

Survey of Yukon's Knowledge Sector

RESULTS AND RECOMMENDATIONS

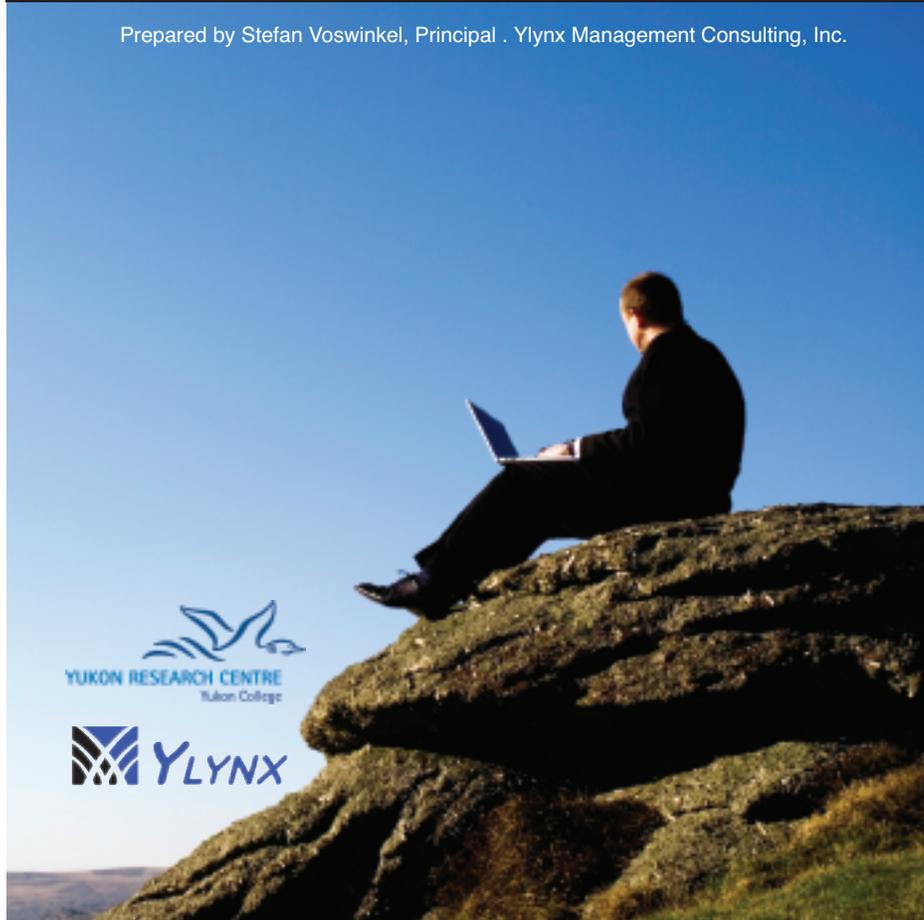
Prepared by Stefan Voswinkel, Principal . Ylynx Management Consulting, Inc.



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YLYNX Management Consulting, Inc.

phone: 867-456-7506 email: Stefan@ylynx.ca
50 Grizzly Circle, Whitehorse, Yukon, Canada Y1A 6J3

Executive Summary

Over a number of years, signals kept occurring that there might be more than just a few interesting knowledge workers in Yukon. These people were well connected and exporting their services outside Yukon. If there is a Yukon Knowledge Sector – what is it? Has it a meaningful role in Yukon’s economy? Would it be worth expanding? How could we find out?

The opportunity to conduct a survey of Yukon’s Knowledge Sector proved to be well worth it: The diversity, size and collective expertise of Yukon’s Knowledge Sector make it another pillar of Yukon’s economy that so far has been neglected. In order to grow, it needs to be recognized by governments and the business community for its contribution, have improved “growth conditions”, and be marketed outside as part of Yukon’s brand. A major surprise to us was the lack of visibility and networking among Yukon knowledge workers themselves. This is an impediment to collaboration, business development, innovation and intellectual stimulation.

We conducted personal interviews with 62 participants – only then did the learning curve of what we heard flatten. Participants responded to a sizeable number of quantitative and qualitative questions, and we are very grateful for their openness, engagement and thoroughness.

Our hope is that the results and recommendations of this survey will lead to a cohesive strategy and a collaborative action plan to realize the significant growth potential of Yukon’s Knowledge Sector. This will require joint effort and commitment of all concerned.

We would also like to thank Canadian Northern Development Agency (CanNor), Yukon Economic Development and the Yukon Research Centre of Yukon College for their funding support! A special thank you goes to our diverse Group of Advisors, providing great input and feedback throughout the project. Without Rhiannon Klein, our research assistant, the project would have taken much longer and the qualitative analysis would not be what it is today – thank you!

Stefan Voswinkel, Principal of Ylynx Management Consulting, Inc., August 2012.

1. Objectives of the Survey

1.1. Economic Context and Vision

Yukon's economy is dominated by mining, tourism and government.

Knowledge-based industries may be the answer to create meaningful growth in another sector that is neither cyclical like mining nor seasonal like tourism. This would increase diversification of the Yukon economy and grow small and medium size enterprises (SME). Growing the Yukon Knowledge Sector would increase Yukon's tax base and thereby reduce dependency on federal transfer payments.

This survey will also support Yukon's initiatives towards Research, Innovation and Commercialization (RIC), as well as the Federal Government's efforts to grow the Digital Economy (for example fostering the knowledge-based economy, identifying areas of collaboration).

In order to devise the future strategies of where we want to go, it is essential to determine where we are now. This Survey will be instrumental to achieve that.

The Vision

In its May 15, 2010 edition, The Economist said it: "Brain workers love to live near each other. The internet lets people compare cities....that gives a boost to remote but agreeable locales" (p.39).

There are encouraging signs that Yukon can become a "hub" for the knowledge economy:

- Yukon law firms were involved with a Brazilian mining company buying a Canadian one.
- A local lawyer works from home for a law firm in the United States.
- A Yukon author writes romance novels for a global readership.
- Two Yukon videographers shoot for clients in BC and Alberta.
- A management consultant provides innovative solutions to clients globally.

Couldn't this happen in Yukon as well: An Internet company with 100 employees has relocated from San Francisco to Montana. Why? The owner loves Mountain Biking!

1.2. What is the Knowledge Sector for the Purpose of this Survey?

With the above context and vision in mind, we were seeking knowledge workers from the private sector who export at least part of their services outside the Yukon: Authors, lawyers, consultants, engineers, IT-specialists, governance experts, scientists, graphic designers, web-marketers – just to name "a few". This definition of the knowledge sector was driven by three factors:

- That only so much can be sold within Yukon with its limited market size, and that any significant growth can only be achieved by selling services outside Yukon.
- That the skills of the survey participants would be highly transportable: “live here – work globally”.
- Most if not all of the services rendered by the participants of the survey can be delivered over the Internet. A term that describes the concept very well is “off-site production”.



Living Locally, Working Globally? Then we want to hear from you!



"Video-Webmarketing made in the Yukon"

We are conducting a survey of knowledge workers in the Yukon- authors, lawyers, consultants, engineers, IT-specialists, marketers, etc. - experts who export at least part of their services outside the Yukon.

We want to find out why you chose the Yukon to work from - and what could be done to make this a better place for knowledge workers.

It's a new economy, and a new world. You're a part of it. Let's make the Yukon a hub for knowledge workers.

Please contact Stefan Voswinkel at 867-456-7506, or Stefan@ylynx.ca

This project is sponsored by CanNor, the Yukon Government Department of Economic Development, and Yukon College's Yukon Research Centre

Who and what is *not* included in this survey

- Knowledge workers who work less than 50% of their time in the knowledge sector
- Knowledge workers who work exclusively on Yukon projects for companies based outside (for example working for a Yukon mine owned by a Vancouver company)
- Knowledge workers who have employment contracts for working outside the Yukon
- Manufactured goods (limited export potential because of distance to markets)
- Tourism (i.e. tour operators and wholesalers)
- Arts and crafts

Of the 60 participants included in the survey results (2 were interviewed that were not included in the results),

- Two are semi-retired but still active in their field
- One is a full time independent contractor for an institution

- Four are also salaried employees and conduct their knowledge worker business “on the side” (representing at least 0.5 FTE – Full Time Equivalent)

1.3. Profiling Yukon’s Knowledge Sector

Prior to the survey, there was a growing sense of “who are these people?”, “what do they do?”, “how are they connected?” and “why are they even here?” There was a mixture of hearsay about those interesting little niches, and some empirical evidence, but no “grip” on the diversity, size and reach of the Yukon Knowledge Sector, and why knowledge workers would choose Yukon as their base. So far, the Yukon Knowledge Sector has never been described in a comprehensive and cohesive way.

1.4. Growing Yukon’s Knowledge Sector

Growing Yukon’s Knowledge Sector would achieve five major goals:

1. Yukon’s exports will grow significantly, diversifying and help stabilize the economy.
2. Yukon’s imports of knowledge-based services will be reduced significantly, resulting in more depth and width of services that are available locally.
3. Knowledge transfer within and to Yukon will be greatly enhanced, resulting in capacity development.
4. Research, Innovation and Commercialization will be promoted, by identifying new opportunities and attracting new funding.
5. Spin-off effects in other sectors will result in additional growth and improve locally available products and services.

Once a critical mass is reached, part of the growth will become “self-feeding”.

There does not seem to be a coordinated, well-resourced effort to foster Yukon-based knowledge industries. Before Yukon can communicate a unified message to the outside world, it needs to be determined what the Yukon’s Knowledge Sector is today, what the viable market niches are and how to build on the strengths that already exist. The purpose of this survey is to enable the steps that will make Yukon’s Knowledge Sector grow. In order to do so the Yukon Knowledge Sector, a concerted marketing effort will be required. The results of this survey will enable that because it will identify barriers, success factors and why people are attracted to live here.

2. Project Team and Advisors

Project Team:

Project Manager: Stefan Voswinkel, Ylynx Management Consulting, Inc.

Research Assistant: Rhiannon Klein, Yukon Research Centre (YRC) at Yukon College

General Project Support:

Dr. Chris Hawkins, VP Research at Yukon College (general guidance of project, ongoing validation of methodology)

Rick Steele, Yukon Research Centre at Yukon College (linkages with and knowledge of the Yukon’s business sector, i.e. IT and innovation)

Data Research and Survey Design:

Dr Sebastien Markley and Rachel Westfall, Statisticians at the Yukon Bureau of Statistics
Dr. Aynslie Ogden, Senior Science Advisor YG (also significant input for analysis)

Circle of Advisors:

Keith Halliday, Management Consultant (himself an exporting Yukon Knowledge Worker)
Dr. Greg Finnegan, Senior Consultant DPRA, Adjunct Professor Yukon College, former Director Yukon Bureau of Statistics
Dr. Andrey Petrov, University of Northern Iowa (expert in the Creative Capital in remote regions of Canada and Russia)
Rod Snow, Partner at Davis & Company (an exporting Yukon Knowledge Worker)

We also thank Steve Rose and Helen Booth, (both with Yukon Economic Development) for their input, as well as Lisa Christensen (Yukon Research Centre)

3. Definitions and Methodology

3.1. Interview Process – Snowball Approach

The initial plan was to conduct a small number of semi-structured interviews and then draft an online survey for a larger number of participants. The Advisory Group strongly recommended doing semi structured face-to-face interviews only, mainly due to the fact that a substantial part of the questions were directed at qualitative information; as well, many of the quantitative questions would require or invite qualifying comments worth capturing (which turned out to be the case).

At the beginning of the project, potential participants were identified for the survey. Many available sources were used, such as membership lists, Yellow Pages, the LinkedIn social network, a directory of suppliers to the Yukon Government, newspaper advertisements and a radio interview with CBC North. From the assembled list some candidates turned out not to be actual knowledge sector workers, while others did not derive any of their revenues from outside Yukon. Due to the “snowball approach”, the list of potential and actual knowledge workers grew throughout the project. Not all individuals who were contacted for an interview were available, and some turned out not to fit the survey’s definition of a knowledge worker.

The initial goal was to interview about 30 knowledge workers, after which answers were expected to become somewhat repetitive. It turned out that this learning curve did not flatten before 62 interviews were done. There are two reasons for that:

- The diversity of knowledge workers in Yukon is such that more interviews were required.
- During most interviews, new knowledge workers were identified that were previously unknown to us but turned out to be very worthwhile interviewing. This “snowball approach” proved to be instrumental for the success of the project. It also speaks to the fact that many knowledge workers are invisible and that the Yukon Knowledge Sector is fragmented.

Most interviews lasted about an hour, with a range between 35 minutes and two hours. Towards the end of these in person interviews, names as well as answers were starting to become repetitive, so it is reasonable to assume that all the important segments of the Yukon Knowledge Sector had been covered. The approach to conduct semi-structured face-to-face interviews was validated, allowing for far greater probing than could be done with an online survey.

3.2. Selecting Who to interview

At the start of the project it became apparent that a high proportion of the knowledge workers we would interview would be entrepreneurs one way or the other – as “Lone Eagles”, owners/co-owners, partners or executives. This early realization and the fact that these people make the decisions (including where their companies are based) led us to selecting our interview participants at the ownership and CEO level only. This approach allowed for the best possible insights into the Yukon Knowledge Sector and its future.

3.3. Survey Questions - Quantitative vs. Qualitative Information

Survey questions (see Appendix) were subdivided into six major parts:

- Part A: Participant Facts and Quantitative Questions
- Part B: Scaled Questions (on a scale of 1 to 5)
- Part C: Lifestyle Questions
- Part D: Exporting and Outside Connections
- Part E: Miscellaneous Questions
- Part F: Future Outlook

Of 51 questions and sub-questions,

- 12 were scaled (1 to 5)
- 26 were quantitative with an option to add qualifying comments, and
- 13 were qualitative

4. Survey Results

All quantitative information was entered into an Excel spreadsheet, with most of the results visualized in the graphs below. Participants were asked to provide reasonable estimates to questions like “how much of your revenue is from outside Yukon?”, or “how many times a year do you travel outside Yukon by scheduled airline?”.

All qualitative information was transcribed and later analyzed with the NVivo software (QSR International Pty Ltd), in order to arrive at evidence-based conclusions. NVivo enabled the coding of all interview transcripts to nodes and child nodes that were relevant topics for this survey.

Confidentiality: We ensured that answers mentioned in the survey cannot be traced back to participants. Survey results and analysis were compiled anonymously. A confidential list of survey participants - separated from the respective answers - was shared exclusively with the funding agencies only, for their internal use.

4.1. Basic Interview Statistics and Demographics

Basic Statistics and Demographics		Comments
Total of people interviewed	62	Of which: 3 were exit interviews (no longer in Yukon); 1 was for outside reference; 1 not included in analysis
Respondents in Communities	1	Only 4 knowledge workers were identified in the communities
Respondents in Whitehorse	59	Whitehorse has the critical mass
Respondents with company headquarters outside Yukon	7	3x Vancouver; 1x each in Northern BC, Calgary, Edmonton, Yellowknife
Couples interviewed that are business partners	4	These couples were "counted" as "Lone Eagles" (see below)
Born in the Yukon	6	Of which 5 are still here
Average Age of Respondents	47 years	Seasoned professionals!
Average Age at which Respondents moved to the Yukon	27 years	Moved here after "done with their outside education and training"; most with some "outside professional experience"
Average Period since Respondents moved to the Yukon	20 years	The high number of long-term Yukoners surprised us
Average year respondents moved to the Yukon	1992	
Average Percentage of Revenue from outside Yukon	53%	A significant economic impact!

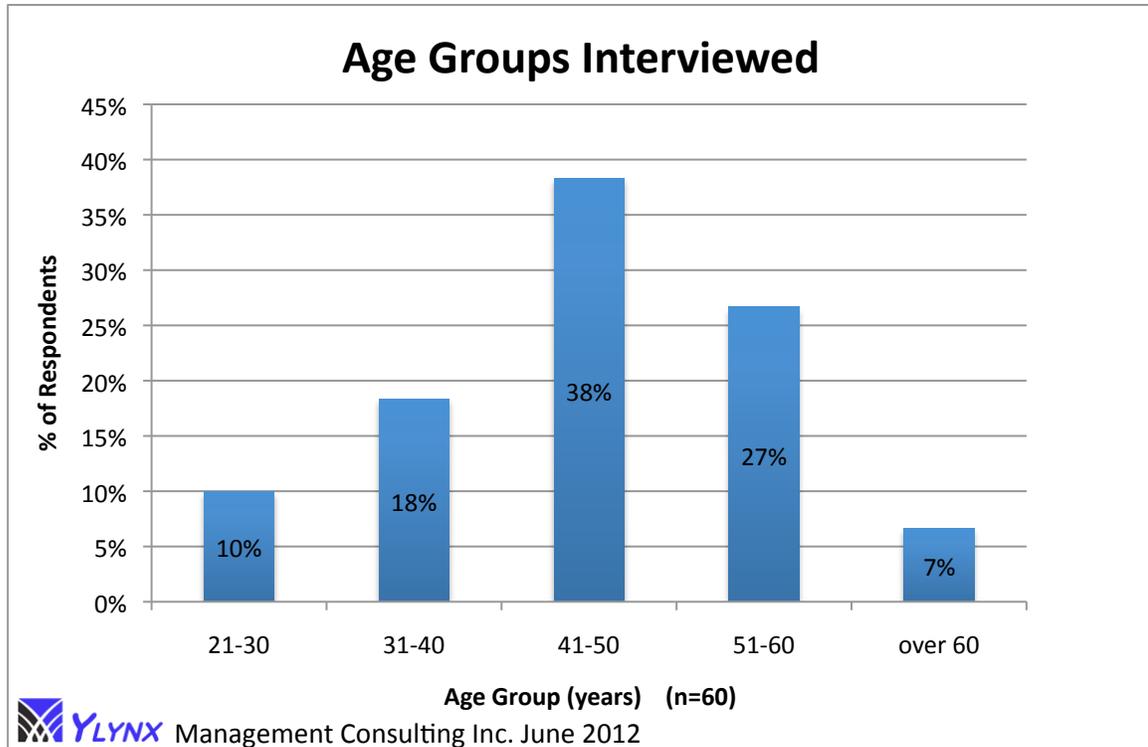
	% of Respondents	No. of Respondents
Home Based Business	57%	34
Lone Eagles	57%	34
Female	40%	24
Aboriginal	7%	4
Total number of people employed by 60 respondents (full time, incl. themselves)	323	of which 73 full time jobs (net) created in last three years (2008 to 2011)

Not a surprise really: Yukon's Knowledge Sector is centered in Whitehorse

Combining all the results of the survey, it becomes evident that there are hardly any knowledge workers in the communities: We only found four, of which one was available for an interview. There is a minimum amount of "urbanity" that knowledge workers require: Connecting with like-minded people, making business connections, retail offerings, restaurants and cafés, cultural life, schools, services, facilities, infrastructure and airline connections being readily available.

What the only participant in the communities said:

“I don't even know who is in a similar group like me. I feel isolated professionally here in (the community). I do know of two IT groups in Whitehorse. It's about the connections.”



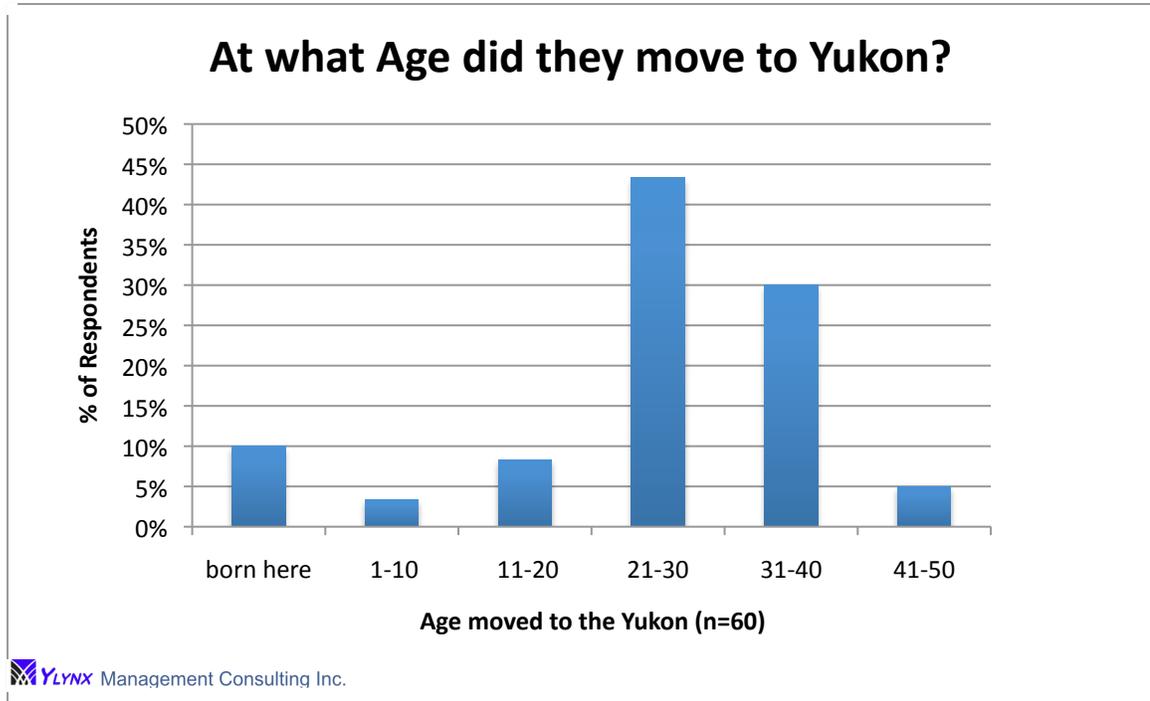
This age distribution is noteworthy in several respects:

- Young knowledge workers are coming or returning to Yukon
- Knowledge workers in their professional prime constitute the majority by far.
- Succession issues are mostly 5 or more years away (yet), especially as some participants voiced they will never fully retire, or later than with 65.

This participant voiced what is true for others as well:

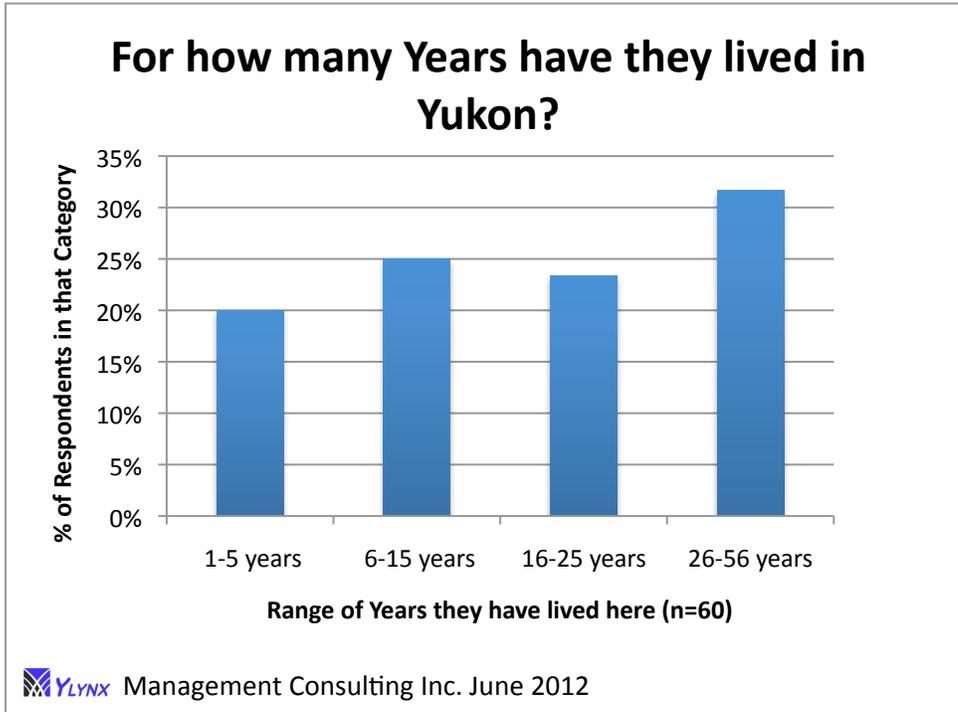
“I don't know if I will ever retire. There are too many advantages to being self-employed. In theory you can retire but sometimes it's hard to do when you've built up a client base, which is what I am discovering.”

