshooting when issues arise. Many feel anxiety about relying on their children for tech support; parents expressed a desire to keep up with their kids.

As people talk more about these concerns they talk specifically about finding time to learn, their specific learning preferences (e.g. visuals, step-by-step manuals, one-to-one support), and their fears about retaining information. They wish technology could be easy to learn and easy to use.

People need support for their learning. In particular, they would like to see more courses and classes that are applicable and relevant, offered on more subjects, and scheduled more frequently and at more convenient times. Classes should be buttressed by other learning supports like videos and documentation or manuals. Personalized service and support, available close to home, would be welcome.

Many see the library and library classes as a starting place to learn about technology; a sizeable number go to a child or partner for help; a few use their workplace tech support; only two go to a commercial or retail service for assistance.

There were few notable differences between the responses of library users and non-users except that non-users were less likely to mention the library as a starting place to get help with technology.