4.1.1. At what Age and when did they move here?

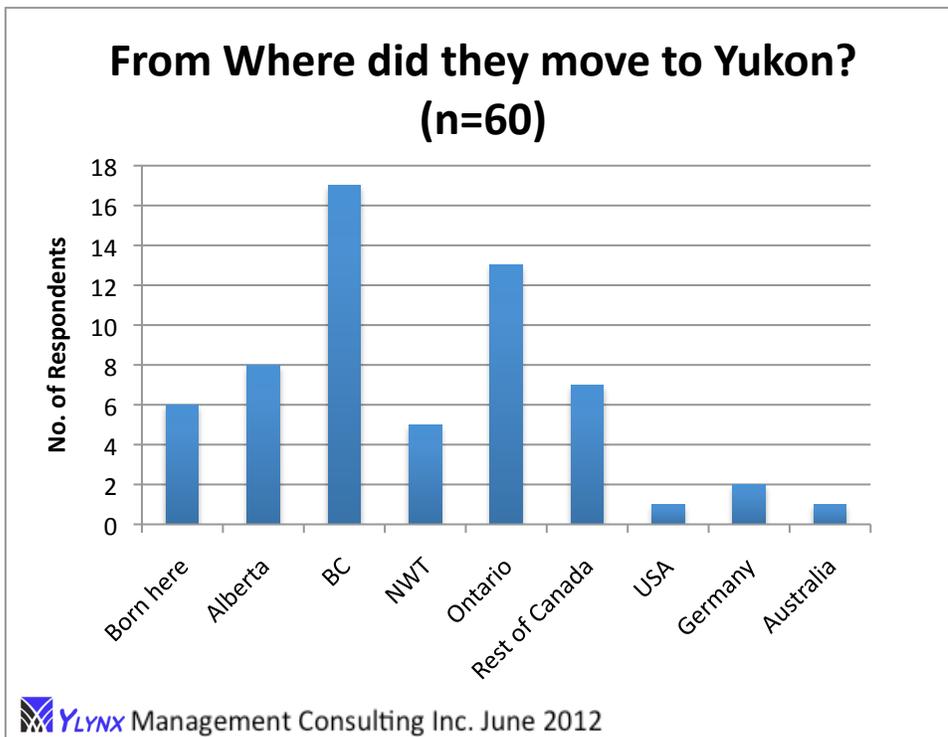


This graph illustrates that outside education and training, and in most cases expertise acquired outside, are critical success factors for Yukon knowledge workers. What could we do to inform them about the opportunities that wait if and when they return, and how can we keep in touch with them while they are away?

The graph speaks volumes about what age groups should be targeted for marketing Yukon to attract new knowledge workers: The “enterprising” young generation of 21 to 30 year olds who just completed their education or training, and the 31 to 40 year olds, who have already accumulated considerable expertise that is exportable. As well, it points to potential measures of how we can develop locally born talent or attract them back to Yukon.

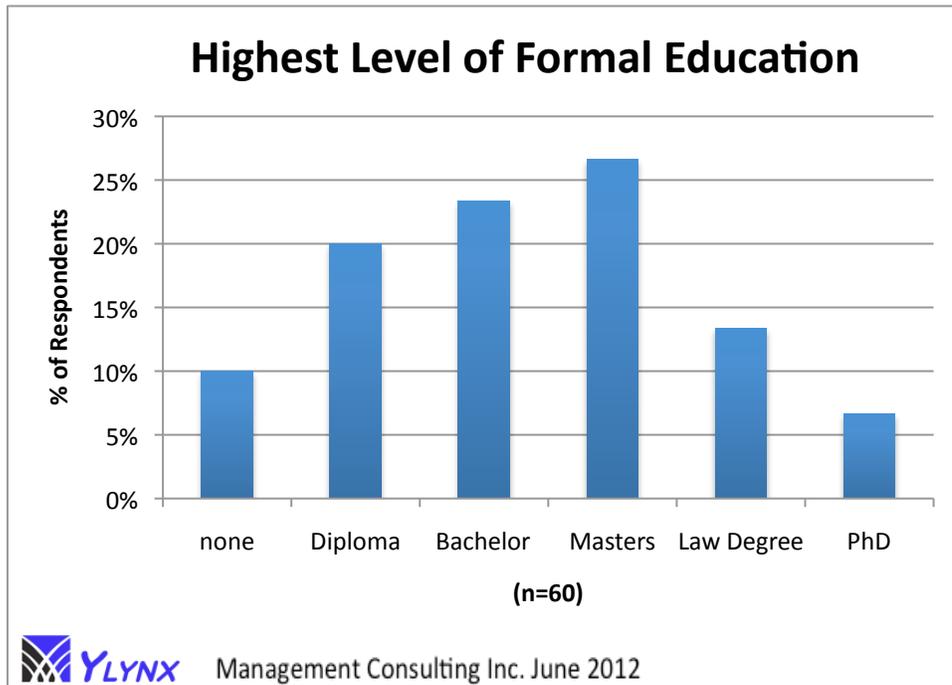


They must love the lifestyle! And yes, what they do for a living generates sufficient income to keep doing it and stay here. This graph also demonstrates a growing trend of people retiring in Yukon – and the consequences for related facilities and services.



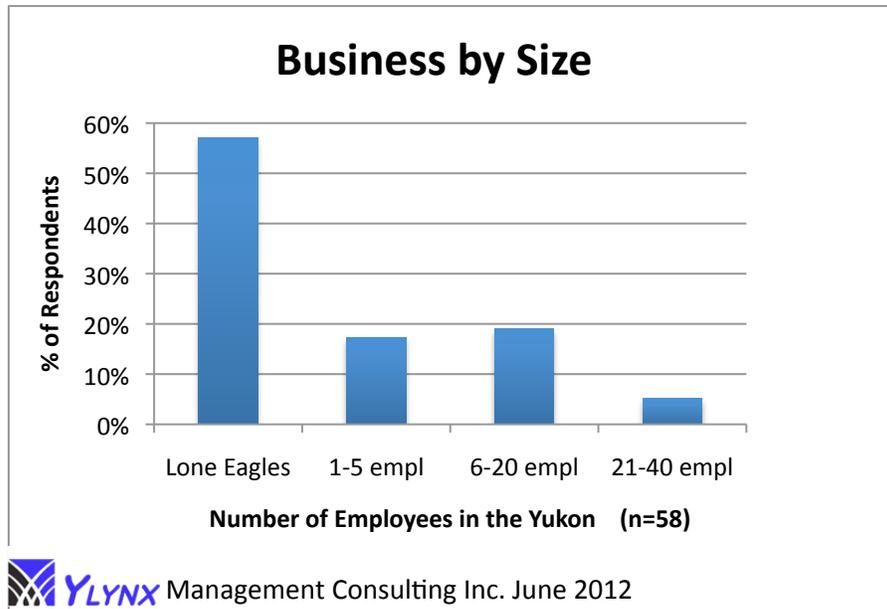
This graph indicates the primary regions, which marketing campaigns should be directed at: BC, Ontario and Alberta. Could more knowledge workers be attracted from the USA in the future?

4.1.2. Level of formal Education



A large majority of Yukon knowledge workers have completed secondary education or higher. This points to the knowledge and expertise that is available right here in Yukon. Looking at the significant number of autodidacts, it should also be noted that a higher education is not the only way to become a successful knowledge worker.

4.1.3. Lone Eagles and Size of Business



It is evident that the Yukon Knowledge Sector is almost exclusively represented by Small and Medium size Enterprises (SMEs). While the above graph depicts the size of the business that is in Yukon, only seven out of 58 were part of larger companies based outside Yukon. Counting the overall size of those seven companies, most would still fall in the SME category.

What are Lone Eagles?

Definitions of a Lone Eagle vary. For the purpose of this survey, this is the definition:

- High level of expertise, not necessarily formal education
- Highly transportable skills (can deliver their services from wherever there is an Internet connection)
- Not an employee that is earning a salary or wage
- Exporting at least a portion of their services outside the jurisdiction where they live (a portion of their annual revenue comes from outside Yukon)
- Have no employees, but may subcontract to people they collaborate with
- Can be sole proprietors or be owners of a corporation
- Both spouses/partners are considered Lone Eagles if just the two of them run the business together

Without exception, the Lone Eagles that were interviewed had home-based businesses!

In a 2008 report, Millier Dickinson Blais Inc. provided the following definition:

“Freelance professionals, also known as ‘Lone Eagles’, are knowledge workers with highly transportable skills, such as writers, analysts, artists, accountants, trades people, sales professionals, manufacturers’ representatives and other advisors. Most live in large cities but many are moving to small towns and rural areas for better quality of life. An increasing number of rural areas that are near metropolitan cities are considering this approach” (p.41).

In the same 2008 report, Millier Dickinson Blais Inc. wrote:

The benefits to the community of a strong Lone Eagle presence are many.

- 1. Their dependence on local infrastructure is minimal.*
- 2. The business operators may become the key skilled labour that is required for larger investors to feel confident in the region.*
- 3. They provide services and supplies to larger businesses*
- 4. They provide a needed level of diversification which keeps it stable in tough economic times.*
- 5. They are the same businesses that will grow quietly or quickly into 5, 10 or 50-person operations.*
- 6. Spouses and/or children of these small business operators offer a ready supply of local employees.*
- 7. People are much more likely shop where they work which increases economic spin-off.*
- 8. People are much more likely to feel a sense of community if they live and work in the same place. This contributes greatly to the social side of the community by way of increased volunteerism, participation in local debates and financial donations to local non-profits/charities.*
- 9. The types of recreational amenities, community improvements and physical environment they pursue are generally consistent with the desires of tourists or visitors from neighbouring communities. This means that an investment in attracting Lone Eagles will also attract visitors/tourists.*
- 10. Business leaders have a way of attracting other business leaders. These Lone Eagles will be the region’s ambassadors for new investment (p.41-42).*

Here is a memorable quote by Steve Rose, Yukon Economic Development (with his permission):

“Most Lone Eagles did not come to the Yukon initially because they already knew they wanted to live here. Most were surprised about the quality of life here in the Yukon, and subsequently decided to stay. In order to attract new knowledge workers, the Yukon needs to preempt that surprise or make it a planned surprise, through marketing measures. For example, there could be conferences and conventions in Whitehorse that cater to organizations that traditionally have a high percentage of Lone Eagles.

Lone Eagles bring two distinct advantages to the Yukon: First, they bring dollars from outside and increase the tax base, instead of dollars being cycled around the Yukon. Secondly, Lone Eagles are like grains of sand around which pearls can build. They are creative people and have interesting ways of looking at the world. They are the disturbers, like pebbles in the stream that create the ripples. Innovation occurs on the fringes and at the boundaries and frontiers. It requires irritants to innovate. Lone Eagles create those challenges. Getting them into the economy is a big plus.

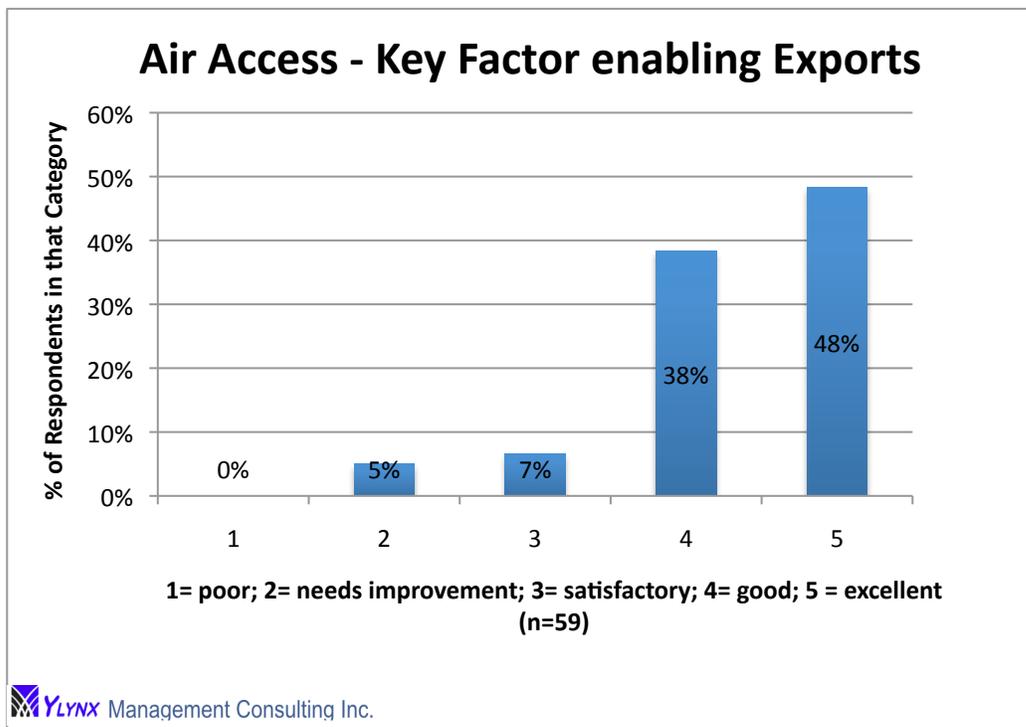
Currently, there is little connection between Lone Eagles in the Yukon, no platform linking them. Such a networking platform could be beneficial in two ways: First, problems in one area are looked at from another area, informing solutions and innovations. It's like cross-pollination. Secondly, Lone Eagles are a part of all societies and there are Lone Eagles that haven't developed yet. Bringing them into contact with existing Lone Eagles, they may learn that they can in fact export, but haven't tried yet because they didn't know."

5. Key Enabling Factors for Yukon Knowledge Workers

"The new rural knowledge worker demands a high level of environmental quality and access to technology. As well, transportation infrastructure and the ability to access an airport from time to time are also important" (Sopuck, R. 2003, p. 11).

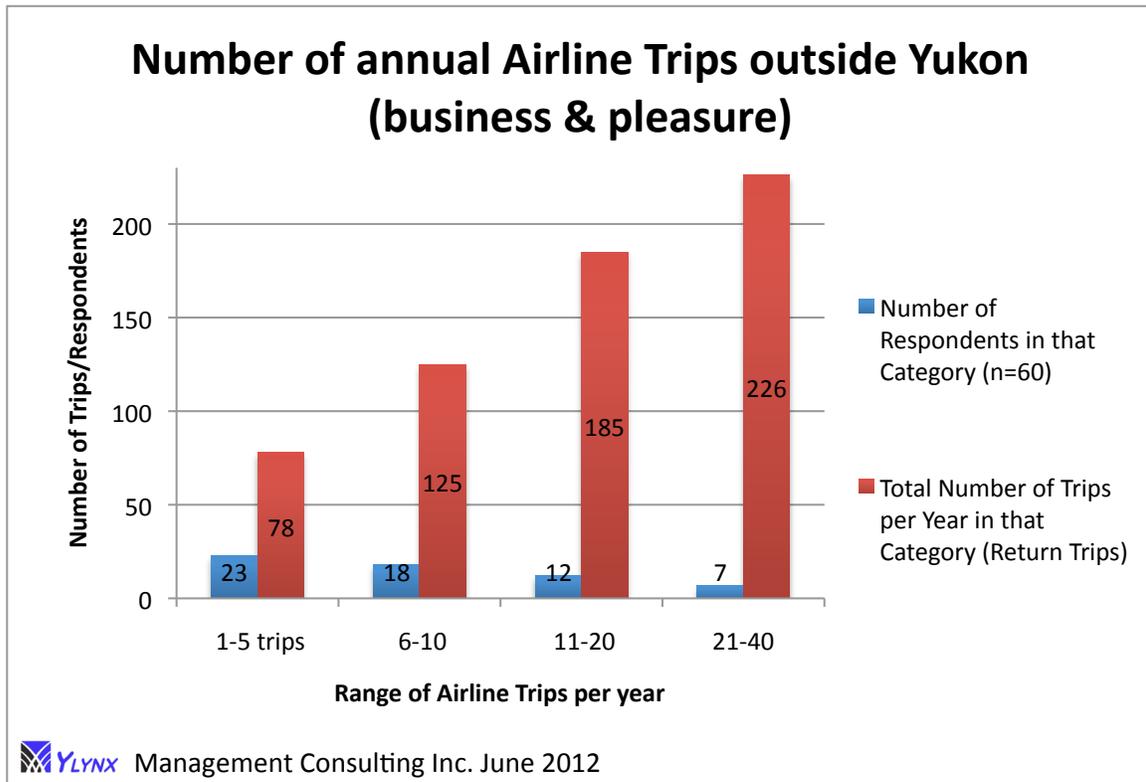
"Lone Eagles' infrastructure requirements are few, which means limited investment by the region. However, the following are essential: efficient telecommunications (mobile phone coverage, broadband access), reliable courier service and reasonable access to an airport with commuter flights" (Millier Dickinson Blais Inc. 2008, p.41).

5.1. Air Access



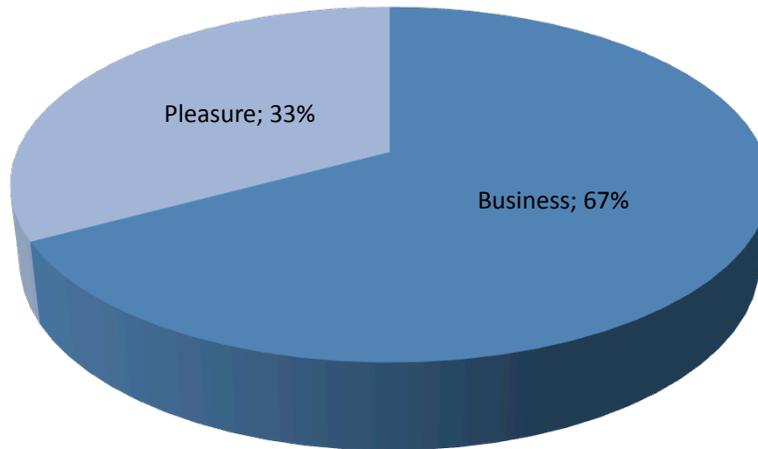
Participants were very satisfied with air access – mostly alluding to the gateway cities Vancouver, Calgary and Edmonton. Two knowledge workers make regular use of the seasonal charter flight to Frankfurt, Germany. Of those who would like to see some improvements, most mentioned the current lack of connections across the north, namely between Whitehorse and Yellowknife and Alaska. A year round connection to Europe and a direct connection to Eastern Canada was also mentioned. The answers underlying the above graph were given when several daily connections were flown by Air Canada and Air

North to all three gateways, and when Westjet had announced their May to October seasonal service between Whitehorse and Vancouver.



The above graph adds up to 614 annual airline trips outside Yukon for just 60 people – an average of over 10 airline trips per year and person! It is noteworthy that there are 19 individuals who make between 11 and 40 outside trips in a year (an average of almost 22 trips each). Without exception, participants depend on outside airline connections.

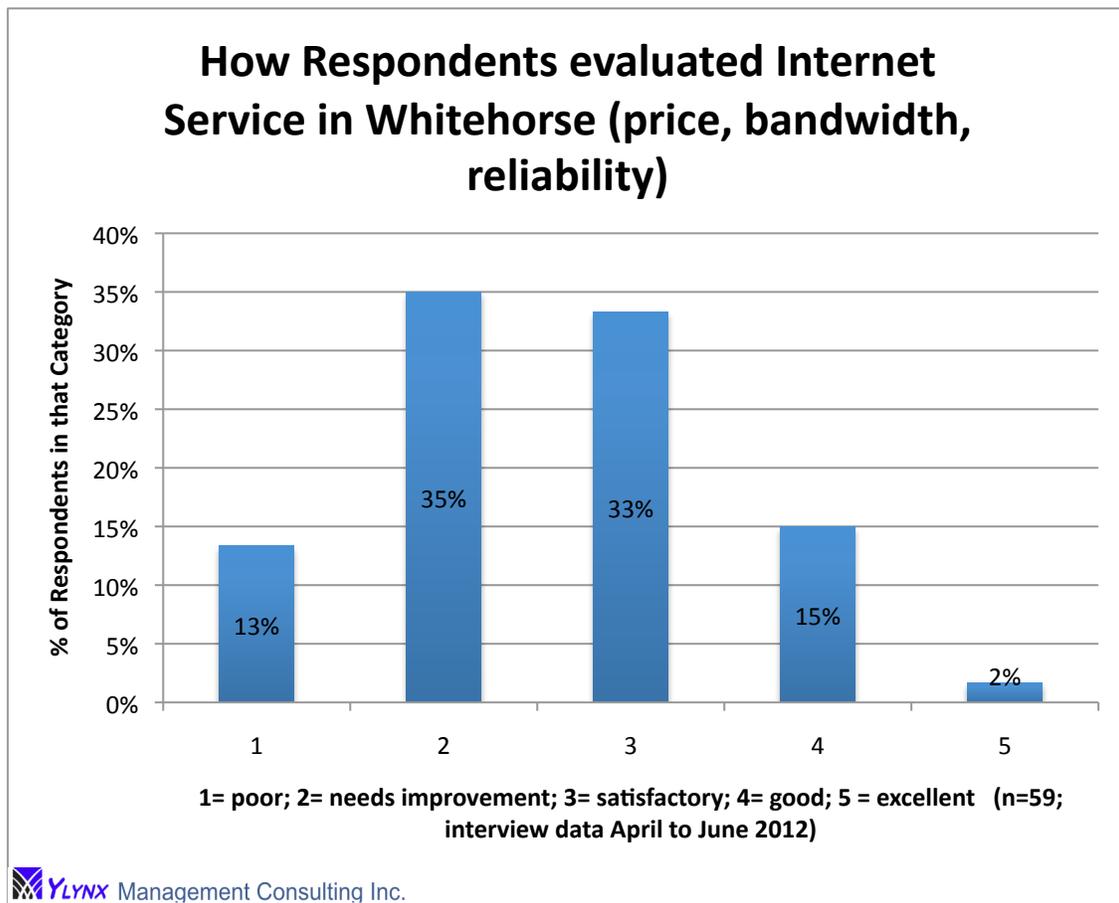
Airline Travel outside Yukon (out of 614 Return Trips p.a.) (n=60)



 YLYNX Management Consulting Inc. June 2012

As demonstrated later in our report, outside connections of Yukon knowledge workers are numerous and multi-layered, and essential for business success. Outside trips for pleasure are as critical for them to live in Yukon as are business trips.

5.2. Internet



For 72% of respondents the Internet is the primary mode of export service delivery, making this service critical. For the remainder, the Internet is the secondary mode of service delivery.

48% of participants are dissatisfied or very dissatisfied with Internet services in Whitehorse. Only one participant was interviewed in a community that has fibre-based services compared to Whitehorse.

The Business Survey 2012 by the Whitehorse Chamber of Commerce confirmed the fact that telecommunication capacities are “a major disadvantage in terms of growing your business operations in this territory”.

A large number of participants added qualifying comments supporting their mostly critical evaluation. Here are several excerpts:

“I think that the price is exorbitant to such an extent that it holds business back. We’ve gone backwards in terms of business due to the high cost of increased bandwidth. It’s downgrading our potential for growth.”

“When I moved up here the bill got larger, the quality got poorer and I got overbilled quite often.”

“Incentivize the Internet for serving export clients.”

“It's lousy: bandwidth caps, at a time when so much is done by streaming. I never experienced that in the States. It's really too expensive and Northwestel has a virtual monopoly. Internet becomes more and more important to everybody's work. It's a strike against the Yukon.”

“The big thing is that we certainly have the capabilities that they don't necessarily have elsewhere. The problem is the Northwestel exclusivity issue and the price/cost.”

“People don't appreciate what they have. The bandwidth is okay, the cost for Internet is very high.”

“It's vital for my business. Backhoe interruptions, slowdowns and cost are concerns.”

More comments on the Internet can be found in Appendix D.

What other studies found regarding the importance of the Internet for rural businesses:

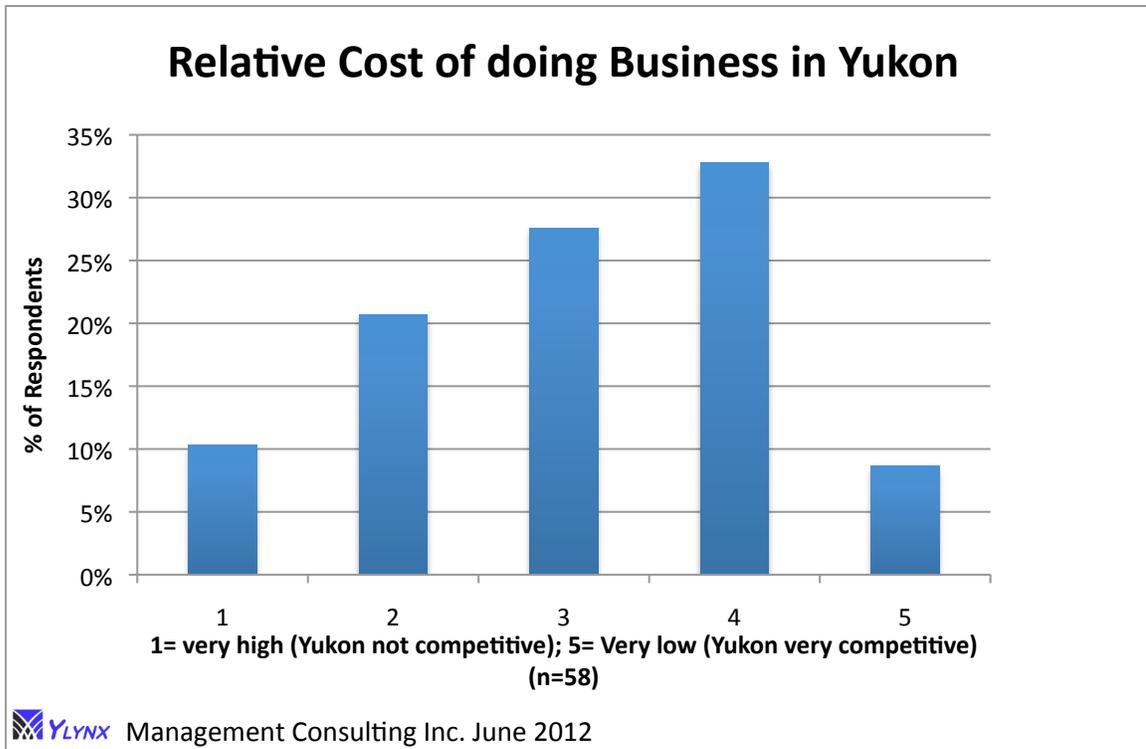
“Comparative limitations in high-speed telecommunications could prohibit rural small business development re: internet marketing, social networking, research, communication with clients, etc.” (Millier Dickinson Blais Inc. 2008, p.44).

“Telecommunications Infrastructure: High-quality rural wireless and broadband availability is increasingly important for business processes, specifically the ‘lone eagles’ (explained later) and small rural businesses... A fact that the region is as technologically advanced as many Canadian cities and serviced with a selection of local telecommunications service providers besides Bell and Rogers puts the area at a competitive advantage. The telecommunications capabilities of the area has been noticed by the site selection community. RBC is building a data centre in Stratford” (Millier Dickinson Blais Inc. 2008, p.34).

“Information technology is absolutely vital to this business and it made this important lifestyle decision possible. High Speed Internet will be an important development. Many documents and drawings are large files and High Speed will make the transmission of these documents possible... Future expansion plans depend on the development of High Speed Internet” (Sopuck, R. 2003, p.8).

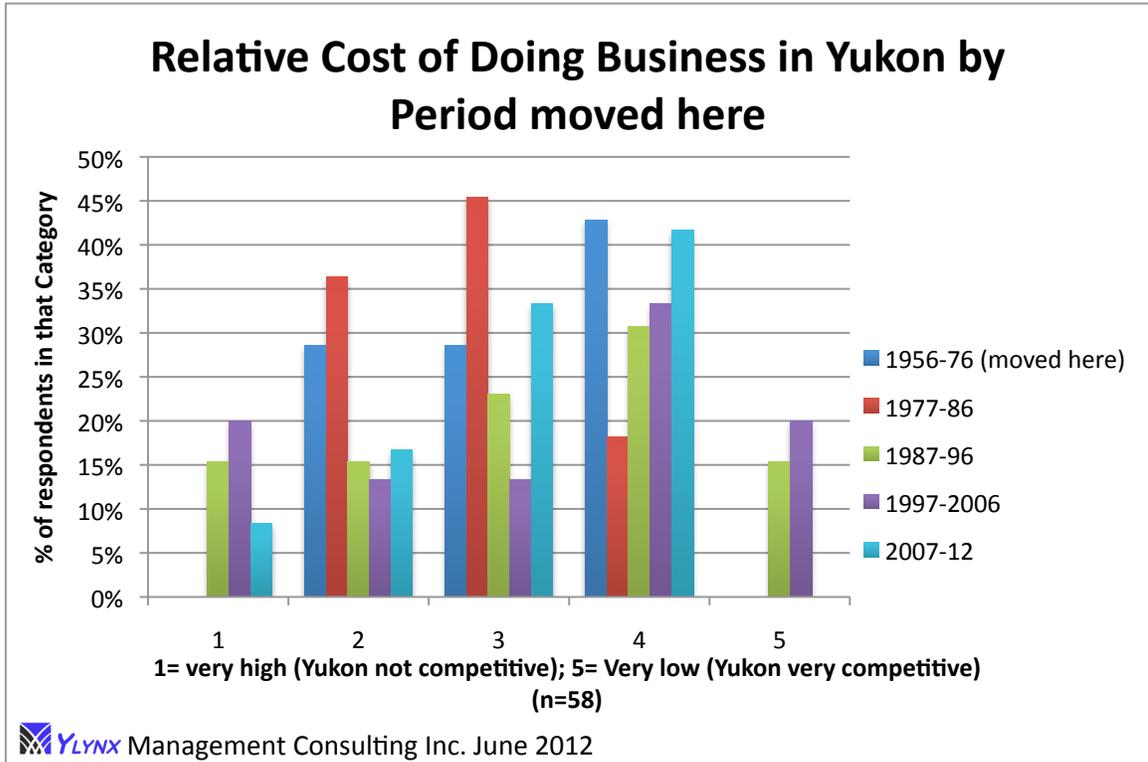
“New developments in communication technology and information management have the potential to transform the economy and social organization of rural areas” (Sopuck, R. 2003, p.15).

5.3. Relative Cost of doing Business in Yukon



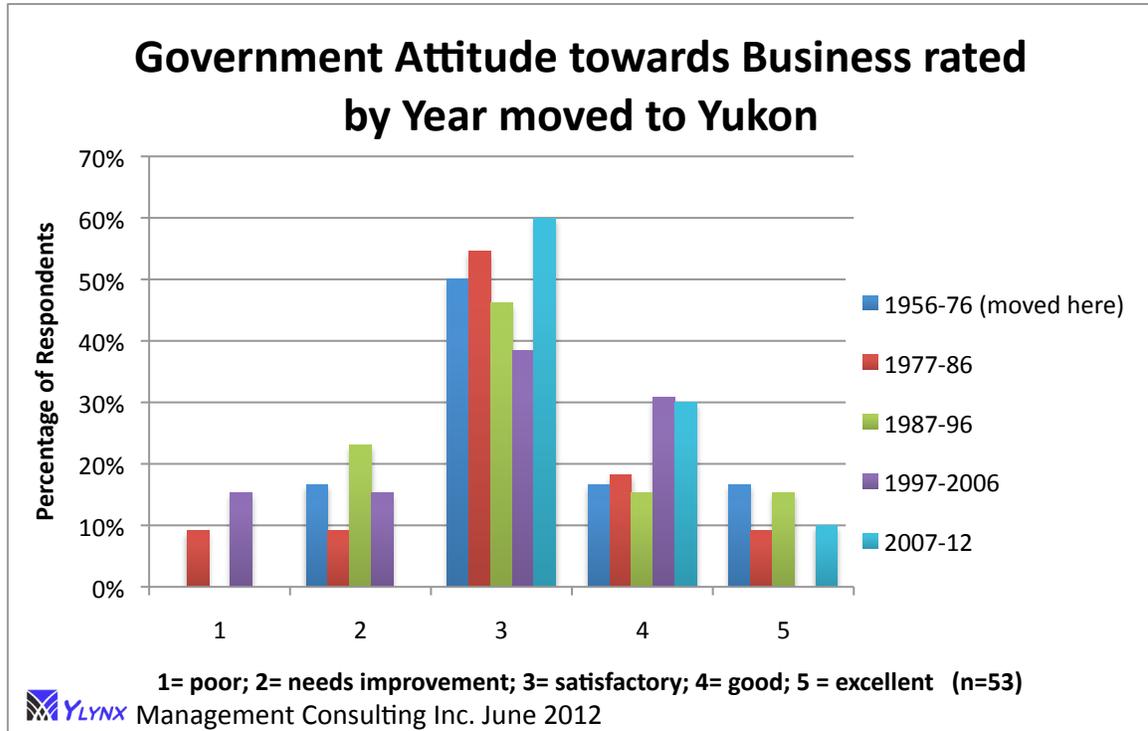
Just over 30% of participants perceive the relative cost of doing business in Yukon to be high or very high. The large majority (just under 70%) generally considers Yukon to be cost-competitive.

What unifies Yukon knowledge workers is their low-cost exporting capability – in terms of operating as well as capital cost (it’s largely human capital they use). Barriers that existed in the past have been removed or are diminished: Cost of air travel, dial-up Internet, reaching target market, to name a few.



This graph was designed to illustrate possible changes in the perception of relative cost depending on when participants moved here. The cost of housing, fees and taxes, supplies, services, gas prices etc. might all contribute to that perception, as well as changing income levels. The above graph does not provide very conclusive evidence. We will venture to say that people who moved here earlier (prior to 1987) generally had a sense of Yukon being less cost-competitive than those who moved here later. This would allow the conclusion that generally Yukon has become more cost-competitive over the years.

5.4. Government Attitude towards Business



This graph was designed to illustrate possible changes in the perception of government attitude depending on when participants moved here. The above graph does not provide very conclusive evidence. We will venture to say that people who moved here 2007 or later were relatively the most satisfied with government attitude towards business.

Here is what participants said:

“There needs to be a real can-do attitude when entrepreneurs like myself come to government with ideas. They need to think beyond mining and broader in scope with tourism. There is a little bit of tunnel vision. On the other hand, I have been able to do some pretty amazing things in cooperation with government: the Western Canadian music awards, showcase Yukon. There are good trickle-down effects. Kudos to the film and sound commission.”

“They don’t believe that small companies can actually provide full value, they think that they have to go outside. They are always looking beyond the Yukon, rather than giving support to local small business. They need to have more trust in small businesses and patience to allow them to grow and develop.”

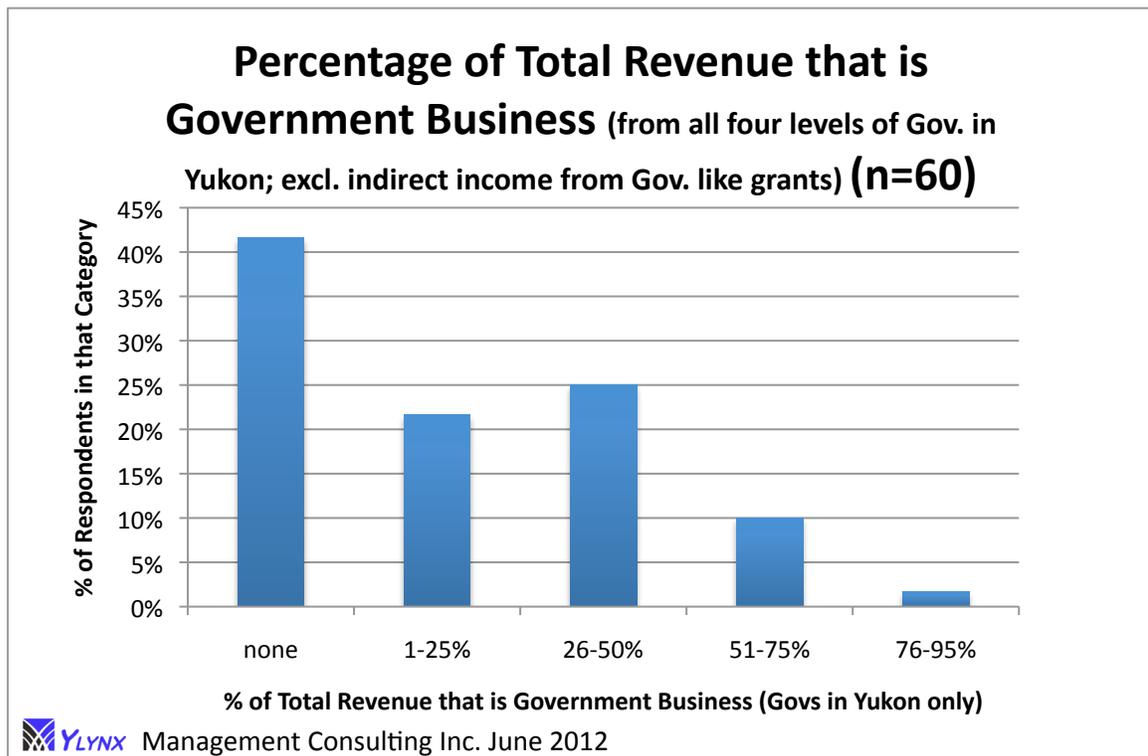
“Government accountability. A level playing field with government tenders, they already know who will win the contract and make me waste my time. YTG will spend money outside the Yukon just to prove that something is not available here. It’s the “anywhere but here” syndrome, something invented here means that it can’t be good”

“The business community is stuck in its old ways. YTG is not participating proactively and progressively, they are very focused on mining. The government doesn’t seem to know that we exist [knowledge workers].”

“Government has no understanding how business works. They have a bit of an attitude that they are there to spread the work around. Government is an unsophisticated client. They do not understand the difference between price, to which they are very sensitive, and value, to which they are ignorant. That’s where the export market becomes more interesting, because clients are more sophisticated.”

“I find the government is not creative when it comes to business. They are in love with the mining industry and extractive industries and they cannot get their head around other models.”

5.5. Government Dependency



The above graph demonstrates that dependency of Yukon knowledge workers on government contracts is low or very low. Only 12% of participants have government contracts of more than 50% of their revenue. **Note:** For the purpose of this survey, contracts from governments outside Yukon count as exports and not as government business. Anecdotal evidence suggests that Yukon knowledge workers derive by far the most revenue from outside Yukon from the private sector.

55% of respondents have never worked for any of the four levels of Government in Yukon. Considering the 45% that have, there is some migration from the four levels of

government into the knowledge sector, but much less so the other way round (people leaving the private knowledge sector for a government job).

Indirect dependence on government is high though:

Whitehorse would not have many of the attributes and enabling factors that knowledge workers need if it weren't for Whitehorse being capital of the Yukon and a government centre, supported by substantial federal transfers. Mainly due to the large size of the public sector, Yukon has a highly educated workforce, which is also attractive to knowledge workers.

Interestingly enough, we did not find any indication of significant migration from the knowledge sector to government. While the Yukon's private sector has major retention issues due to higher government salaries and benefits, this does not seem to be the case for knowledge workers – at least not at the (co-) owner level that we interviewed.

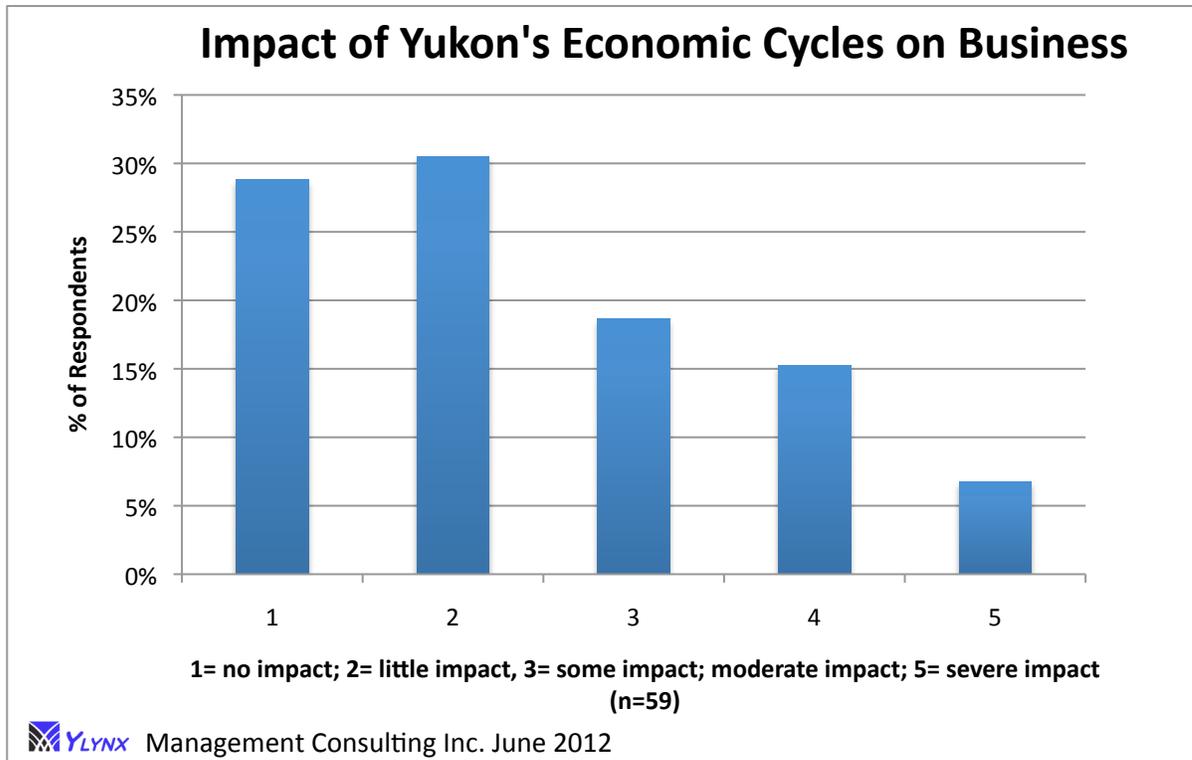
Dr, Andrey Petrov is a geography professor at the University of Northern Iowa. He researches economic geography, regional development policies and restructuring in non-central regions, particularly in the Russian and Canadian North; neo-staple and knowledge-based economies in peripheral regions. He uses the term "Creative Class," also used by Richard Florida (University of Toronto); "Creative Class" in Dr. Petrov's research is largely identical with the definition of knowledge worker in this survey.

"Both creative class and attractiveness indicators reveal the advantage of territorial capitals. Their thriving public sector creates highly skilled, well paid jobs and a dynamic social environment, desirable to the creative class" (Dr. Andrey Petrov 2008, p.174).

As one participant put it:

"Access to commerce, expertise and all the services that come with a capital city. The Yukon government's sheer presence enables a rural lifestyle with all the benefits of a major city."

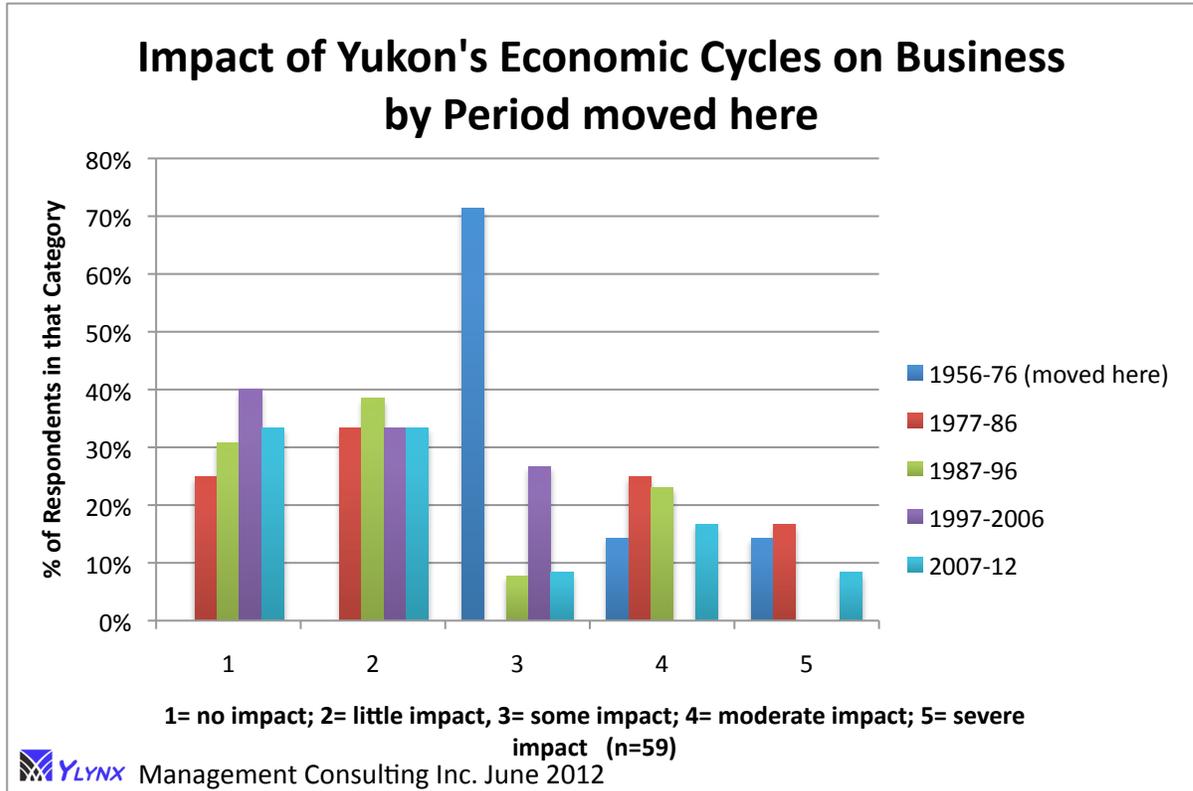
5.6. Impact of Yukon's Economic Cycles on Business



One of the great advantages of Yukon's Knowledge Sector is its relative independence of Yukon's economic cycles. For example, ups and downs of mining and exploration only have a very limited effect on the business of Yukon knowledge workers. The above graph demonstrates the stabilizing nature of the Yukon Knowledge Sector.

This is how a participant explained it:

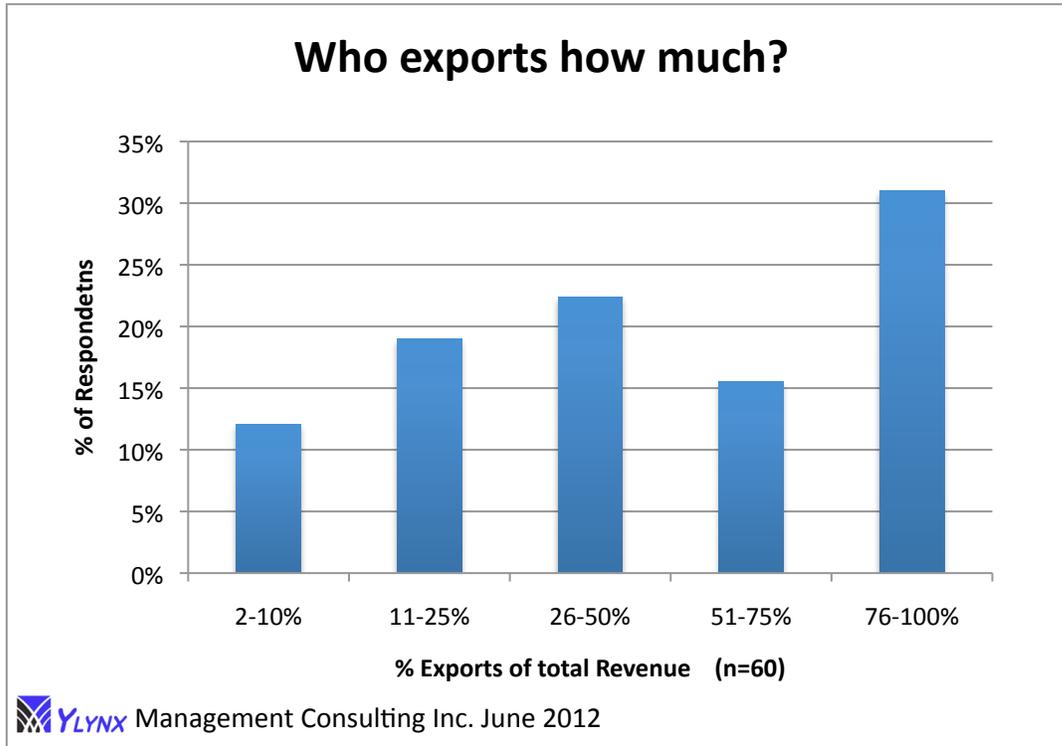
"In terms of exporting, Yukon's knowledge sector is not affected by the Yukon economy at all. That's why we need to grow the Yukon knowledge sector, to mitigate the resource driven ups and downs."



This graph was designed to illustrate possible changes in the perception of impact of Yukon's economic cycles on business depending on when participants moved here. The above graph does not give a conclusive message. It is safe to say that people who moved here in 1976 or earlier were relatively the most sensitive to the impact of Yukon's economic cycles on their business.

6. Exporting and Outside Networks

Yukon is inter-connected globally. Yukon's economy depends on outside parameters like commodity prices, economic and financial crises in other parts of the world, and global trends in technology and demographics. Yukon knowledge workers link Yukon to the world!



Almost a third of participants export at least 76% of their services outside Yukon. All participants export at least a portion of their services outside Yukon. The average “export quota” is 53%, which is very significant for the Yukon economy in light of the 323 full time jobs the 60 participants’ businesses share between them.

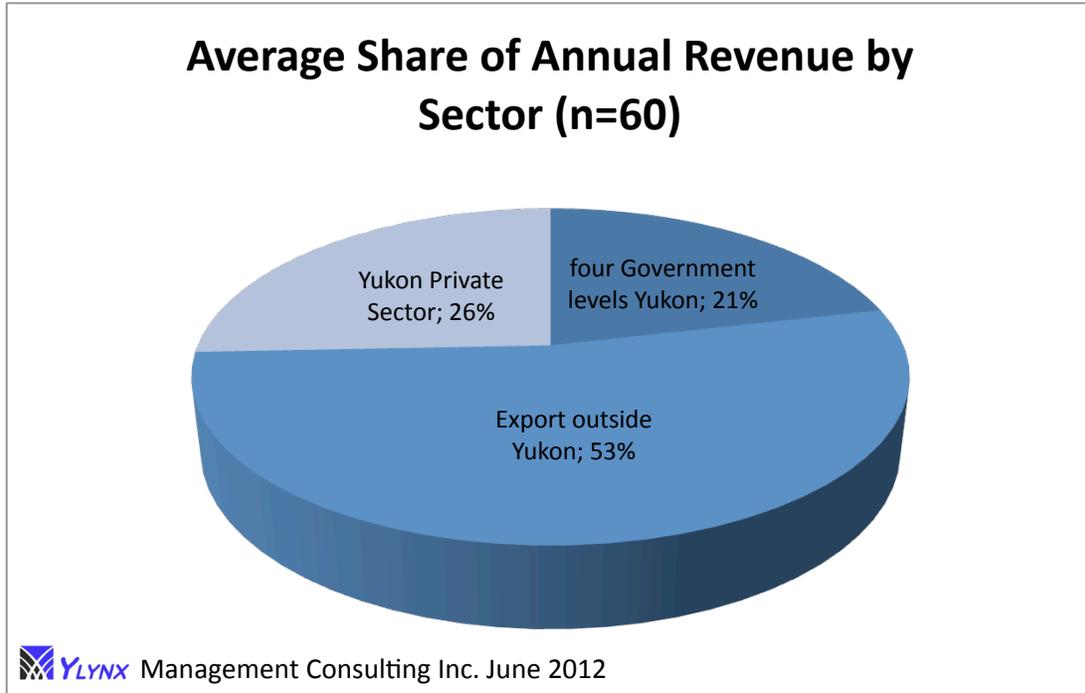
The Outside Market Test

The competitive edge of exporting knowledge workers is the fact that they have passed the “outside market test”: they have demonstrated that they can be successful in a competitive global market place. This sets them apart from knowledge workers who only sell within their “home markets”. In case of the Yukon, this can lead to complacency and quality of service issues. Competing in outside markets keeps Yukon knowledge workers on their toes and connected with trends in their markets. This way, they constantly add to their expertise, which is readily available right here in the Yukon!

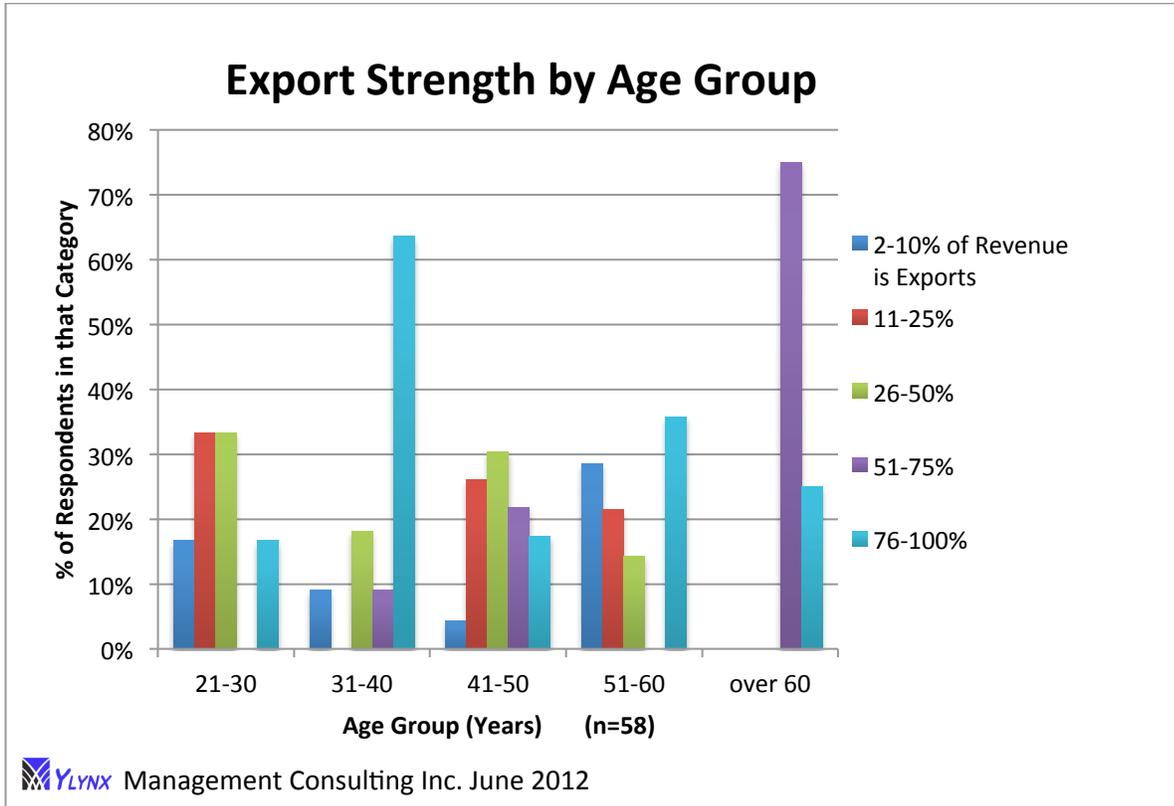
What two participants said:

“By way of exporting our services, we are always exporting the Yukon brand. This way we get people to consider visiting the Yukon.”

“Also, I have a product and service that is a niche. I could go to Toronto or Vancouver but then I would have 20-30 competitors in the same market. It’s like the “big fish in a small pond” thing here. It’s not a very big market but that also means I have to look outside and export more of my work.”



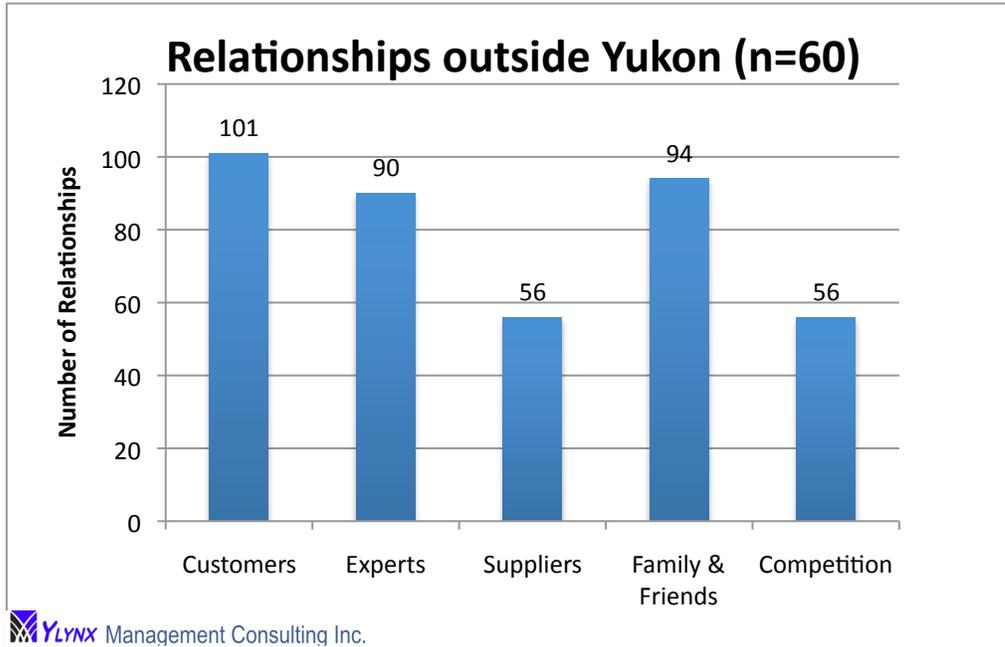
While participants were asked for their estimated export quota outside Yukon (53% on average) and their government business in Yukon, the balance of 26% was calculated, assuming that it is all revenue from the Yukon private sector.



The age groups with the highest exports are

- The 31-40 year olds (a total of 11 individuals) – 64% of that age group export 76% or more.
- The over 60 year olds (a total of 4 individuals) – all of them export at least 51%.
- The 41-50 year olds are the largest age group with 23 individuals, and 40% of that age group export 51% or more – representing the largest total exports of any age group. This is not surprising when taking into account the time it takes to develop expertise and markets.

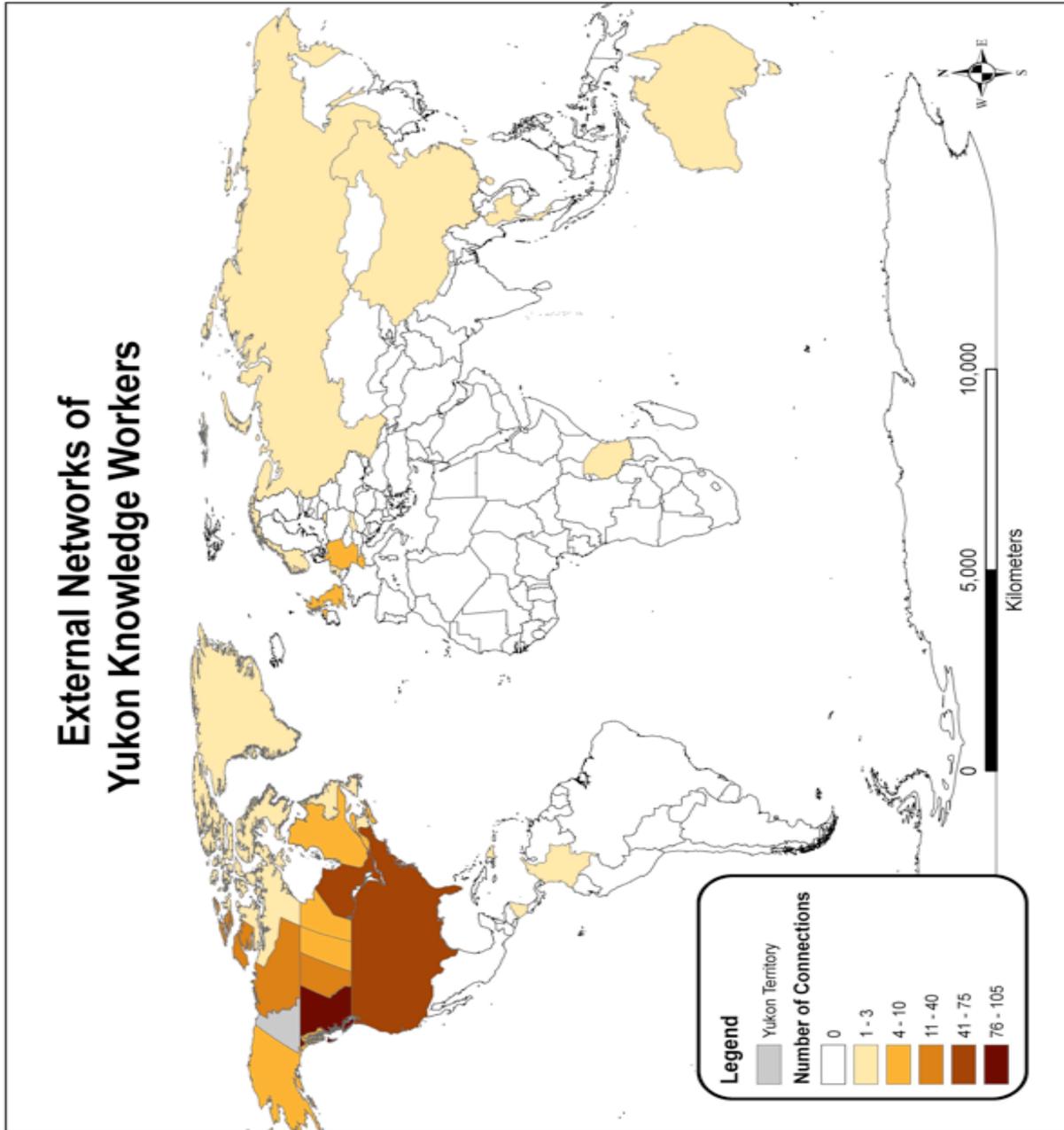
There is no easy answer to the question "at what age is an individual most export-ready?".



Participants were asked to name their two primary geographical relationships in terms of customers, expert network, suppliers and family & friends. Theoretically, each of those columns should have $60 \times 2 = 120$ relationships – but several participants only had one or no outside relationship in that category. Because all participants are in service industries, it is no surprise that the count of outside relationships is lowest for suppliers.

Regarding the location of their primary competition, participants were free to name one or more geographical locations.

- 9 participants stated that their primary competition is in Yukon
- 6 participants stated that they do not have any serious competition



(Mapping courtesy of Dr. Andrey Petrov and Phil Cavin, University of Northern Iowa)

The total number of outside relationships in all categories is 397 – an average of just under 7 per participant. Several aspects are noteworthy (number of relationships in brackets):

- The single most important region for outside relationships is BC (105), with a strong emphasis on Vancouver (53).
- The second most important regions are Ontario (58), namely Toronto (24), and the United States (74), namely New York City (11) and California (8).
- There are 22 relationships with Europe and 10 with other overseas regions.
- A big surprise is the relatively small number of pan-arctic relationships: Only 18 with NWT, 4 with Alaska and 2 with Nunavut.
- Relationships with Central and Atlantic Canada (17 all together) and the central US (0) are few.

These outside relationships are critical, for several reasons:

- Export customers are “outside” by default
- Expert networks make the expertise that supports Yukon knowledge workers “flow” to the Yukon. As well, Yukon knowledge workers enrich their expert networks with their own expertise – exporting Yukon-based know-how.
- With all but 6 of the 60 participants having moved to Yukon at one time, some of their family & friends will reside outside Yukon.

One participant commented:

“I think it can be a challenge to connect our kids to the outside world and to give them the tools to navigate elsewhere or to choose to live here. We are taking advantage of our flexible jobs and taking the next year off to expose our kids to the outside world.”

7. Geographical Duality – the Importance of “Keeping on your Toes” and “Getting Out”

As demonstrated by the frequency of airline trips outside Yukon, geographical duality is both a must and a way of life for Yukon knowledge workers:

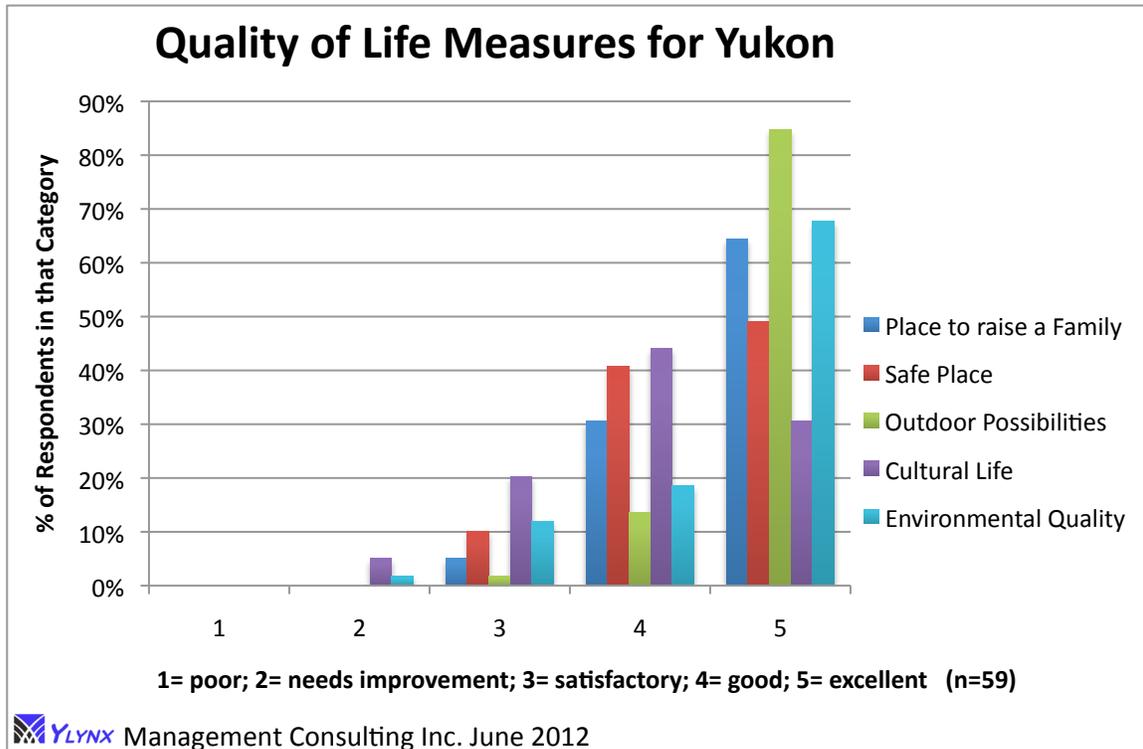
- Face-to-face meetings with clients and experts are still indispensable.
- Physical proximity to the trends that are happening “out there”.
- Meeting with family & friends.
- Professional development at the level required by Yukon knowledge workers is mostly available outside Yukon only (including conferences).
- Visiting stimulating big city environments and sunny climates is considered essential to overall wellbeing. Getting away for part of the winter is part of that. Some even run their “remote” business from milder climates outside Yukon for part of the year (with Yukon remaining their main base).

8. Quality of Life Factors

When searching for the attributes that best describe lifestyle in Yukon, we identified five:

- Place to raise a Family
- A safe Place
- Outdoor Possibilities
- Cultural Life
- Environmental Quality

“Quality of Life and Place – By far, this theme was most often cited as the asset for the area and the reason that there is confidence towards new and continued economic growth. People appreciate their healthy, active and safe lifestyle with access to hospitals, schools, recreation, theatre, culture, recreation, park areas, heritage facilities and events. The small town atmosphere was considered a treasure and one that is carefully guarded from urban practices and a big box mentality. There was a desire to create more events in the off seasons to make the area a four season destination.” (Millier Dickinson Blais Inc. 2008, p. 18)



This graph provides striking evidence of why knowledge workers move to Yukon, work and live here, and stay (for an average of 20years)! In all five categories, not a single participant gave a rating of “poor” (“1”) for any of the lifestyle attributes. Relatively, outdoor possibilities score highest (not surprisingly), with environmental quality and “place to raise a family” next. Cultural life is somewhat lagging behind – if only relatively. The main reason is that while cultural life is very rich and diverse for a community the size of Whitehorse, it cannot compete with big city offerings. In terms of Yukon being a safe place, all participants responded with satisfactory (10%) or better (90%). There are concerns about drug and alcohol abuse.

The Business Survey 2012 by the Whitehorse Chamber of Commerce confirmed that “quality of life for employees is a major advantage” for Yukon business owners.

“The consistent emphasis on “quality of life and lifestyle” reported on in the case histories is consistent with the larger findings of Beyers, W. and D. Lindahl. (1996. Lone eagles and high fliers in rural producer services. Rural Development Perspectives. 11 (3): 2-10). They report that, “Quality of life is cited by much larger shares of High Fliers and Lone Eagles than of the other rural firms.” Beyer and Lindahl also note: “Many of the Lone Eagles and High Fliers’ detailed responses [to surveys] elaborate upon quality of life factors, environmental conditions, and desires to get away from urban settings” (Sopuck, R. 2003, p.12).

There is a conundrum other Yukon knowledge workers are facing as well:

“An issue that I see in Yukon that may have negative impacts, particularly for people working for themselves, is the flexibility that many people living here are seeking. Many people that live in Yukon do not really want to have set working hours or a commitment to

work. They want to be able to balance their lifestyle choices and still be able to compete for work with outside markets.”

What participants said:

On the environment:

“As the Yukon continues to grow and develop we need to be responsible by keeping environmental concerns in the forefront, keeping development well-monitored etc.”

“I don’t think we have a government that cares enough about the environment”

“Commitment to environmental sustainability by the government and the private sector.”

“I feel the environmental quality in Yukon is under threat.”

“Continued economic growth may infringe on environmental quality.”

Cultural life and community:

“Vibrant, very diverse. People from all over the place.”

“Whitehorse has a strong community and supports a lot of social activity, which I think creates a good environment for raising a family.”

“Fantastic lifestyle, easy community, culturally and intellectually vibrant”

“That’s the other thing that really keeps me here is the quality of cultural life here. The arts here are phenomenal.”

“Phenomenal for a town this size.”

“There are too many new city attitudes inherently colonized and adoring of the “South”. We have our own stories that should be told in our own way by our own people.”

“Lots of culture, including First Nations and the French community. There is an incredible natural health culture, bush culture, arts culture.”

“Mix of local, homegrown with opportunities to participate, and international programming. Good access to the artists and programs.”

“It’s a small town, and all the recent arrivals have not yet coalesced as a community. There are a lot of events, but not a lot of community. Events don’t make culture.”

“There is so much going on. Lots of music, theater, art and interesting people to talk to.”

“Cultural” reasons why they travel south:

“We have the art centre. There are lots of events and art shows. All the big shows never come here though, our population is not large enough to support world-class events that come to Vancouver, Edmonton, or Calgary.”

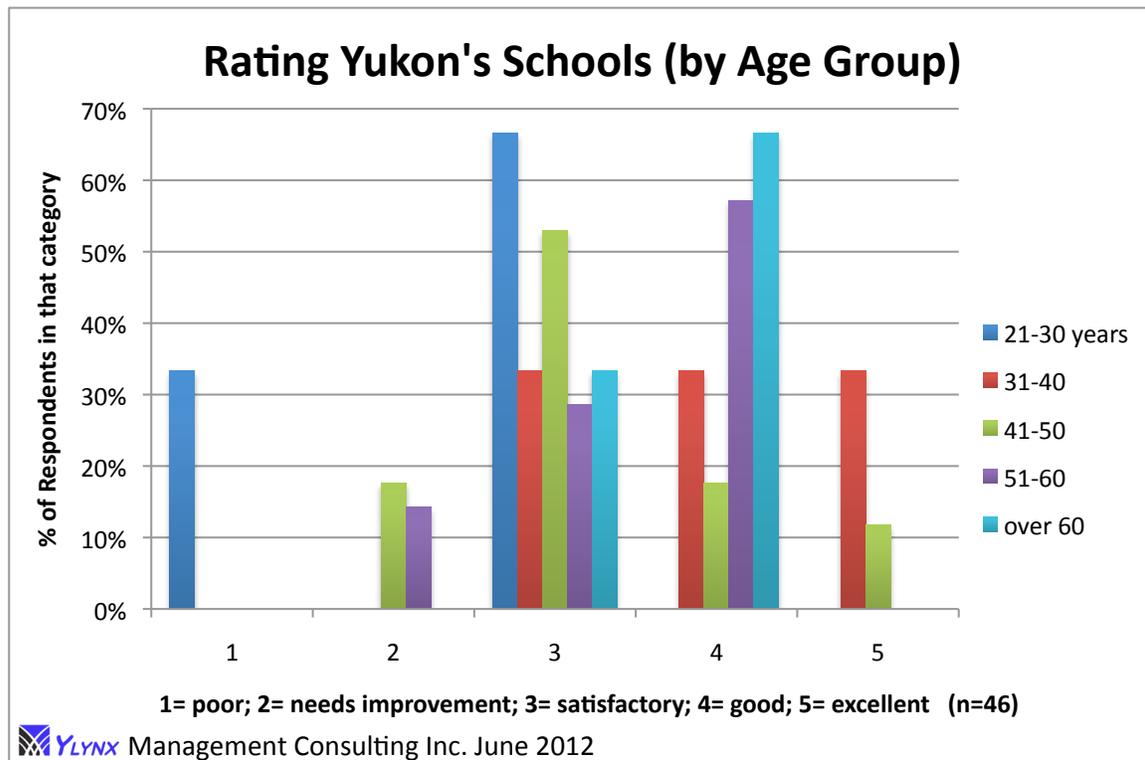
“Rich community life, but things like Opera are limited.”

“The urban experience in selecting: Canucks, Giants more things to go to, more professional entertainment in terms of plays and concerts, Symphony.”

“Inadequate nightlife and access to a diversity of places to go at night.”

8.1. Public Schools

It should be noted that except for one participant in the communities, participants evaluated schools in Whitehorse.



The above graph applies to schools in Whitehorse only. It appears that people with young children, or having left the school system themselves not too long ago, were most dissatisfied with schools. This assessment is of limited value because the sample is small (6 individuals are in that age group). Only 7 participants rated schools as excellent. The smaller total sample size of 47 (of 60 participants) is due to the fact, that some participants didn't have children at all, didn't have children who attended school in Whitehorse, or hadn't attended school in Whitehorse themselves – they chose “n/a” as an answer.

Positive comments about schools in Whitehorse:

“I would give the Experiential Science and Aces Programs a 5 (excellent)”

“The diversity of programs in experiential sciences. We all did exceptionally well.”

“My son was much happier at FH Collins than in Edmonton: less pressure to conform, and he liked the exposure to different cultures.”

“My boys have been able to do everything they wanted to do.”

“Absolutely fantastic: diversity of teachers and students, access to programs and opportunities; travel outside, students getting attention. Diversity at school makes for well-rounded people. That's the benefit of living in a small community.”

Some critical comments:

“Kids here are pampered too much and not challenged enough. Also, there's not enough interaction, it's a small cohort until high school here in our community. We are sending our daughter to a full-time online private school that she can attend from anywhere. It's the National Connection Academy, a program out of the US and that costs \$10,000 per year, and which Canadians can attend except for the tutoring system.”

“Public school system and housing. While Yukon schools stagnate or decline, the gap is widening compared to alternatives, like Edmonton school's choice policy.”

“The bar is set very low, set for the most common denominator.”

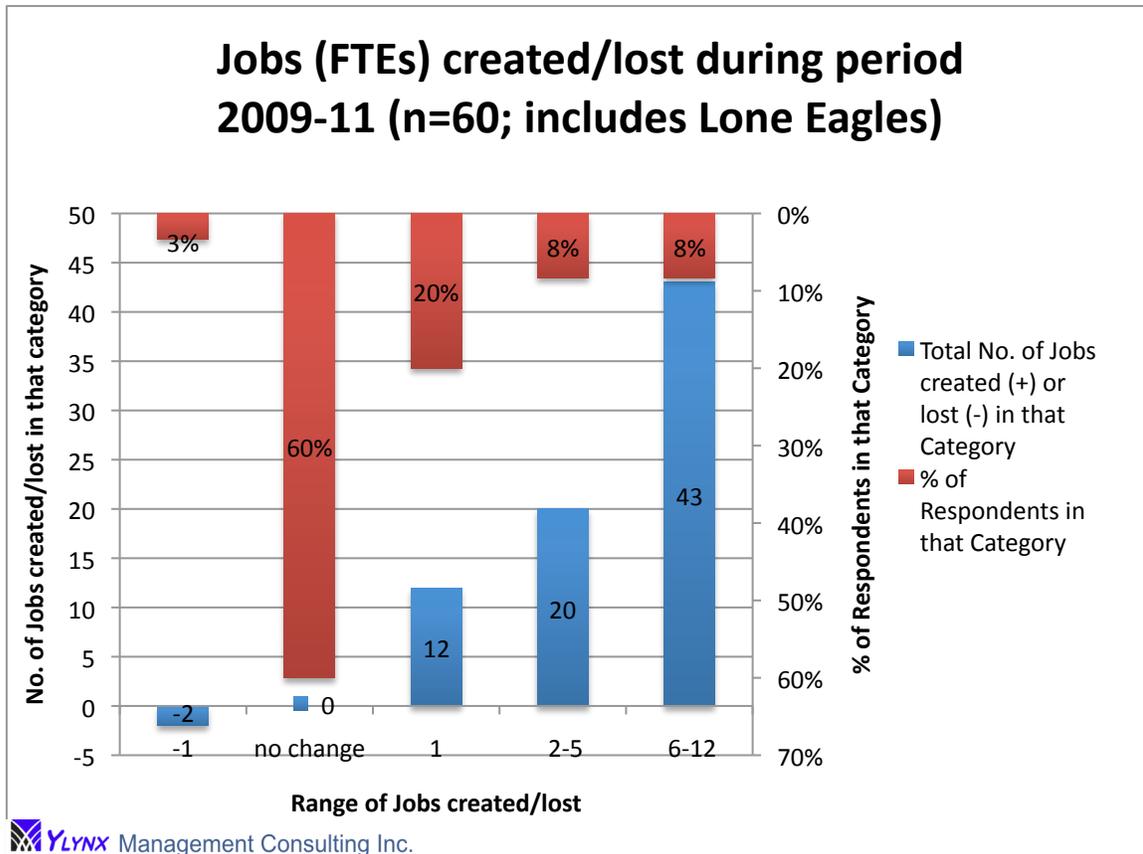
“The graduation rate is too low. There are not enough resources to give kids the same opportunities as down south.”

“So many students in the Yukon need to get upgrades in order to qualify for post-secondary education. Yukon schools do a lot better on experience related training.”

“We have an amazing lifestyle, but the quality of schools drags it down. Many kids will move outside and then move back again.”

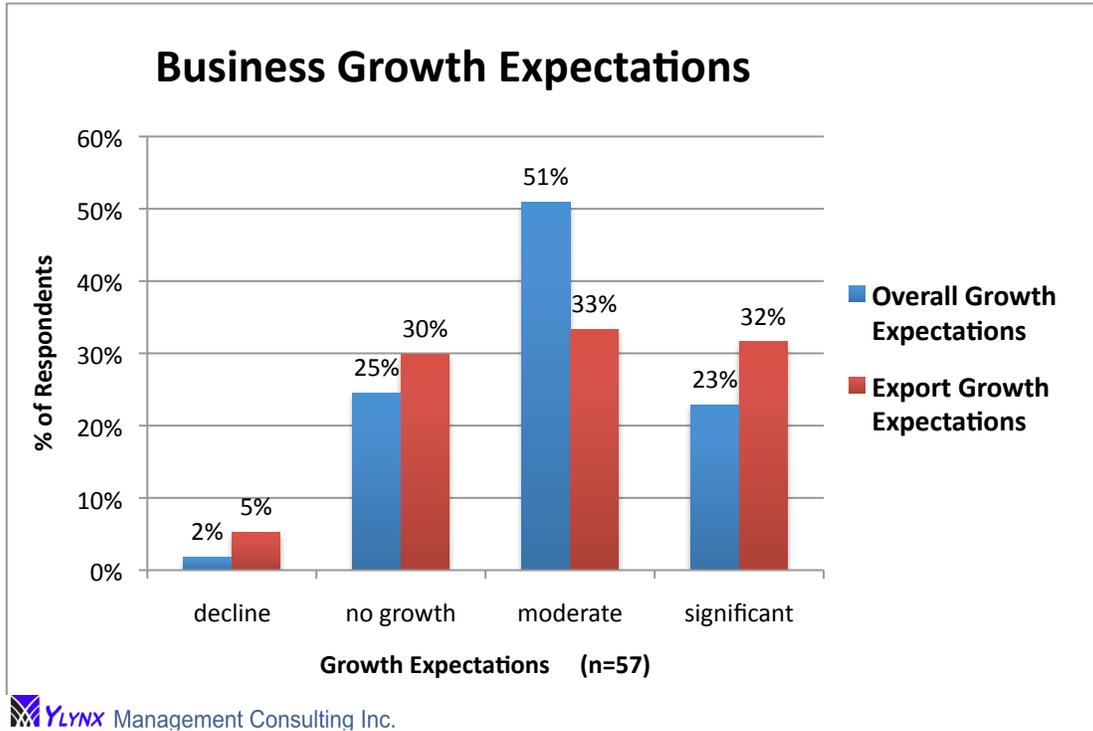
“Yukon schools have transformed from what they were to a lower rating. But some avenues of education are better than others: French immersion and the Catholic system rate higher.”

9. Yukon's Knowledge Sector is growing



The above graph identifies patterns in job growth or loss in the businesses of the participants over the last three years:

- Only 3% of participants reported a net job loss over that period – for a total of only 2 jobs lost. (Jobs counted in FTEs, Full Time Equivalents)
- Among 97% of participants, 75 new jobs were created over the three year period
- The resultant net job gain of 73 jobs represents a growth rate of 29% over three years!
- 43 jobs or 59% of the growth occurred with only 8% of the participants, pointing to significant growth of those businesses. In other words: 5 participants created a total of 43 jobs between them!



Looking into the future, prospects for the Yukon Knowledge Sector look bright:

- 74% of participants expect moderate or significant overall growth, with an emphasis on moderate.
- 55% of participants expect moderate or significant growth of their exports.
- Very few expect a decline overall or in exports.

As a participants stated:

“It will be great; more qualified people in the Yukon. We choose to be here and are not losers. You do not have to go to Toronto (in order to be successful). The more competition we get, the better our standards will become. It will raise the bar. Raising standards is already happening, we are raising our own bar through competition. In order to stay on top of trends, we have to function outside the Yukon. It sometimes seems that we can't get out of our own way.”

10. Some Surprises

The invisible Knowledge Sector

Even considering the multi-faceted outside relationships they rely on, we were surprised by the extent to which Yukon knowledge workers

- Don't know of each other.
- Are not (yet) identifiable as a critical mass or even group.
- Are not connected with the business community in Whitehorse.
- Are not connected with organizations such as the Yukon College.

- Are not utilized in Yukon with their expertise, for mentoring and coaching the next generation, for government and private sector contracts alike (“imports preferred”).

Yukon’s Knowledge Sector is currently fragmented and lacking lobbying power.

Emerging Clusters of Expertise

While the expertise of knowledge workers is a given condition, we were very surprised by the diversity and depth of expertise that Yukon knowledge workers possess. In total, we were able to identify no fewer than twelve clusters of expertise (see section 13 below).

What also surprised us is that we didn’t come across any “exporting knowledge workers” from the health and financial services sectors, even though there could be very specific (northern) know-how in these areas that might be exportable (for example specific arctic health care or advisory services to aboriginal trusts).

Most Knowledge Workers, now at an average age of 47, want to retire in the Yukon (43 or 73% of 59 participants).

Yukon’s Health Services and Facilities

There were two surprises here:

- Almost none of the participants raised any issue about Yukon’s health services and facilities – positive or negative. Even though there was no specific question targeted at this topic, there were several questions that would have invited such comments.
- Due to the fact that there are more and more people retiring in Yukon, including knowledge workers, demand on health facilities and services will increase dramatically – with some facilities for senior citizens apparently operating at capacity already.

As one participant put it:

“Finally, another trend that I can see becoming an issue in Yukon is retirement. The capacity that we have in our care facilities is very minimal at the moment. Many Yukoners are now starting to bring their aging parents up here, partially because of the relatively low cost for seniors’ facilities and to have them live closer. This in turn overtaxes the capacity of those facilities, which is going to become an increasing concern as the baby boomers continue to reach retirement age.”

11. Three Yukon Paradoxes

There are things that Yukoners cherish and dislike about the Yukon - at the same time. These paradoxes also illuminate that trade-offs that people who want to live in the Yukon are well aware of. Their notion is that they received sufficient value for living here.

11.1. Remoteness

Many of the barriers that Yukon knowledge workers are facing relate to remoteness:

- Distance and cost of travel

- *“Potential clients offered me opportunities, but in the end were not willing to pay the extra travel expenses.”*
- *“In consulting you have to have personal contact with people. You cannot skip that step.”*
- *“The remote location - a lot of newer (outside) clients may be scared not to receive service as good as from someone local.”*
- Not enough face-to-face contact with clients and expert networks
 - *“We have discovered that we work best on a face-to-face basis. The same goes with team building: it’s difficult to build relationships with people that are outside. It hinders our work and us.”*
 - *“Face-to-face contact is still very important, particularly in the service sector. Hard to build personal relationships without some face-to-face contact.”*
 - *“Sometimes it would be easier to sit down with some one and talk things through.”*
- Internet cost, bandwidth and reliability
- Access to high level professional development

At the same time, remoteness is what Yukon knowledge workers are seeking as well, because it closely relates to the lifestyle attributes they are seeking.

“This finding suggests that remoteness may be a positive condition for the creative class, probably because a remote location stimulates local leadership, entrepreneurship, and the rise of a northern creative class that includes aboriginal people” (A. Petrov, 2008, p.173).

“There is indeed a frontier factor that is at work here. ‘Frontierness’ may play a positive role in attracting creativity. However, its flip side is an economic marginality - a condition of a constant disadvantage (broadly defined) compared to more central regions. Being on the frontier may be an important pull factor for CC, but within a short period of time conditions of marginality may prevail as a push factor that makes CC to move elsewhere. The essence of the matter is that the issue of regional development becomes the issue of retaining creative workers. Therefore, the question is: what frontier communities can offer in order to retain CC that arrived there?

Developing a “creative milieu” that is attractive to CC and alleviates some forms of marginality, such as remoteness, ‘boringness’, etc. Here the role of the public sector – and CC in public service is critical. The problem is that they rarely direct their efforts this way, rather focusing on traditional sources of development (mining, etc). The supportive environment is created by synergizing CC, in different types and forms. Therefore it is important to remember that we’re not just talking about IT workers, but a variety of creative occupations. I think a ‘creative variety’ is a key to territorial success.” (Dr. Andrey Petrov, personal communication, Oct. 27, 2010)

11.2. The Internet

The Internet is the single most important enabling factor for Yukon knowledge workers, and at the same time the biggest impediment for them. Without the Internet, their skills wouldn’t be as mobile, and export service delivery and connectivity with outside networks would be almost impossible. It is even fair to say that the Yukon’s Knowledge

Sector in its current form and size hardly existed before the Internet came to Yukon. At the same time, the current limitations (see section 5.2) of the Internet in terms of price, bandwidth and reliability are such that most participants consider it a major impediment for their business. Attracting new knowledge workers and their businesses to Yukon, especially those relying on bandwidth and reliability, will require major investments in the Internet.

11.3. The Weather

Yukoners always talk about it. They love it and they hate it: Top marks for the outdoors and environment, yet winters are too cold and long. They are here because and despite of our winters, which are generally considered bearable to brilliant, but too long. Compared to other parts of Canada, Yukon's climate is actually relatively hospitable in terms of temperature extremes, cold spells, wind chill, humidity, annual precipitation, and fog days. Last but not least, Whitehorse has the best air quality of any Canadian town! Total hours of sunshine are low relative to southern Canada. Days in winter are shorter than locations closer to the 49th parallel by approximately two hours, which does count. Is this love-hate relationship significantly different in any other part of Canada except the Atlantic and Pacific coasts, where rain and fog are major issues weighing in against milder and shorter winters?

In any outside marketing campaign, Yukon's weather needs to be de-demonized!

12. Migration Patterns of Yukon Knowledge Workers

12.1. Why they moved here and why do they stay here?

Why did they move here?

A large majority of participants stated quality of life reasons being by far the most important, which includes the Yukon's wilderness setting and environmental quality. Some were seeking change and a sense of adventure, while others were coming for employment or because they had family in the Yukon. Some came because of the people and the culture.

A survey by the Yukon Public Service Commission in 2007 found:

"A sense of adventure and the opportunity to enjoy a more active or outdoors lifestyle were identified by approximately 70% of all candidates and new hires as key factors that attracted them to the Yukon" (p.8).

Sopuck, R. 2003: *"Peter Nelson noted: "Increasingly, household decisions to move to new places are not based on strictly economic considerations, such as wage levels and employment opportunities, but rather on perceived improvements in the quality of life the new residences offer. The promise of better schools, less congestion, less crime, and scenic beauty attract relatively well-off individuals and families that are in a financial position to act upon residential preferences. When these people move to an area, they bring with them both financial and human capital that can stimulate local economic development" (p.12).*

Here are some excerpts of what participants said:

“The Yukon felt like a good place to be. I really liked raising my son here; it was a good place to live.”

“There are only 2 interesting places in Canada to live: Newfoundland or the North. Yukon had mountains and NWT didn’t, so I chose Yukon.”

“Wanted to change, live in the mountains, we both got a job in the Yukon.”

“Quality of life, for example transit time, flexibility of work schedule, access to recreational activities.”

“I came to visit, and I loved it. I was looking for a new home base that had interesting stories.”

“I moved here because I had always wanted to live in the mountains and there are recreational possibilities in the Yukon that you can’t find elsewhere.”

“The nature, the outdoors, the people and culture are why I moved here. The adventurer minded people that live here and the talent in the Arts is really what attracted me.”

“The combination of the land and the people.”

“I wanted to live in the North. While the Yukon is the North, it is much more gentle than other places in the North.”

“I wanted to be in the North, because of the culture, the environment, the community and the good lifestyle.”

“I moved here for the romance of the Yukon, for Robert Service’s poem and for the mystery of the North. When I returned the second time in 1980, I brought my wife here for a holiday and told her we might not leave. I had friends here and it’s a very warm and friendly place to live.”

Why do they stay here?

Not surprisingly, most stay for the same reasons they came to Yukon in the first place. There seems to be an underlying theme of freedom, independence and the ability to flourish. The character of the people and the community is also an important factor. People are generally very thankful for the balanced lifestyle and opportunities Yukon offers them.

A memorable quote:

“The difference in my work between here versus Vancouver: enjoying more variety in what I do, the spice of life. Working in a Vancouver high-rise is very specialized and repetitive. It’s a better work-life balance here and a healthier lifestyle. You’re more inclined to walk. You’re more likely to join the community and participate in things, a classic being the bike relay. In Vancouver you have to be an athlete. There are different expectations in Whitehorse, it’s more participatory. What there is here, you’re more likely to actually do. It’s

only 10 minutes away, and participation rates are higher. There is some kind of entertainment every night in Vancouver, but you don't go, because it's a 30 minute drive and 25 bucks for parking. Here, everything is more accessible."

Here is what other participants said:

"The lifestyle. I could do my work anywhere (but yet choose to live here)."

"I stay for the beauty and for my kids."

"We still love it."

"Mostly because I have been able to flourish here as a writer, and I have been able to make contacts here within the Arts community. The other reason is that my daughter started her life up here and she is doing really well, and my husband really loves it here."

"I love it here, it's comfortable, there are so many things making life here worthwhile."

"There was so much potential and it really suited my own personal lifestyle. I also like the small-town feel of it."

"Expansive recreational possibilities, a vibrant community, and a lot of possibilities for work all contribute to why I stay here."

"I like it here, I like the freedom. There is opportunity."

"Community, friends, and my business [that might not have happened in the big city]."

"I have been going back and forth between here in Toronto for 5 years, spending about 25% of my time there. It's grounding to be here, there are very few distractions."

"Even though I say there is some difficulty to do business here, I don't think I would have had the opportunities down south that I have had here. I don't think I ever would have thought of starting my own business down south. It can be limiting living in a smaller place, but it can also present amazing opportunities that you wouldn't get anywhere else."

12.2. Why are Knowledge Workers leaving?

It is very encouraging that most Yukon knowledge workers are long time Yukoners and that none of the participants have plans to leave.

12.2.1. Three Exit Interviews

We interviewed three knowledge Workers who recently moved away but still have close ties to the Yukon, through customers, experts, and family & friends.

These three individuals had quite different reasons why they left:

- Moving to Vancouver because of public schools rated much better by the Fraser Institute than schools in Whitehorse (elementary and high schools alike).

- Moving to Toronto because of the physical proximity of experts in the relevant field and access to clusters of facilities utilized by the profession. This participant stated that the move was critical to lift the business to the next stage.
- Moving to the eastern US because of family issues and proximity to clients and experts.

Because of the recency of moving away and their continued close ties to Yukon, the results of these interviews were fully included in all analysis and conclusions. All three individuals still like the Yukon for the same reasons as the other participants who are still here, and would like to see similar improvements.

12.2.2. What would entice them to move away and to where?

Not a single participant has actual plans to move away, unless work would dry up, an exceptional opportunity came along, or for family or health reasons. This question was also geared to find out about the potential for competing areas and towns that could attract knowledge workers. BC is a strong contender, especially the coast. Big cities are much less so.

What participants said:

I'm not leaving:

"Nothing would entice me to move away; there isn't anywhere else I'd like to live."

"The only way I would move away would have to be if I was kicked out of here kicking and screaming. If I really had to live somewhere I might move to Haida Gwaii."

Economic opportunities and other reasons for leaving:

"A lot of money! It would have to be ridiculous, and I would still keep a home here. As a business owner, I can go outside whenever I want."

"I'm pretty far from my family in Ontario. And I am far from the centres of my industry. I'd move to Seattle if I could get a work visa."

"Economic decline might entice me to move away. Given the current situation, I would probably move back to BC."

"Business opportunity/work opportunity. Likely I would move to Vancouver Island or PEI. In PEI the knowledge sector has been growing significantly, in Vancouver Island there is a lot going on."

"Being able to live closer to family, and a higher paying salary might entice us to move away. We would probably move to BC or Alaska."

The Weather:

“A hot climate with a longer growing season.”

“To Ontario for family reasons, to BC because of the climate.”

“Warm weather, other client needs.”

“We will very likely stay here but access to warmer weather and longer summers might entice me to move away. I would likely move to Coastal BC if I were to leave.”

“Only if I retired, I may go somewhere that’s warmer. But while I am working here, I can’t think of any reason that I would leave. Even after retiring, I would likely stay here.”

“I would love to have hotter, longer summers; professionally I might leave for more challenging work. If we did leave the Yukon, I would move to the Kootenays in BC.”

“Climate might entice me to move away, although we wouldn’t move away permanently- this will always be home- but I would spend winter months somewhere warm. We just bought a house in a southern climate. Also, the cost of living might entice me to move away.”

Other Reasons:

“My health. I would move to Vancouver.”

“Having better access to the ocean might entice me to move away. I would likely move to Coastal BC.”

“I would move to somewhere smaller and I would probably move to Atlin, BC. I think being able to live in a smaller community would entice me.”

12.3. What Communities in Canada is Whitehorse competing with to attract Knowledge Workers?

The following list was compiled using participants’ input (where they would move to if they were to leave Yukon), and some research of our own:

- Sunshine Coast, BC (1 hour to Vancouver – limited comparability)
- Canmore, Alberta (1 hour to Calgary – limited comparability)
- Charlottetown, PEI

Can we learn from these communities how they market themselves to knowledge workers?

Yellowknife appears to be less competitive with attracting knowledge workers, mainly because of its harsher climate and less spectacular scenery. None of the participants mentioned it as a contender.

12.4. A look from the Outside (a comparative study featuring Sun Valley, Idaho; courtesy of Charles Conn)

What intrigued us about Charles Conn was that he not only is a knowledge worker himself, but he represents the kind of entrepreneur that Yukon should try to attract. We selected him specifically because he knows the Yukon well and has family ties here.

This comparative study has the intent of sensitizing Yukoners for what kind of community we are competing with and what the evaluation criteria of knowledge workers are.

Charles worked internationally for an international management consultancy, and then started his Internet company [Ticketmaster] CitySearch in Pasadena, California (and later launched an Initial Public Offering (IPO)). As a step towards semi-retirement, Charles and his family moved to Sun Valley, Idaho (three small towns with a total population of approx. 20,000). WHY? Below is Charles' evaluation matrix. He visited each and every one of the following communities, and Sun Valley came out on top: Sonoma (California), Bend and Ashland (Oregon), Victoria (BC), Boulder and Telluride (Colorado), Amherst (Massachusetts), Missoula (Montana). Today, he would add Ojai and San Luis Obispo (California) and Durango (Colorado) to his list.

Sun Valley's economic driver is tourism, especially the ski resort. It is not a major government centre like Whitehorse.

Charles' evaluation matrix for selecting where he and his family wanted to move to follows on the next page.

Climate/Environment	Score (to the extent mentioned) & Comments
days of precipitation	
annual rainfall	
annual snowfall	
number of sunny days	high in Sun Valley (as the name suggests....)
comfort index (max/min temp. and humidity)	high in Sun Valley
min Jan temp.	
max July temp.	
watershed quality	high in Sun Valley
air quality	high in Sun Valley
Transportation	
distance to local airport	7 turboprop scheds/day to SLC, SFO and SEA
distance to coast (not too far)	coast far from Sun Valley, not from Whitehorse
distance to major city (not too close and not too far; services, institutions, shopping)	
Schools	Excellent in Sun Valley
pupils per teacher ratio	
spending per pupil	
availability of private schools	
achievement index	
Town Characteristics	
presence/proximity of family and friends	
presence of a university or college	none in Sun Valley vs. Yukon College in Whiteh.
a centre for the arts	vibrant art community: A writers' festival, two theatre groups, an amateur symphony orchestra. Whitehorse is yet a step ahead of that.
quality of town centre	Charles: "much prettier than Whitehorse"
physical beauty (of surrounding scenery)	very high score for Sun Valley and for Yukon
good presence of interesting small companies	See text below
Population (small town, but not too small)	20,000 Sun Valley area vs. 25,000 Whitehorse
population change (no crash, no explosion)	
% of population with 4-year or higher degree	very high in Sun Valley and in Whitehorse
household median income (high is desirable)	high in Sun Valley and Whitehorse
population density (low is desirable)	low in Sun Valley and surroundings, even lower in Whitehorse
median age	Charles: "too high in Victoria, BC"
percentage of families married with kids	High (=desirable) in Sun Valley
property crimes per 1,000 of population	low in Sun Valley
unemployment rate	
home owner percentage (not "all owners" - "then it's suburbia"; not too few owners, because then "it's a town of transients")	
average cost of a single home (affordability index)	During the 10 years until mid-2012, price of a single home has more than doubled in Whiteh.

Today, Charles spends part of his time with salmon conservation projects for the Gordon & Betty Moore Foundation, and the remainder of his time on various other projects. He also is a director of Patagonia and is active in Sun Valley's vibrant start-up scene.

Entrepreneurial spirit and a business start-up culture - an area where Sun Valley is ahead of Whitehorse:

Sun Valley has a lot of intelligentsia-driven businesses. It has strong entrepreneurial networking and interaction, which is very conducive to start-ups. When strong growth happens, many start-ups have to move to locations like San Francisco, with a strong pool of highly qualified workers - the critical mass bolstered by the urban environment and the proximity of high-end educational institutions. Both are lacking in Sun Valley, which has a cluster of affluent (mostly semi-retired) entrepreneurs and executives, but few highly qualified workers. When asked if his company CitySearch could have been based in Sun Valley, Charles gave a qualified answer: At the time they started, they recruited a lot of programmers and designers from a close by talent cluster like mentioned above; now, after more than ten years of technological advancement, it would be more feasible to establish such a business further away from talent clusters, which could include people working remotely. Sun Valley has a significant amount of "non-geographical" businesses like headhunters, marketing, and those related to the resort industry. In the most affluent of the three small valley towns, most people over 35 do "not have to get up every morning to go to work". To stay in touch with his outside network, Charles uses Skype extensively, especially the multi-way video conferencing function.

Housing is actually an area where Whitehorse is ahead of Sun Valley:

In the most affluent of the three valley towns, average cost is around \$800k for a single family home; whereas in Healy, where most resort workers reside, average cost is around \$500k (Whitehorse is over \$400k now, with the Canadian dollar at par).

An asset that Whitehorse also has but which is often overlooked is the proximity and accessibility of the ocean, a feature that many Yukoners cherish and take advantage of.

Special thanks to Charles for his very valuable contribution!

12.5. Would they advise their colleagues in the same industry to move here?

Over 30 participants would recommend moving to Yukon to their colleagues in the same industry, plus another 7 with some reservations. Living in Yukon is not for everybody and expectations would need to be clarified. As one participant put it: *"Even the moon looks nice if you're a tourist". Accepting the realities of living up here is crucial.*"

14 participants mentioned that they had concerns about inviting the competition to Yukon and would therefore not recommend moving to them.

Exporting knowledge workers bring at least part of their clients and markets with them – the likelihood that another knowledge worker in the same industry will compete in the same markets or the same clients is relatively low.

What participants said:

“I tell people to move here every day, because of the clean air and water, and lots of space. It’s easier to be creative here.”

“I would advise my colleagues to move here because of the lifestyle and it would be nice to have more people around me that do what we do. Many people in our industry focus more on enterprise-related projects. It would be nice to have more people focusing on the kind of software development that we do.”

“For competitive reasons no, but yes absolutely: I’m always a cheerleader and promoter of the Yukon. If you want balance in your life, this is the place - good income and healthy lifestyle. A lot of people understand that. Nobody expects big-city behavior from each other.”

“No, because of recent changes of the business environment it would be more advantageous to stay in Vancouver or Toronto, because of the lower cost for air travel and the higher quality of digital communication.”

“Yes, fantastic lifestyle, easy community, culturally and intellectually vibrant.”

“Yes I would. I would not have been able to have a career like this in Vancouver. There is too much competition and it is a much more bureaucratic world there. I would have had to work for some big corporate office, and I wouldn’t have had the freedoms I do as a self-employed consultant.”

“Yes – it’s no harder to run a home office here than anywhere else.”

“No I would not, simply because I don’t think there is enough work out there. For our industry here in the Yukon, we really do have a lot of competition out there, and a lot of the work is seasonal. There isn’t even enough work to go around for the people who are presently working in our industry.”

“I would advise them to come here, depending on their situation. The only deterrent to that are the extremely high housing costs right now, which I think are artificially inflated. The high cost of living in the Yukon used to be offset by the low housing costs. Now the cost of buying a house in Whitehorse is equal to the housing markets in cities like Vancouver and Calgary. If you’re going to pay that much for a house, you might as well live in one of the Southern cities where the cost of living is much lower.”

12.6. What should improve for them to stay here?

A significant number of participants stated that they were happy with how things are overall - *“nothing needs to improve”*. As one participant put it: *“A lot of the things that bothered us originally have been fixed or don’t bother us anymore.”*

Not surprisingly, the current high cost and lack of availability of housing is a big issue, especially when it comes to attracting new knowledge workers to Yukon. It should also be noted that there are signs that the housing boom of the last decade is at least slowing down:

- Prices have leveled off or are even declining
- A lot of new condominiums and smaller homes have been built
- New subdivisions are in an advanced stage of development (auction fall 2012)
- Demand pressures have lessened, partially because of a slowdown in mining exploration (vs. a 2011 record year).

Keeping the environment intact is important for many participants. Quality of service and attitude issues in Yukon were also mentioned, as were educational opportunities.

And yes, for most the weather needs to improve.

Here is what participants said:

Housing:

“Lower housing prices, so kids are attracted to a life up here.”

“I would like to see a change in the cost of rent/housing.”

“There should be a government land bank. Despite a lot of new houses, downtown is still shabby. There should be a dynamic, vibrant downtown core, with cafés and good newspapers. The politicians don't care about the downtown core, especially Main Street. There are eyesores like the old Canadian Tire. The property tax regime subsidizes such neglect. The retail sector has moved out to an old swamp near Shipyards Park.”

“Housing prices are fairly stratospheric now. My home is my space of business.”

“For me, entering the Yukon now would be much different due to the much higher cost for housing. People my age talk about how much cheaper it is to buy a house in the BC Interior - these are first-time buyers who want to raise their young families. Because of high housing costs I cannot say anymore ‘move to the Yukon’.”

The environment:

“As the Yukon continues to grow and develop we need to be responsible by keeping environmental concerns in the forefront, keeping development well-monitored etc.”

“If the government made more commitment to develop renewable energy and to make it a priority in the Territory, it would certainly keep me here.”

Standards:

“Yukon attitudes regarding quality of service.”

“There is a lot of mediocrity up here, many are stuck in the 90s.”

“We are constantly battling the unionized mentality in the Yukon. The cost of commercial and private real estate. The cost of staffing, competing with the Yukon government salaries and benefits, as opposed to a bigger metropolis. When we hire staff, we don’t really care where they work from and when.”

“Small town politics: it gets tiresome after a while listening to the local media and politics at all levels, arguing about what often seem like petty issues. The longer I am here, the more irritating I find that. I know some people who will not live in a small community for that reason, and that’s a bit of a tradeoff unfortunately.”

Entrepreneurial spirit and business development:

“Entrepreneurial spirit; physical built environment; vision and progressiveness; lack of sustainable initiatives; quality of education.”

“There need to be more private sector led initiatives. Here in the Yukon that (unfortunately) means somebody putting together a funding proposal. There is no sustainable creativity that is actually serving a purpose. Alaska is ahead of us, for example with residential retrofit programs. They actually do something.”

“For me, I’d like to see more business development and more industry development but I think that is a tough road.”

Internet and phone service:

“Better cell coverage and phone services.... otherwise - we are planning to stay.”

“Internet is a big one- it’s awful. It would be nice to see housing prices go down as well. Its hard to see my kids being able to come back to live here because of the cost of housing.”

Education and training:

“In order to stay here, I’d like warmer weather; more access to training and a stronger industry; and more clients buying locally, rather than going down to Calgary and Vancouver.”

“Better educational opportunities at all levels.”

Services:

“Nicer, more city style spaces, including bars, restaurants and movies.”

“It would be nice to have more services that are available down south, whether it’s a new movie theatre or shopping outlets. At the same time, you can’t do that without a larger population moving up here.”

“Public schools, shopping [too much sameness, limited offering], cost of air travel and housing.”

13. Mapping the Expertise of Yukon Knowledge Workers

We asked participants for their primary and secondary expertise as it relates to exporting – having passed the “outside market test”. The diversity and depths of expertise we came across is amazing and one of the biggest positive surprises of this survey.

The table on the next page shows that we were able to identify the following clusters of expertise (not all participants had a secondary area of expertise relating to exporting):

CLUSTERS OF EXPERTISE (60 Yukon Knowledge Workers)	Primary Cluster	Secondary Cluster	Total
A- Lawyers	8	0	8
B- Authors/Journalists/Writers/Editors/Publishers/Broadcasting/ Public Speaking	10	3	13
C- Film/Video/Illustration/Photography	5	1	6
D- Geology/Geophysics/Mining Exploration (including related Engineering)	5	1	6
E- IT, Software Development and Electronics (Including Network Administration and Web Development)	7	5	12
F- Research and Training	1	8	9
G- Marketing and Communications (Including Graphic Design and Social Media)	8	7	15
H- Engineering (Including Engineering Consulting; excluding engineering related to Mining and Exploration)	3	1	4
I- Tourism (excluding Tour operators and Wholesalers)	1	4	5
J- Management Consulting	5	7	12
K- Environment and Sustainable Development	4	3	7
L- Other	3	1	4
<u>OTHER (Cluster L) Includes:</u>	60	41	
Architecture	= Number of people interviewed		
Food and Beverage Services			
Herbal Health and Healing			
Music Industry			
Capital Markets for Junior Mining Companies			

A list of more specific areas of expertise can be found in Appendix C.

14. Prototype of a Yukon Knowledge Worker

In light of the diversity of the 60 participants, “assembling” a typical Yukon knowledge worker is somewhat academic. Yet it gets us thinking of the individuals “out there” we might want to attract to Yukon – and the young ones that we should be aware of and support shaping into “exporting Yukon knowledge workers”.

Here is our “prototype”:

- 47 year old male or female
- Living somewhere in Canada, most likely in a large city
- Masters degree
- Private sector
- Fully transportable, high level of expertise, gained nationally if not internationally
- Exporting at least 50% of their services to outside the jurisdiction where they live
- Independent, entrepreneurial type (owner level)
- Financially successful
- Living a “geographical duality” – for competitiveness, stimulating big city environments, professional development, business and private relationships, and “getting way” to warmer climates
- Having a strong bias towards unspoiled environment, scenic beauty, the outdoors
- Favoring a vibrant local cultural life
- Having a strong sense of community

14.1. The Story of five Yukon Knowledge Workers

(with their permission)

Keith Halliday, Management Consultant and Stacy Lewis, Lawyer

Keith is a management consultant advising clients globally. His income is derived almost exclusively from outside Yukon. Keith was born in the Yukon and is also well known as a columnist on matters of the northern economy. He and Stacy “came back” to Yukon in 2000, after getting his Masters in Economics and several years in Europe working for the Department of Foreign Affairs and International Trade. He and his wife Stacy are raising their four children in Whitehorse. They are both active in the community.

Stacy Lewis is originally from Washington State and a lawyer specialized in US intellectual property law. She works on contract with one of the biggest intellectual property law firms in the US.

While meeting clients on location is essential to Keith’s consultancy, both he and Stacy depend on the Internet as their primary mode of service delivery.

Darcie Profeit and Patrick Weir, Video Producers

Darcie and Patrick are both video producers and partners in life as well as in their business. They shoot mainly corporate videos for clients primarily in Yukon, BC and Alberta. Darcie was born in Pelly Crossing and got her diploma in videography in Vancouver, as did Patrick. They both returned to Yukon in 2008. Delivering large HD video files (30GB) to clients via the Internet is costly and can take a long time.

Here are a few of their comments made in their interview:

"I need good people keeping me on my toes (like more knowledge workers to associate with). There is a strong talent base here, there is community that exists with great skills and we are happy to contribute to it. The general perception of the local film industry needs to change, in terms of skills that are available here."

"We leverage our Yukon base and locations like Vancouver with each other: we shoot a video for a client in Vancouver, then come back to the Yukon to edit the video, letting the mind wander in this big creative space. We would then actually get Yukon business because of people hearing that we are filming for clients in Vancouver. At the same time, the Yukon Film and Sound Commission brings us into contact with top-notch people from the film industry, so that people in Vancouver hire us because they hear of the kind of people we meet, and who they would not have a chance to meet in Vancouver. As well, we get contract opportunities in the Yukon which would be much harder to get elsewhere (i.e. Vancouver). For example big TV shows lift our level of exposure and make us more recognizable in "Vancouver"."

"The 'look outside' is important - many in the Yukon don't even look outside. That needs to change. When things dry up in the Yukon, for many there is nothing. We can go places, get exposure and improve our reputation, even if the margins in exporting are lower. When you get stuck here, you can get too comfortable. In Vancouver, you have to be on your toes to survive. Our collective experience in Vancouver gave us the confidence to go anywhere. Yukon is the perfect growing space to apply our ideas. We may shoot a video in Newfoundland or Alberta, and will edit it here. To us, our mobility means not being stuck, having a choice and giving us the opportunity to tap into our interests. Yet we keep our home base in the Yukon. Yukon has really grown, we learned to love it again."

Claire Eamer, Freelance Writer, Researcher and Editor

Claire is originally from Saskatchewan and moved to Yukon in 1984. She has a MA in English. She writes children's books (...and sometimes science fiction and fantasy) and edits science-based reports. Most of her income is derived from outside Yukon and her primary mode of service delivery is the Internet. Her clients are as far away as Scandinavia and central Europe. She runs her business in association with several family members.

15. The Knowledge Sector's Contribution to the Yukon Economy

Direct economic impact

Using a very basic model, we are trying to attribute a dollar value to the Yukon Knowledge Sector in terms of direct contribution to GDP. First, we will attempt to scope the contribution of the 57 people interviewed who still live in Yukon.

Assumptions:

- Gross revenue per Lone Eagle: \$120k (x 34 Lone Eagles = \$4.1m)
- Gross revenue per employee for those knowledge workers who (co-) own companies with employees: \$80k (x 289 local employees = \$23.1m)

This would bring the total direct economic impact of those interviewed to \$27.2m! At an average export quota of 53%, \$14.4m of this amount is derived from outside Yukon! The next step would be to estimate the taxes these knowledge workers pay.

During our research we found 104 more knowledge workers, but were not able to determine whether they were all Lone Eagles, (co-) owned the company or were employees themselves, had employees or were exporting at least part of their services outside Yukon. But we can assume with some certainty that these individuals are in fact knowledge workers. Assuming an average gross income of \$90k per person, their contribution to GDP would be \$9.4m, not counting any employees they might have.

Due to the diversity and often limited visibility of knowledge workers, their total number and contribution to Yukon's GDP is difficult to estimate.

Indirect Impacts

Knowledge workers are sophisticated shoppers with relatively high discretionary spending power. This will also be reflected in the way they use restaurants and other services.

But there are indirect impacts beyond the economic ones:

Knowledge Workers

- Tend to be actively involved in all aspects of the community
- Are "Grains of Sand around which Pearls can form"
- Facilitate knowledge transfer
- Promote innovation
- Bring interesting connections and opportunities to Yukon
- Are Yukon Ambassadors

A participant stated:

"The knowledge sector has indirect positive impacts on tourism, because knowledge workers market Yukon outside."

16. Trends impacting Yukon Knowledge Workers

We asked participants what major trends they see developing in Yukon that would affect them personally or their business. Here are some major trends that emerged:

- Continued economic growth, led by mining and exploration
- Risks that come with an economic boom
- Challenges to balance environmental quality with growth and resource extraction
- Increasing demand on facilities and infrastructure
- Increased cost of living (housing)
- Looming cuts in federal and territorial funding
- Availability of skilled labour

Trends perceived as positive:

“Growth of the economy and the population is great. It’s becoming less transitional, people become more engaged in their community, they care.”

“Internet connectivity in the Yukon will continue to improve.”

“Positively, there are more recreational and cultural activities going on here now. There has also been growth in multi-ethnic communities in Yukon and an increase in the Francophone population. I think that this is really positive because we now have more bilingual and multi-lingual workers.”

Trends related to resource extraction:

“If we were to stay here longer, mining would affect me in terms of more clients.”

“Additional positive impacts I have seen include: almost all land claims have been settled now; minimum wage has increased and most employers pay higher wages due to competition for workers; and the First Nations are more savvy now (ie: in dealing with mining companies etc.).”

“Resource extraction, actual mine and gas development. Expanded First Nations involvement in business, like in the NWT. Very little actual business is done by First Nations here. The next generation of young aboriginal people going into business will be a big driver.”

“Another trend, which could be seen as positive, and negative is the mining, oil and gas development that is going on in Yukon. Generally, when mining, oil and gas development occurs in new places there are a lot of unforeseen consequences. Issues like the Peel, while it is focused on one specific situation, raise a lot of questions for future circumstances. If these industries are going to continue to develop in Yukon, a dialogue needs to start now before it is too late.”

“For me, the price of gold is a big factor. I see it continuing to go up over the next five years, even with little bumps. That will really positively affect my business. I also can see

that the mining sector has had some problem raising funds in the past year and the downturn in the stock market, overall, has had negative effect on everyone.”

“I would say there is a huge surge of environmentalists who are very radical and very vocal and they are very disruptive to the economy and to development projects.”

“I think the Yukon is starting to show signs of a growing and maturing private sector economy here that is going to be driven by the resource industries. We are going to see a change in demographics, which will ultimately see a change in politics. How far down that road the Yukon goes will be tied dramatically to global commodity prices.”

“Mining business continuing to grow and related opportunities, at the same time the competition moving here.”

“The Yukon is mining friendly, growth means increasing urbanization. We don’t want unchecked urban expansion, which would affect recreational opportunities and wildlife. If some of these trends continue, we may have to go further afield to watch bears or swans.”

“Too much focus on mining, and the high cost for housing and staffing.”

Economic Boom:

“The booming economy. It does not necessarily impact our business but it is really driving up housing prices, and negatively impacting opportunities for young people. If we were hiring someone now, they would likely not be able to afford to buy a house here. I foresee this continuing for a while. Land prices have also skyrocketed.”

“The awful and dismal prospect of a “boom” in Yukon could have a negative impact. We are an emerging culture of sharing, tolerance and cooperation between newcomers and First Nations. If we should have a booming sweep, and lose all of that, along with an introduction of Vancouver, Toronto or Calgary big city-attitudes and cultural assumptions, the fabric of that emerging culture will be ripped aside by greed and ignorance. If we then have a bust, we lose the folks already educated in what it is to be Yukon. We need consistent moderate growth. We need a monstrous reduction in bureaucracy.”

“Yukon is at risk of an overheated economy. We have tried to relocate within the city, but couldn't due to the lack of available houses. With an overheated economy, quality of life and services goes down. Fort McMurray and Yellowknife are good examples. Who wants to wait 2 hours at Boston pizza for takeout pizza? With an overheated economy, also there are more transient workers, because local talent is not available.”

Trends perceived as negative:

“Federal transfers are going to level off. We have been in a fantasy world. 12 consecutive years of 6% increase. Even if the growth rate goes down to 1%, people don't know what that will mean.”

“Cuts in Government funding.”

“Education and schooling are in a negative trend, across the board from kindergarten to post-secondary.”

“Ageing population and lack of availability of professional employees.”

“Right now, personally, the biggest negative impact would be stabilized property costs; my property taxes have been going up significantly for the past 3 years and its only going to continue to go up for the next 4 years.”

“A negative trend is the Yukon government wanting to put more effort on fossil fuel development rather than renewables. They have trended away from renewables.”

“Changes of the global economic environment. The failure to develop appropriate infrastructure, especially for power.”

“The lack of planning for social infrastructure (housing, schools etc.) is having a negative impact. Growth is positive but comes with negative impacts when there is no planning for social and physical infrastructure” (requires proper planning to keep up with growth).

17. Recommendations to support and expand the Yukon Knowledge Sector

Yukon’s Knowledge Sector has significant growth potential. This potential lies within Yukon, realizing synergies within a sector that is currently fragmented, and in growing exports, utilizing the expertise and know-how that already exists.

What participants suggested:

“The Yukon government should develop a knowledge sector strategy: First ask what would be helpful, then try to respond to it.”

“Whitehorse already is a hotbed for Lone Eagles and doesn’t know it.”

“A growing knowledge sector makes the pie bigger and would enrich the community, with more people with different backgrounds. 12 years ago Whitehorse had the best educated workforce in Canada, due to the public service and resource sector [lots of PhD’s]. A growing knowledge sector would help to maintain that, those new people would fit right in. The more people there are, the more they will promote Yukon as a jurisdiction.”

In 2010, the Whitehorse Chamber of Commerce conducted an Economic Summit, “Partnering for Success”. In their report “Recommendations for Economic Growth” (submitted to CanNor), the knowledge sector is considered one of four pillars of the economy. The definition of the knowledge sector is narrower than the one applied in this survey, focusing on ICT and technology. Here are some excerpts from the report, and a table with the analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT) conducted at the summit:

Goal: Develop Recommendations for Business & Governments to grow the Knowledge Sector

- 1. Grow the IT sector in the economy*
- 2. Grow the industries in the Yukon through the use of ICT & Knowledge*

3. *Create a research & innovation agenda around technology definition & transfer to support businesses & governments in the north*
4. *Develop a culture that values & uses technology & knowledge through the education system (also as a source of income)*

Education: Find, nurture & celebrate local people who excel in the knowledge sector

The table on the next page show the results of the Economic Summit:

2010 Innovation and Knowledge Discussion Group SWOT Analysis for Partnering for Success

Strengths	Weaknesses	Opportunity	Threats
Yukon has attracted highly qualified personnel for the Innovation Sector.	Some highly qualified personnel in the Yukon are under-employed or not working in the knowledge sector .	The "Logan Utah Model." Keeping a listing of everybody's resume and scanning every RFP on daily basis. Assemble teams from resume information to bid on RFPs.	Many people are uncomfortable to take a jump into new technologies.
Yukon Geological mapping is second to none in the world.	Yukon Knowledge Sector has had problems moving ideas and products into profit.	There is an opportunity to merge innovation engineer with entrepreneur to market and sell ideas and products.	Yukon is not very entrepreneurial.
Our high speed network provides Knowledge Sector with the ability to work globally.	Although network provides opportunity to work with others elsewhere it also provides opportunity to lose money to south. Workers not in the Yukon will not spend in the Yukon.	With new Northwestel Network redundancy there is an opportunity to attract more qualified Knowledge Sector to Yukon quality of life.	Lack of investment capital in Yukon makes it difficult to attract new businesses and employees for Knowledge Sector .
Our Knowledge Sector has successfully expanded to providing products and services to Alberta oil sector .	Canadian economy as a whole does not value innovation in their business process.	Alberta is very entrepreneurial culture. There are lot of savvy investors who have made money through delivery of software. Partnering with Alberta entrepreneurs could expand Yukon Innovation sector sales.	In the Yukon, people don't see the value of the Knowledge Sector. They are comfortable as they exist today, and have no incentive to upgrade. They see no value to learning new technology.
Yukon Government has done a good job of fostering Knowledge Sector .	Yukon does not have any cluster environments where educational people, professional, entrepreneurs live and work together.	Following the "Innovation Place" in Saskatoon model, Yukon could build an Innovation Network Environment.	Yukon College lacks the land and capital to build a Saskatoon model innovation research center.
In some ways our small size is an advantage. It is cheap and easy to implement a project such as free wi-fi. We can develop a localized agenda that grows to worldwide agenda.	Beyond Yukon Govt projects, Yukon is missing demand for Knowledge Sector to grow products for our local markets.	Focusing on cold climate technologies, could develop both partnerships and attract investment.	We don't have the connections with other industries, and merging those together. Business incubation, the advisory one, the access to the knowledge to build and develop.
		If we want to pioneer distance communication and information delivery, jointly, there will be critical mass to attract private investment.	
		There are lots of opportunity for product development to address our aging infrastructure.	

This is what Millier Dickinson Blais Inc. recommended in a 2008 report for rural communities of Perth, St. Marys and Stratford in Ontario (Economic Development Strategy and Action Plan: 2010-2014):

Opportunities

- *Self-propagating sector – Lone Eagles tend to support other local businesses*
- *Attractive mix of urban/rural location and amenities for small, creative businesses*
- *Develop business/training networks to strengthen educational opportunities in the region*
- *Invest in development of mentorship programs for entrepreneurs and small businesses*
- *Mutual benefit for Lone Eagles and local youth in developing apprenticeship and on-the-job training programs through the schools (p. 44)*

17.1. Networking Measures

The lack of networking within the Yukon Knowledge Sector, and also between the sector and other parts of the community (namely business and government) was the biggest issue for participants. One of the reasons may be their reliance on outside customers and connections – reducing the urgency for networking within Yukon. This creates an obstacle for:

- Recognition of knowledge workers as an important sector of the economy
- Business development, particularly within Yukon
- Improved access to collaborative projects
- Recognizing and utilizing clusters of expertise that already exist
- Knowledge transfer, including transfer to the next generation of knowledge workers
- Retention of Yukon knowledge workers
- Taking the Yukon Knowledge Sector to the next level

Participants suggested multiple measures to improve networking:

- A directory of Yukon knowledge workers
- A networking website for Yukon knowledge workers
- A collaborative Business Support Network for Yukon knowledge workers (sharing knowledge, expertise and connections; peer mentoring; improved access to business opportunities and professional development)
- Create an interest group, venues and events for Yukon knowledge workers
- Facilitation of networking by the Yukon College and Yukon Research Centre (see sections 17.6 and 17.7 below)
- Mentoring the next generation of knowledge workers

“It may not feel such a small little island and isolated....if we just knew other people doing similar work. We moved here not knowing anybody and we don’t have kids and network like others. It would be good to build a network of people in the Knowledge Sector.”

“Opportunities to connect and share information, improved collaboration and learning. I'm a big believer in diversity. If you can find all these people in those different sectors, imagine what you could do!”

“The Yukon knowledge sector is very strong in terms of individual knowledge workers. But there are not many knowledge sector companies. Bigger cities create more demand which enhances building a critical mass. Whitehorse is not only a small city, but it is also remote.”

“Cohesion, community and meetings of knowledge workers, more support and integration. I want to find someone here who can rebuild my website.”

“Connections between local entrepreneurs. A club for businesspeople, i.e. for young entrepreneurs. There's a huge disconnect between business people in their 50s and 60s and those in their 20s and 30s. There needs to be more communication and a meeting place. The business community is very fragmented, into industrial, big consultancies, Lone Eagles, construction etc. - they're all separate and in different social strata. There also needs to be more mentorship.”

“My suggestions would be collaboration between different portions of the knowledge sector. Right now industries such as tourism have an umbrella interest/government group (TIA Yukon) but the knowledge sector hasn't advanced into an identifiable state yet. More representation in the community and advancement of Knowledge Sector interests will happen when there is more cohesion to the sector and its participants. That would be doable by creating a Knowledge Sector Board or Interest Group, above and beyond a chamber of commerce, etc. spearheaded by prominent Knowledge Sector leaders and promoted among entrepreneurs and small to medium sized businesses. Large businesses hosting events or mentorship in order to promote and build the knowledge sector in the Yukon, while giving business tips from well-educated and experienced Yukon Business men and women.”

“I think finding out how many other people are doing what I am doing, especially in terms of networking and collaborating would be beneficial for my business. I think the nature of the size of the knowledge sector, would benefit from having more of a support network.”

“I think the knowledge sector in the Yukon is an awkward size, which often results in there being so much competition. I think we need to take the sector up to the next level. We need to examine how can we strengthen and grow without feeling the tension of competition. How can we benefit each other and network within this sector without feeling that sense of competition?”

“Make it public knowledge that there are local video people. Launch a campaign jointly with other knowledge sector industries. An example is the cable 9 local TV station, places where mixers and organizations could come together and socialize with each other [especially entrepreneurs].”

“Learning who is here in terms of knowledge workers could enhance my lifestyle.”

“This survey is a good thing. It will enable bringing people together to network, identifying who they all are. As far as knowledge, there is always a lot being offered in the Yukon. I would suggest an Internet knowledge network.”

“Similar to what I was saying about investments at Yukon College, I think having little hubs and networks of people who are working within the knowledge sector would be very beneficial. It would be great to see more forums, or networking tools that allows for a sharing of knowledge and expertise. Also, having more accessibility to affordable office space would encourage more people to be able to come and work up here.”

“The networking among entrepreneurs. Training and education. If you're involved in business, it's not just the specific work you do, but you have broader interests, and want to build expertise by learning from others. Being in business is quite broad, for example I am also active in rental properties and the film industry.”

“A critical mass of people in similar lines of work. Related to their struggles and triumphs. Always room for facilitation of more community, fellowship and dialogue.”

“Form some sort of network or group, so that we even know who is out there. Better recognition of knowledge workers by the government and the business community.”

“Vancouver or Alberta: The Association of graphic designers has local chapters, but the Yukon chapter is not very active. As designers, even in Whitehorse we are very isolated, we need the interaction of people. It's like working in a bubble - you need feedback from others to get the creative juices flowing.”

17.2. Mentoring each other and the next Generation of Knowledge Workers

This topic also speaks to the lack of connection that many knowledge workers feel in Yukon. Part of improving connectivity would also open up opportunities to support each other with mentoring, knowledge transfer, and collaborative projects. Even more so, it would open up new ways to mentor the next generation of upcoming knowledge workers – those who might otherwise not find the right support to realize their potential.

Many participants mentioned mentoring as a real need, not only mentoring young knowledge workers, but also mentoring each other.

Mentoring would:

- Enable professional development
- Create support networks
- Form lasting relationships
- Accelerate knowledge transfer
- Generate referrals
- Enhance retention of Yukon knowledge workers
- Promote succession of the next generation

Here is a comment a participant made:

“I'd like to see more professional development seminars/workshops, and social networking possibilities that focuses more on mentorship and helps young independent businesspeople get started.”

17.3. Business Development Measures

While all participants are proud of their export business and it is part of their business success, most are also interested in expanding their business in Yukon. For many, this is difficult because of their lack of connectedness. Government and the business community have little awareness about the actual strength of the knowledge sector. Business development – local and export alike - is a collaborative effort of all concerned.

Here are a few measures we suggest:

- Identifying how the Yukon Knowledge Sector can be better connected to business opportunities related to mining and exploration (what is here to serve an ongoing boom?).
- Better Utilization of Entrepreneurial Spirit and Skills:
 - Fostering new Start-ups
 - Creating collaborative momentum
 - Discovering and supporting exportable talent
 - Systematic referrals
- Identifying market-ready expertise that is available in Yukon
- Marketing support to break into export markets
- Improving utilization of existing outside connections

Local Business Development

63% or 38 of 60 respondents stated they would buy locally instead of from outside Yukon if the price and quality were adequate; 3% said they would not; 33% stated they didn't buy much in terms of products or services, or their outside suppliers were highly specialized and it was highly unlikely that there would be a supplier in Yukon.

What participants suggested:

"Maybe just recognize that there are experts up here. We underutilize our own people. People from here get hired in NWT. We do have the experience! You won't be able to get that experience elsewhere."

"There are a lot of people with a lot of advanced skills here; yet why YTG and Yukon College are bringing in people from outside to talk and teach on subjects where there is substantial local expertise. The business community may actually have the least awareness of what is available here."

"There are only two things I can think of: more accessibility and affordable Internet access; and work incentives and business development incentives (tax incentives, grants from all levels of government). Growth will not happen without incentives, at least to get us there, the incentives don't necessarily have to be long-term."

"Support local business would be a start, rather than me having to compete with "better" East/Ottawa-based companies that are more attractive to government, with less (perceived) risk and mediocre payback."

“It might lead to my doing more work in the Yukon. Have a broader network for mutual referrals. Any way we can link up would be powerful.

Generally, people are willing to share their ideas, help each other. I'm confident that my business will do well even if I help out the competition. This can lead to referrals, and people can do adventures together.”

17.4. Marketing Measures to promote the Yukon's Knowledge Sector

Developing a marketing strategy is essential to growing the Yukon Knowledge Sector – primarily geared to attract new knowledge workers to Yukon. Such marketing should be focused on attracting new entrepreneurs, professionals and researchers to Yukon, who bring their external client base with them or have high export potential.

“These findings suggest that rural economic development strategies should focus much more on marketing a community's quality of life than is currently the case” (Sopuck, R. 2003, p.12).

A good example of a rural group of communities actively marketing itself to knowledge workers is shown on the website of Asessippi Parkland in southwestern Manitoba (population of 15,000). (<http://www.asesippiparkland.com/entrepreneurs.html>; August 2012)

Another example is Flathead County in northwestern Montana, USA (population of 91,000, of which 20,000 is in Kalispell): See article Valley Wide Marketing Initiative Kick-off May 24th, 2008 (<http://dobusinessinmontana.com/marketing-initiative/>)

“Southern Canadians are clueless when it comes to knowledge of the North, a new poll suggests.” Up Here magazine, based in Yellowknife, set out to survey southern Canadians' knowledge of the north, and found it wanting. (<http://www.cbc.ca/news/canada/north/story/2011/04/21/poll-north-southerners.html>)

This is what participants suggested regarding marketing the Yukon's Knowledge Sector:

“I think one of the biggest problems the Yukon has is perception from the outside. If you're trying to do anything innovative, or looking for venture capital, the stereotypes of the Yukon really inhibit our ability to be seen as credible. We need to boost the Yukon's credibility outside and inform people that the stereotypes of us living in isolated towns, in igloos and cabins is not necessarily true. We have a lot of knowledgeable and experienced people in the Yukon and we need to get that out there.”

“We need to find a few champions that would push the cause and get the message out there. They will automatically draw other knowledge thinkers too. We need to market it properly. We should attract more conferences to Yukon that are targeted towards businesses. This would increase visibility and promote the Yukon out of territory - being exposed to other great thinkers.”

“Once telecommunication and housing issues are addressed: Promotion of the knowledge sector: launch targeted marketing measures not just directed at IT. The Yukon College can play a key role in forming clusters that will attract knowledge workers. This kind of growth would happen organically.”

“Branding the Yukon is all part of a changing perception (and global change). The Yukon is not just northern exotic. If people only realized how well educated we are. The more we do, the more that perception will change.”

“Marketing approach: approach location consultants who are scouting for the next plant location. This community could reverse the common approach and proactively go to these consultants, saying we are the location and are looking for the company; these are our attributes, where should we be concentrating our energies? This could be difficult with such a diverse sector as the knowledge sector.”

“We could be the world leaders in exporting First Nations governance know-how, but so far we have missed the boat.”

Yukon’s Value Proposition to Knowledge Workers

A more critical participant stated:

“Better opportunities for our kids, enhancing their choice to stay here. The land of opportunities, not the land of bureaucrats. Yukon’s value proposition: “Toronto is too crowded”. In Edmonton, housing is cheaper, flights to clients are shorter, and education is better. Yukon’s outdoor emphasis alone is not going to win the battle.”

Another participant said:

“From the Yukon, we can’t compete in many ways, so we might as well compete in the ways we can. If we want to attract smart, talented workers, we can do that because we have a 5 minute commute, can go biking right out of our door walk safely by ourselves or garden at 10 o’clock at night.”

17.4.1. Attracting new Knowledge Workers

Taking the Surprise out of “the Yukon”

For most people who come to Yukon, there are some major surprises regarding “our civility”, the advanced infrastructure, the sophistication of the community, modern amenities, and the myth of eternal darkness and cold spells in winter.

Attracting new knowledge workers to Yukon will require a marketing strategy that anticipates and preempts these surprises. This of course doesn’t mean taking the magic and the mystery out of “the Yukon” – to the contrary.

A 2007 survey by the Yukon Public Service Commission found:

Job candidates had a variety of impressions of Yukon as a place to live and work before their interview. Over 60% of them said that their impression had changed after they

arrived in the Yukon. 54% percent of changed impressions related to aspects of lifestyle:

- the Yukon was more urban than they expected;
- the Yukon is well developed and beautiful;
- the Yukon is more exciting and interesting than they imagined;
- the Yukon doesn't feel as isolated; and
- the people are friendly and sophisticated. (p.11)

Participants put it this way:

"We need to change the outside perception of the Yukon: you do not need a snowmobile to live here. Yes, there are roads outside of Whitehorse.... etc. There should be a 3 to 5 minute video answering the question "I don't know if I should really move to the Yukon."

"Awareness of the community as a desirable place to live. There are still a lot of stereotypes about the Yukon. Knowledge workers in Canada don't really know about the quality of life here."

"In terms of moving here, I didn't find any barriers of moving here. From the perspective of my company, living in the Yukon was less remote than having me in NWT. It would be great to dispel the myth of how remote and isolated we are in the Yukon."

"You have to advertise the Yukon. It sounds like a weird place with strange animals. My friends think I'm crazy. The Yukon is only marketed to tourists now, and not as a place to live. You can choose this unique place."

17.5. Professional Development and Training

To keep up their level of expertise and their specialization, most participants seek at least some of their professional development "outside". This way they touch base with current trends in their field and stay competitive. In the future, some but not all of this professional development could be done in Yukon: With better connectivity within the knowledge sector and with government and the business community, groups could get together and sponsor high level professional development, and also transfer knowledge and expertise amongst each other.

Here are some comments participants made:

"I usually go outside for professional development twice a year."

"I have to go outside of Canada to get expertise in my field. I think for other industries though, there is great professional development available."

"One of the biggest complaints I hear from young knowledge workers is their ability to find professional support. I have seen some excellent people leave because they could not develop a career and strong enough network here. Their professional ceiling is limited in the Yukon. More professional development and guest speakers would be

beneficial as well. I think it is very important for the younger knowledge sector workers, and I think all of this would come more naturally if we had a University here.”

17.6. The Role of Yukon College

There is a wealth of suggestions participants made, relating to the following areas (additional comments and suggestions can be found in the Appendix):

- Hire more locally available expertise
- Improve Networking and Mentoring
- Becoming a University
- Distant education
- Courses and training (keeping up pace with newest developments)
 - Graphic and Web Design, Publishing, Communications, Photography
 - Legal
 - IT
 - Mining, Geology and Construction

A significant number of participants would be suited to teach courses at the College, and some of them indicated their willingness to do so.

Fundamentals:

“Yukon College’s core mission should be upgrading of those 30% who drop out of high school, to create the basis for secondary school.”

“No sexy sounding research, innovation and commercialization cluster, instead focus on fundamental skills like basic education, in order to attract knowledge workers.”

“Spend more money on education and continue to develop the college [more bachelor programs]. Invest more time and money to better educate First Nations, i.e. to the GED level. This is our biggest untapped labor resource.”

Access to College Resources:

“If I could have a relationship with the College that would allow me to have access to the literature and databases, as a paid subscription of some sort, or in exchange for mentoring, it would really support my business and the work that I do. Having access to current research and being able to stay up-to-date with the current trends would really strengthen my work. I think having access to these databases and research networks could be beneficial to many people in the knowledge sector.”

Becoming a University:

“Turning the college into a full level University so that I could get full access to university level personnel and library resources, especially scientific journals. I have had to go out just to do research. There are a lot of people like that.”

“It is no coincidence that Silicon Valley is between Stanford and Berkeley, both Ivy League schools. Strengthening Yukon College may be an essential component to reach a critical mass in the knowledge sector. Our post-secondary institutions are important in that regard.”

“Very slow movements towards university status. The most promising sign is the development of the Yukon Research Centre.”

“Become a university. It would change the focus to essentially attract professional academics. The only model that I really know well is the University of Alaska in Fairbanks because I went to school there. It was fabulous for being a centre of culture and higher education, and the Yukon College has a ways to go to get there. Generally in the Knowledge industry, the training you receive from the College does not cut-it. You need a university education, that is the training and expertise that is required in today’s world.”

Distance Education:

“Training opportunities and advanced level courses without having to leave Whitehorse, for example partnering for a Masters program with Royal Roads University. Distance is a drag, it’s not the learning environment.”

“If you could develop a means by which people could live up here and still obtain a high-quality education [by distance?]. Upper middle and upper class, highly educated people could come and settle where they would still feel connected to the outside world.”

“There might be the occasional workshop at the College but I haven’t really tried to access that. I mostly go outside the Yukon for very specific training that I don’t think would ever be offered here. I work in a very specific field in my industry.”

Networking and Mentoring:

“There is a lack of industry input. I don’t know who these people are (at the Yukon Research Centre and College).”

“I would like to see the College supporting collaborative networks amongst people doing similar kinds of work within this field/industry. There are already ad hoc networks forming, but it would be great to see more sharing of knowledge and information. Most of the people doing work in this field work at the College so it would be great to network more with them and the other people who are outside the College.”

“If (this survey) can contribute to the dialogue of moving the College towards a focus of continuing to build professional development, then we might see major changes within a generation.”

Graphic and Web Design, Publishing, Communications, Film and Photography:

“A high-level graphic design and web development course. Stuff that is cutting edge and recent, including social media. I could probably teach that as well. Another area is web marketing for local artists.”

“Current web design courses at the college are pretty, but they try the “all in 3 1/2 hours” approach but do not lead to functioning websites.”

“A Magazine writing class, courses on writing and publishing. WIFI at the library and longer library hours.”

“More local opportunities to learn and develop professional skills that are valuable in the knowledge sector. E.g., web design, writing, computer programming, graphic design etc. Should be certificate level or higher.”

Hire local Expertise:

“I would like to see (the College doing) more local expertise hiring. Rather than focusing things on academic, business and arts etc., I would like to see more investment in local experts and seeing more tenders or proposals for skill-based workshops and courses.”

“Acknowledge the value that the sessional instructors bring. The college does not understand the value they bring.”

“No longer, but I tried. I was an adjunct sessional instructor and taught 9 half-courses over a 5 year period. Each course was one contract, so I had no standing. They're paying essentially a honorarium, not for the value the instructors provide. They need to bring college rates closer to market rates.”

Legal:

“If they had a paralegal course, I think that would be most relevant.”

“Implementing a legal assistant program, similar to the one in BC - so that you can go into an office and actually start working.”

IT:

“We would like better computer science programs at the College. Many of the programs are really out of date.”

“We would like to see more modern computer science courses being developed at the College. The courses that are being taught in computer sciences need to be more up to date and need to be parallel to the needs that are present in the industry here in Yukon. We would like to see more coursework based on the skill sets that are required to work in IT. There should be more discussion with employers in the tech industry to develop more relevant coursework. We have taken on interns in the past, but we have almost always had to hire students from outside of Yukon because the ones that are graduating from the College don't have the skills or training that they

would need for an entry-level position. Both my co-worker and myself have offered to teach courses and workshops at the College but we have never received any response.”

“But having courses related to, or aimed at businesses that help business and government to understand and learn what technologies and processes out there could help them maintain their businesses. How could the government or businesses use innovative technology to do that? I think if Yukon businesses and government understood the advantages, benefits of the technology more, I would be able to have more local business.”

Mining, Geology and Construction:

“I think the College is one of the biggest things, especially in regards to professional development, training and research. I would like to see much more research being conducted in connection to mining and mine technology. Improvements to Internet and connectivity would also be very important.”

“I think what the College has done for the mining and geology program has been a really positive step. I’m not really sure what else could help except continuing to build programs similar to the ones they already have.”

“I have to go outside for professional development. My field is far too specialized. I went to Australia last year to seek out professional development in my area of expertise. I would like to see more professional development in the Yukon for the mining industry, especially at the College but I couldn’t expect them to offer anything at my level or in my specialized field because I would likely be the only one to attend.”

“More courses for the core construction trades. The thinking is too academic, which jacks up the cost of labor. Qualified carpenters, electricians and mechanics are fundamental for the Yukon.”

Additional comments and suggestions can be found in Appendix D.

17.7. The Role of the Yukon Research Centre (YRC)

So far, only a small minority of participants were involved with YRC. Many still don’t know that it exists and what it does. We believe this survey has significantly increased awareness of the YRC with participants.

Generally speaking, there is a wish for more connection between the YRC and the private sector, mainly in terms of information flow and applied research opportunities. The YRC could be a platform for networking, knowledge transfer, collaboration and support for Yukon’s Knowledge Sector – across the whole diversity of fields.

For the YRC specifically, the survey outcomes will:

- Enable the YRC to become a coordination and networking platform not only for the Yukon Knowledge Sector, but also related research initiatives, innovation and

- commercialization activities.
- Enable synergies and allow pooling of expertise and resources, thereby enhancing and accelerating the success of Yukon projects and proponents.
 - Provide a better understanding of related RIC capacities available in Yukon, reducing the need for imported services.
 - Attract new research projects, researchers and funding to YRC.
 - Allow identification of specific projects for YRC support that were previously unknown.
 - Be largely applicable to other remote areas in Canada as well, and could be "marketed" by YRC in a pan-northern context – enhancing the reputation of the YRC.
 - Be a good starting point to organize a pan-northern conference in Whitehorse about the Knowledge Sector in remote communities.

Here are the participants' comments, some of which suggest specific research related to the north:

"We move so fast, before the Yukon College gets around to it, we have usually done it ourselves. They have helped us hugely at the beginning. Their research is more geared to academic work. They have a government mindset, not a business mindset, understanding the pressures and reality of business. There's not enough action - too many meetings and too much paperwork."

"Our law firm and the Yukon Research Centre don't think of each other."

"Research and Development. Supposed to already exist. Cold Climate Innovation Centre...just not sure what they are doing except to spend government money. Where is the private sector?"

"I would like to see the Yukon Research Centre start facilitating networking of knowledge workers in the Yukon. Developing a directory of knowledge workers that would also be accessible to the public. Developing occasional workshops on aspects of running knowledge-based businesses, or subjects of particular interest to knowledge workers. Bringing people in, partnering with other organizations like the Yukon Science Institute."

"It's something that is developing with the Cold Climate Institute and their willingness to see the development and implementation of renewable energy. I definitely see myself doing my work with renewable energy through the YRC. My ultimate goal is to limit fossil fuels, through the development of renewable energy in the more remote communities. I would love to create some new technologies here in the Yukon, through the YRC and to then be able to spread that technology to the rest of Canada. I would really like to see more of an attraction of this type of knowledge and expertise to the Yukon to create more team-building and network within the Knowledge Sector."

"I help to interpret research and innovation both for the general and a policy level audience. Complex science needs to be communicated clearly. The Yukon Research Centre could help us a lot more with that."

“And, under the category of how YRC can help: Create some sort of research associate status for people like me, that would allow us full (including online) access to the Yukon College library and possibly get us in the loop for research-related events or programs at YRC. A bit beyond that – perhaps access to a meeting room for business or networking meetings? There seem to be facilities (and a welcome) there for visiting researchers and knowledge workers, but not much for local knowledge workers.”

“Within the existing knowledge sector, I believe there is a lack of participation in Northern research and transfer of knowledge within the sector. Knowledge Workers work in too much isolation, not communicating enough with each other and not being aware of Northern research opportunities. I believe that we need to focus on expanding relationships with people in the Arctic and focus on research and expanding the knowledge sector regionally rather than thinking of country-specific networking, which is at a more political or diplomatic level, and less oriented towards actionable research and innovation, and forming networks between people across the Arctic. We need to focus on creating networks across the North, rather than focusing on the Yukon specifically, or rather than trying to create a bridge between the North and the South. For example, the Northern Forum is at regional level that enables achievements, versus the Arctic Council, which is at country level and is more political and bound by different laws and regulations.”

“Very slow movements towards university status. The most promising sign is the development of the Yukon Research Centre. This would also give me more local work. Because of my expertise, accelerating climate change is good for my business.”

“An academic study of the long-term implications of self-government, comparing self-governing communities with non-self-governing communities: Socio-economic conditions, health and economic self-sufficiency. Two likely results: we have an answer here in the Yukon, and we can give people hope through giving them tools like education.”

“In an indirect way, anything the College could do to help reduce the costs of living in the Yukon, would draw more people to live here, which would support our business. For example, innovative heating methods, housing costs, communication technologies etc.”

“A research internship where students could be involved.”

“A lot more research regarding indigenous plants and their health benefits. Arctic/Alpine seeds could be commercialized. I'd love to see a vitamin D study done up here. Personally, I would like to open a boreal forest school of herbal medicine.”

17.8. Research, Innovation and Commercialization

Research, Innovation and Commercialization (RIC) is an integral part of what many Yukon knowledge workers do. The diversity of the fields in which this is taking place in Yukon is amazing. For many, RIC is part of their business success and staying competitive.

Key topics relating to RIC that participants mentioned:

- Product development done in Yukon
- Innovators in terms of computerized survey work
- Researching energy potential for renewable energies
- Applying new technologies to the north
- Developing an economic development model
- Authors that are being much more innovative with their ability to self-publish and distribute their work online
- Publishing scientific articles by the academic and industrial communities, to be used in their research
- Historical research
- Proprietary analysis software
- Innovation is in geophysical technology
- Innovation in new mining equipment and technology that no one had ever created before.
- Creating innovative policy initiatives to compete with the consulting market
- Innovative approaches to mining exploration

What participants said about Research, Innovation and Commercialization:

“Research, innovation and commercialization is all we do. If we see an opportunity for new product, we put it out there right away. We do bursts of very intense research, development and application. We do our product development here, where there are very challenging conditions [climate, terrain, remoteness]. Our equipment has zero environmental impact. It is developed up here and used elsewhere.”

“It would be nice to see what's happening out there, in terms of research and innovation. Is there a network, could there be a network? Who is doing what?”

“We are a research company. We are innovators in terms of computerized survey work, which includes the recent implementation of tablet computers.”

“Mostly research because most of my work is in researching energy potential. There is some innovation but I am mostly applying new technologies to the North.”

“I belong to a “global tribe”, trying to bring the best thinking to the Yukon, which is very much about research and innovation.”

“I am an innovator even in my own profession. I am currently writing a paper for an international policy journal. I also developed an economic development model that a university uses for their instruction. Pretty much all my projects are somehow informed by research.”

“We publish scientific articles in scientific journals that are read by the academic and industrial communities, to be used in their research.”

“It's all about that. I have become known by word of mouth and for the technical papers that I have published. I don't advertise per se, I receive most, if not all, of my

work that way. I have innovated new mining equipment and technology that no one had ever created before. The whole base of my work revolves around research, innovation and commercialization.”

“We support research through links to universities, providing in-kind services. We have a proprietary analysis software, which we only use in house.”

“Our innovation is in geophysical technology, primarily related to hitherto disparate techniques, and the adaption of southern technology to northern conditions.”

“I work in mining exploration, it is research in itself. Circumstance and the landscape are always changing, I often work in very remote locations, and there is a need to be innovative to make things work when labor, supplies and support are not available.”

“There is a systematic change in the way exploration projects are organized and conducted today. Clients are more frequently organizing their exploration with specialized subcontractors [turn key], which is a function of a more integrated approach. The approach in Vancouver and Toronto is about the integration of specialized services, whereas in the Yukon we have the more generalized approach typical for rural areas [which is becoming more outdated].”

Additional comments and suggestions can be found in Appendix D.

17.9. The role of the Department of Yukon Economic Development

Supporting Small and Medium Enterprises (SMEs)

All Yukon participants of the survey represent SMEs. The Yukon Government’s platform makes SMEs a key target of economic development. Growing The Yukon Knowledge Sector has significant growth potential, increasing Yukon’s tax base and diversifying its economy. It should also be noted that knowledge-based SMEs usually have relatively low start-up costs, and a very high impact in terms of economic spin-offs and “cross-pollination”.

Participants on the role of Yukon Economic Development

“One thing that I would like to see continuing would be the kind of funding, such as the Enterprise Trade Fund, that I benefitted from getting from Economic Development when I was starting up my company. I would also like to see follow-up from Economic Development with the recipients of the fund. After receiving my money, I never had any follow-up on how my business venture was going, or how successful I had been. I think this would not only help the knowledge sector to grow but also to strengthen it and help it develop to a higher standard.”

“I have been able to access the Enterprise Trade Fund from Economic Development to go out and get more training and it really helped me when I was building my business. I was able to access some really great conferences outside with this funding and it helped me expand my business to be able to export my services.”

“Continued to support the film sound commission. Make it public knowledge that there are local video people.”

“The things that could grow in terms of involving me: government vision in terms of exporting talent. Trade missions should include music. I'm happy to assist artists in being market ready.”

“Innovation: Apps development - someone who's not really qualified gets a grant to develop it for free. Those companies who are actually doing it don't get the support. Give funding to actually functioning companies, to do real innovation.”

“But community development strategies that focus solely on “chasing smokestacks” or hard industry are omitting a vital new area of economic potential, namely the new knowledge worker and the enterprises that result.” (Sopuck, R. 2003)

17.10. Public Policy Measures and Legislation

Generally speaking, we believe that instead of catalyzing the formation of a knowledge sector cluster, governments should focus on more foundational measures and incentives that will support the knowledge sector. “We will help you, but we cannot do it for you.”

“Northern communities should consider adopting policies that will stimulate the growth of creative capital by developing the education and business skills, leadership ability, entrepreneurial competency, and artistic talent of their residents” (Dr. Andrey Petrov 2008, p.162).

“Arguably, there is a need for a policy shift, most particularly in selected leading communities, to ensure that education, business skills, leadership abilities, and artistic talents develop simultaneously. Such development is likely to stimulate economic growth if pursued thoroughly through bottom-up, community-based approaches (Ross and Usher, 1986; Ironside, 2000). However, I agree with Bollman (1999:27) that human creative capital is a “necessary, but not sufficient condition” of economic growth in peripheral areas, and that nurturing the creative class will not automatically deliver positive results unless complemented by other development incentives” (Dr. Andrey Petrov 2008, p.174).

Here is what we heard from participants regarding public policy:

“The government needs to focus its attention and resources on the knowledge sector and not on the resources sector. I think that sector can sustain itself now and doesn't need subsidies from the government. I live here because it's the most beautiful place in the country, and I choose to live here for that but I feel like the government doesn't respect that. There are a lot of really intelligent people who live here and could export more of their work outside the Yukon. The government needs to protect what we have here. The fact that we have this wilderness here, that's what, attracts people to this place. If this place looked like Fort McMurray we all wouldn't live here.”

“What I haven't seen yet in the Yukon is small businesses teaming up for an export project. Locals teaming up with big outside firms is happening already. Here in the

Yukon you can and have to be a generalist. Therefore YTG could facilitate the same on the outside, filtering the export markets and making Yukon teams aware of export opportunities. Providing that kind of support would help to enhance outside competitiveness.”

“I could see the recommendations of this survey being of benefit if they could be used to help develop policy in all four levels of government, and especially outside of government, such as Northwestel and Yukon College.”

“It would be a bit crass but I think these large governments: federal and territorial, if they would be a little more open and embraced technology a little more, I think we could see a lot more developments in the Knowledge Sector. Even seeing a shift in policy, that embraced more innovative technologies and solutions, would make a big difference.”

“The Yukon government should develop a knowledge sector strategy: First ask what would be helpful, then try to respond to it.”

Legislation:

“Get the business corporations act through. Have government commit to making changes to legislation on an ongoing basis, so that we can maintain our competitive edge globally. Other jurisdictions do that, and the Yukon is getting further and further behind. There needs to be a fundamental shift in government of how to approach things. It has to rely more on local expertise. Yukon’s legislation has to be cutting edge. Yukon is a small, flexible jurisdiction and could adapt legislation quickly if certain aspects don’t work well.”

“(Our export growth expectations very much) depend on legislative initiatives, corporate law being the primary driver of exports. It’s top drawer work here, commanding higher fees and better quality of work. Legislative initiatives depend on drivers and political will. The miners’ lien act is a good example, it got done in 6 months. Community Services does not have the appropriate legal talent to put the regulations in place for the new business corporations act. A new form of corporate organization was proposed 8 years ago here in the Yukon. Yet only BC and Alberta have adopted it. We need a competitive legislative environment. BC’s modernization meant less business for Yukon lawyers”

“Government’s slowness in adapting more competitive laws and legislations and not wanting to be a leader when we propose changes is making it difficult to serve our customers outside. They prefer to be middle of the road. They are slow to react and are not willing to take a leadership role.”

“The survey will help politicians to understand what the knowledge sector needs and expects. It is important to keep abreast of what other jurisdictions are doing to modernize their legal infrastructure. With a stroke of a pen, government can give the Yukon an advantage. The partnership between government and tourism works and has a high priority. That is not the case with the legal community. Government generally thinks partnerships require spending money; that’s not the case with the legal community: Just give us the platform.”

“There is an anomaly in the Yukon's income tax system: the surtax of the 90s was never removed in the Yukon. It is not designed to achieve our objectives! It leads to a “Yukon disadvantage tax wise, and there are emerging knowledge sector areas that we should look at.”

18. Benefits of the Survey

Participants were somewhat surprised at the attention the Yukon's Knowledge Sector was given – so far they felt a lack of visibility, recognition and connection. This survey will hopefully result in a cohesive strategy and a collaborative action plan to grow Yukon's Knowledge Sector. Here is a collection of measures that build on the survey's results and our recommendations:

The survey will enable:

- Better understanding of what the Yukon Knowledge Sector is
- More networking, collaboration and mutual support
- Economic diversification and sustainability
- Diversity in the Community
- Entrepreneurial spark
- Bringing more business to Yukon
- Attracting more knowledge workers

The Survey will enable governments and stakeholders to:

- Build consensus on priorities
- Actively market Yukon's Brand
- Identify needs and priorities for investments in infrastructure
- Identify need and priorities for supporting knowledge-based SMEs

Here is what participants said:

“A vibrant knowledge sector is hugely important to make a community multifaceted and sustainable.”

“This survey is a good thing. It will enable bringing people together to network, identifying who they all are. As far as knowledge, there is always a lot being offered in the Yukon. I would suggest an Internet knowledge network.”

“You need a minimum base of people and professionals to support the knowledge sector. An entrepreneurial spark is required, like the one that is already there for the drilling side. Such a spark could create new knowledge sector nodes. Resources could be shared.”

“If the Internet gets better, I'll be thrilled. A growing knowledge sector would be good. Have a community. To understand self-employment and the ups and downs of it. I lived in New York City for a while - it was good to have that kind of support around me. My government friends here don't understand that.”

“If the recommendations are actually implemented I think they could benefit my business and the Yukon as a whole. If an improvement in telecommunications occurs due to this

survey, it would benefit my business and me. I would say I am in support of government subsidies to Northwestel to help expand.”

“The survey could lead to more training and a higher profile for the knowledge sector, plus associated support from government such as funding.”

“Helping government to understand the structure of the knowledge sector, and then think about how they can support it.”

“Make it easy to stay in Yukon for the long term. Maintain community. Help to find new clients. Make this type of work more appealing over the long term. Help to network with others locally doing similar work. May encourage some people to move here or some people to stay if there are interesting/exciting career opportunities with national and international clients.”

“I think finding out how many other people are doing what I am doing, especially in terms of networking and collaborating would be beneficial for my business. I think the nature of the size of the knowledge sector, would benefit from having more of a support network. In terms of moving here, I didn’t find any barriers of moving here. From the perspective of my company, living in the Yukon was less remote than having me in NWT. It would be great to dispel the myth of how remote and isolated we are in the Yukon.”

“I think finding out how many other people are doing what I am doing, especially in terms of networking and collaborating would be beneficial for my business. I think the nature of the size of the knowledge sector, would benefit from having more of a support network.”

“It is important to me to give input from the mining and exploration sector perspective. This sector has a level of capital investment and technological innovation that exceeds most other sectors in the private sector. For every miner, there is a very high economic leverage. I would like to point out that today’s mining and exploration utilize extremely sophisticated geophysical technology which is straight from the research labs. I hope this survey will allow a more balanced perception of the mining and exploration industry.”

“I am very interested in the survey results: what I do is invisible, and what others do is invisible to me.”

19. Summary of Recommendations

Here are our recommendations to improve conditions for the Yukon Knowledge Sector, based on participant input and our own research and conclusions. We have attempted to put them in an order of priority, guided by:

- Levers important to Knowledge Workers
- Strengths of current Value Proposition
- Potential Ability to influence
- First: high impact – low cost

All these measures will require the initiative, commitment and collaboration of individuals from the knowledge sector, the business community, Yukon College/YRC, territorial and federal governments, and the City of Whitehorse. Throughout this process, continuous facilitation will be required, fostering trust and the ability to work together. It will be critical to keep knowledge workers informed and involved. We have rated our recommendations on what it would take to implement them, by the following factors:

- Impact
- Relative cost (in relation to potential benefit and to other measures)
- Implementation feasible over the short term (1-2 years), medium term (3-5 years), long term (6-10 years)
- Knowledge sector stakeholder' ability to influence decision (decision process, measure of control)

Recommendations

High impact, low cost, short-term implementation, strong ability to influence decision

1. Creating a platform for networking, collaboration and mentoring of knowledge workers
 - a. Create and distribute a directory of Yukon knowledge workers
 - b. Create a networking website for Yukon knowledge workers
 - c. Create a forum where established knowledge workers can network with upcoming ones
2. Developing a strategy for the Yukon Knowledge Sector (Yukon Economic Development in cooperation with knowledge workers, Yukon College/YRC and the City of Whitehorse) (possibly building on case studies of similar areas who have pursued a knowledge sector strategy)
 - a. Identify challenges and opportunities
 - b. Start focus groups discussing needs and measures
 - c. Ensure ongoing communication and flow of information
 - d. Identify actions, priorities, responsibilities and accountabilities
 - e. Allocate sufficient financial and human resources to implement action plan, including a committed group of champions
 - f. Refocus Yukon's Business Immigration Strategy (attract investors and entrepreneurs)

- g. Develop a Brand for Yukon's Knowledge Sector
 - h. Develop Key Performance Indicators (KPIs) for Yukon's Knowledge Sector
3. Developing a collaborative Marketing Strategy and Action Plan to attract new knowledge workers.
- Some possible elements of this marketing strategy could be:
- a. Identify primary target groups and markets
 - b. Defining Yukon's value proposition to knowledge workers
 - c. Developing a targeted Yukon Knowledge Sector website
 - d. Identifying groups of knowledge workers who can function a "critical welcome mass"
 - e. Attracting conferences to Whitehorse that cater to knowledge workers
 - f. Develop Yukon familiarization tours for prime targets ("sample 'the Yukon' first hand")
 - g. Producing a video about the Yukon Knowledge Sector
 - h. Data collection and analysis of past inquiries relating to the knowledge sector (Yukon Government, City, Chambers, College)
 - i. Utilizing synergies and cross-over marketing opportunities between various segments of Yukon's Knowledge Sector

High impact, medium cost, medium term implementation, medium ability to influence decision

4. Research, Innovation and Commercialization (RIC)
- The Yukon Research Centre (also see next item) and Yukon Economic Development (see section 17.9 above) have key roles, primarily by improving conditions and bringing people together for projects. Realizing the RIC potential of the Yukon Knowledge Sector as it has emerged in this survey will require multiple coordinated initiatives of all stakeholders, namely knowledge workers themselves. Attracting researchers and funding from outside Yukon should be part of the strategy.
5. Define and promote the role of the Yukon College (YC) and the Yukon Research Centre (YRC) in promoting and supporting Yukon's Knowledge Sector
- a. Facilitating Yukon Knowledge Workers' participation in Research, Innovation and Commercialization
 - b. Explore YRC's role as a networking and support platform
 - c. Consider an "Applied Research Council" in Yukon, fostering collaborative research relationships between YRC and industry
 - d. Attract targeted public funding for R&D, Innovation and Commercialization
 - e. Access to resources at YC and YRC
 - f. Explore mutual opportunities in applied research
 - g. Expand course offering for knowledge workers
 - h. Offer teaching opportunities to knowledge workers
6. Education, Training and Professional Development
- For maximum effect, this would preferably be a collaborative effort between knowledge workers, Yukon College/YRC, and the business community.
- a. Identify common needs, funding requirements and options
 - b. Prioritize needs, develop action plan and identify service providers (local options first)

7. Business Development measures to increase local business for Yukon knowledge workers.
This involves all stakeholders and will take commitment and time. It will also evolve organically once networking in Yukon's Knowledge Sector starts to improve, a strategy for the knowledge sector is in place, and marketing measures take hold.
8. A Marketing Strategy and Action Plan to increase Yukon Knowledge Sector exports (based on clusters of export-ready expertise as mapped out in this report)
9. Measures to retain knowledge workers and grow the next generation
 - a. Mentor the next generation, keep them involved and make them aware of Yukon opportunities – so that they come back if they leave to get an education or gain experience.
 - b. Acknowledge the knowledge sectors' contribution, involve existing knowledge workers, take their concerns serious and implement the improvements they suggest.

High impact, high cost, long term implementation, limited ability to influence decision

10. Internet and Telecommunications
Collaboration of the private and public sectors, focusing on the following investments:
 - a. Improve Internet reliability and capacity through a second fibre link to global networks
 - b. Reduce costs for bandwidth, for example by enabling more competition
 - c. Incentivize Internet use for exporting knowledge workers
11. Air Access
 - a. Maintain current level of connections to gateway cities Vancouver, Edmonton, Calgary
 - b. Explore viability of connections to NWT, Alaska, Eastern Canada
12. Modern Legislation (Business Corporations Act, Land Titles Act)
Modern legislation is the grease of the economy and a necessary condition to sustain the strength of local law firms.
13. Public Procurement Policies
One major objective is replacing imports:
 - a. Participants voiced concerns that outside expertise is being favoured over local expertise – not recognizing that the required capacity in many cases would be available locally.
 - b. Yukon College: Put out RFPs locally for skill-based workshops and courses (tapping into local expertise)
14. Invest in retirement services and facilities with a aging population that is growing fast
15. Invest in infrastructure and housing along with a growing economy and population
16. Repeat survey in three years to validate measures that were taken, and to verify trends

20.Future Outlook

Early success stories triggered by this survey:

- The Yukon Knowledge Sector is already more visible and acknowledged.
- The discussion of improving Internet services was intensified and will potentially accelerate measures.
- An initiative about e-publishing of local writers was started.
- Presentation of Final Results: At an event at the Old Firehall on Sept. 12, 2012, results and recommendations of the survey will be presented to survey participants, funding agencies, the business community, public officials and the media.

The Vision

We believe the overall conditions that today's knowledge workers want, and the capacity that already exists here give Yukon an edge developing the knowledge sector to a size several times larger than today (over the next five to ten years). In the medium term this could include home-grown growth stories beyond the size of current companies, and the attraction of larger knowledge-based companies. This would generate multiple economic spinoffs and result in much higher tax revenue for Yukon, reducing dependency on federal transfer payments. This kind of growth would also help to create the necessary momentum for things like a university to happen. As well, the social fabric and community life would be enhanced, improving quality of life even further.

Here is what it would mean in more detail:

Yukon will:

- Show high growth in exporting knowledge-based services
- Expand exporting opportunities for existing and new exporters in the Knowledge Sector
- Replace Yukon imports by services provided locally
- Increase productivity (innovation, reducing costs by replacing imports)
- Benchmark itself and become more competitive ("identify Yukon's niche in the world")
- Attract new entrepreneurs, professionals and researchers driving the above – bringing their export clients with them
- Retain existing entrepreneurs and knowledge workers, and attract some of those back to Yukon who have left
- Be in a position to better communicate its Brand to the world
- Become a hub for Northern Research and Development (R&D), Innovation and Commercialization
- Develop proprietary concepts for commercializing "Northern" know-how
- Enhance circumpolar cooperation, with Yukon becoming a leader in the Knowledge Economy
- Expand its global links
- Enhance knowledge transfer within Yukon and to Yukon (capacity development)
- Significantly enhance academic, technological and entrepreneurial capacity building
- Enable a knowledge-based cluster of experts, SME's and institutions that will accelerate growth, based on synergies and collaboration ("innovation engineer meets entrepreneur")
- Attract more outside capital

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22. Appendices

Appendix A:	The Survey Questions
Appendix B:	Information sheet for survey participants
Appendix C:	Table with 12 clusters of expertise of Yukon knowledge workers
Appendix D:	Participant comments to key topics (Internet; Role of Yukon College; Research, Innovation and Commercialization)

Appendix A

Survey of the Yukon's Knowledge Sector

Yukon Research Centre

Introduction to Participants

What is the Knowledge Sector?

Purpose of this Survey

Privacy of Information (not confidential, but anonymous – will ask permission to quote)

Survey questions

Part A: Participant Facts and Quantitative Questions

1. When did you move to the Yukon, and from where?
2. What is your highest level of formal education and what field is it in?
3. What is your age?
4. Are you employed or self-employed (owner or co-owner)?
5. What is your position in the company?
6. What industry do you work in?
7. What are your two most important areas of expertise that relate to exporting your company's services outside Yukon?
8. How many full time employees does your company have in the Yukon, and how many globally?
9. In your estimate, by how many has the number of full time employees changed over the past three years?
10. Since when has your company been present in the Yukon?
11. In your estimate, what percentage of your company's Yukon revenue is related to exporting outside Yukon? (Or: Are you planning to export soon?)
12. What is your primary mode of delivery to your export clients?
13. What are your growth expectations for your company overall (decline/no growth/moderate/significant)
14. What are your growth expectations for your exports outside the Yukon? (decline/no growth/moderate/significant)
15. Would you buy locally if the adequate expertise or product were available, even at the expense of existing relationships outside the Yukon? (yes or no)
16. How often on average are you travelling outside Yukon on business?
17. How often on average are you travelling outside Yukon privately?
18. Have you ever worked for one of the four levels of government in the Yukon?
19. Do you foresee retiring in the Yukon? (yes or no)

Part B: Scaled Questions (on a scale of 1 to 5)

1. Please rate Yukon's
 - a. Schools (from poor = 1 to excellent = 5)
 - b. As a place to raise a family (from poor = 1 to excellent = 5)
 - c. Internet connectivity (price, bandwidth, reliability) (from poor = 1 to excellent = 5)

- d. Air access (from poor = 1 to excellent = 5)
 - e. A safe place? (from unsafe = 1 to very safe = 5)
 - f. Outdoor possibilities (from limited = 1 to endless = 5)
 - g. Cultural life (from minimal = 1 to very rich = 5)
 - h. Environmental Quality (from poor = 1 to excellent = 5)
 - i. Government attitude towards business (from major obstacle = 1 to very helpful = 5)
 - j. Accessibility to professional development for yourself (from poor = 1 to excellent = 5)
 - k. Relative cost of doing business in the Yukon vs. other locations (from very high = 1 to very competitive = 5)
2. To what extent do the ups and downs of the Yukon economy impact your business? (from no impact at all = 1 to severe impact = 5)
 3. In your estimate, what is the percentage of business you get from the four levels of government in the Yukon?

Part C: Lifestyle Questions

The premium or trade off of living in the Yukon vs. the value you get in return

Please name the two most important factors in your order of priority (business and personal reasons as they come to your mind):

1. Why did you move here?
2. Why do you stay here?
3. What should improve for you to stay here?
4. What might entice you to move away – and where would you move to?
5. Would you or would you not advise your colleagues in the same industry to move to the Yukon and why?

Part D: Exporting and Outside Connections

Please name the two most important factors in an order of priority (business only):

1. What is enabling you to serve your customers outside the Yukon?
2. What is making it difficult to serve your customers outside the Yukon?
3. Where are your *two primary connections* outside the Yukon located (for each category)?
 - a. Customers (your “Export Clients”)
 - b. Suppliers (you are importing their services to the Yukon)
 - c. Experts (their expertise supports your work)
 - d. Corporate offices (including Head Office if outside)
 - e. Family and Friends
4. Where is your most important competition located (competing with the services you export outside Yukon)?

Part E: Miscellaneous Questions

1. How does your work relate to Research, Innovation and Commercialization?
2. Are you in any way connected to Yukon College, and if yes, how?
3. What would be the most desirable investment at Yukon College that would support your business?

Part F: Future Outlook

1. What are the two most important trends that you can see developing in the Yukon that would impact you, personally or your business (negative and positive impacts)?
2. What are your suggestions to make the Yukon Knowledge Sector grow?
3. In which way could the results and recommendations of this survey benefit you personally, your business or the Yukon?

Thank you for your participation!

- Do you have any additional comments?
- Can you think of anyone else we should interview?

We will share the survey results with you (expected by the end of this August).

Would you be interested in sharing your contact information with those who also participated in this survey?

Drafted by Stefan Voswinkel, Project Manager (Ylynx Management Consulting, Inc. phone: 867-456-7506; email: stefan@ylynx.ca).

Appendix B

Survey of Yukon's Knowledge Sector

Yukon Research Centre

If you are a participant in Yukon's knowledge sector, we would like to talk to you.

Why this survey?

Yukon's economy is dominated by mining, tourism and government.

Knowledge-based industries may be the answer to create meaningful growth in another sector that is neither cyclical nor seasonal. This would increase diversification of the Yukon economy and grow small and medium size enterprises.

The intent of this survey is to identify

- Why knowledge workers live in the Yukon
- The size and profile of Yukon's Knowledge Sector
- Success factors and barriers to future growth
- Measures to promote Yukon's Knowledge Sector

The Vision

The Economist said it: "Brain workers love to live near each other. The internet lets people compare cities....that gives a boost to remote but agreeable locales."

There are encouraging signs that Yukon can become a "hub" for the knowledge economy:

- Yukon law firms were involved with a Brazilian mining company buying a Canadian one.
- A local lawyer works from home for a law firm in the United States.
- A Yukon author writes romance novels for a global readership.
- A department head for a Silicon Valley firm managed his department from Whitehorse.
- Two Yukon videographers shoot for clients in BC and Alberta.
- A management consultant provides innovative solutions to clients globally.

What is the knowledge Sector for the purpose of this survey?

We are seeking knowledge workers from the private sector who export at least some of their services outside the Yukon: Authors, lawyers, consultants, engineers, IT-specialists, governance experts, scientists, graphic designers, web-marketers – just to name "a few"!

Who and what is *not* included in this survey

- Knowledge workers who work less than 50% in the knowledge sector
- Knowledge workers who work exclusively on Yukon projects for companies based outside (like for a Yukon mine owned by a Vancouver company)
- Knowledge workers who have employment contracts for working outside the Yukon
- Manufactured goods
- Tourism (ie tour operators and wholesalers)
- Arts and crafts

Who is behind the survey?

The Yukon Research Centre - it will play a pivotal role to build a networking and research platform.

This project is sponsored by CanNor, the Yukon Department of Economic Development, and Yukon College.

What happens to the information I provide?

Survey results will be aggregated and publicly available. Your information will remain anonymous. All information will reside at the Yukon Research Centre.

All participants will receive the survey results.

Please help us to make this survey a success

This survey relies on a “snowball approach”: If you know any knowledge workers, please let us know, or them.

Thank you for your participation!

Stefan Voswinkel, Project Manager (Ylynx Management Consulting Inc., phone 867-456-7506; email: stefan@ylynx.ca)

**Appendix C
Expertise Clusters of the 60
Survey Participants (Yukon
Knowledge Sector 2012)**

(every area of expertise can be traced back to an individual - for compiling a Knowledge Sector Directory and for forming an Expert Network)

EXPERTISE CLUSTER A- Lawyers	EXPERTISE CLUSTER B- Authors/Journalists/Writers/Editors/Publishers/Broadcasting/Public Speaking	EXPERTISE CLUSTER C- Film/Video/Illustration/Photography	EXPERTISE CLUSTER D- Geology/Geophysics/Mining and Exploration (including related Engineering)	EXPERTISE CLUSTER E- IT, Electronics (including Software Development, Network Administration and Web Development)	EXPERTISE CLUSTER F- Research and Training
Aboriginal law	Broadcasting, podcasting	Cinematography	Geology	Digital signage (corporate solutions)	Cultural heritage research and inventories
Aboriginal law related to Indian Residential Schools	Broadcasting, rural communities	Commercial photography	Geology, placer	Digital technology	Education
Advice on Yukon legal issues, mining claim title opinions	Editing	Corporate photography	Geophysics	Information systems	Market Research
Capital markets law	Journalism	Filmmaking	Geosciences (exploration and geotechnical)	IT and electronics for industrial automation and controls	Northern methodology
Corporate law	Journalism	Illustrating	Integrated geological and geophysical exploration	Network administration	Research and consulting
Corporate law	Public speaking	Illustrating & drawing	Mining and exploration: site selection and operation in remote areas	Online booking system software	Research for sciences based reports
Corporate law	Public speaking: international workshops, lectures, presentations	Video production	Placer mining	Online registration and web design	Research, environmental sustainability
Corporate registration services law	Publishing	Videography	Technology development (drilling)	Product software development	Research, Geosciences
Intellectual property law	Publishing			Software design	Training, organizational and international development
Mining law	Publishing: books, magazines, newspapers			Software development	
Mining law	Scientific publishing: chemistry, medicinal			Software development	
Securities law	Scientific publishing: chemistry, synthetic organic			Software, open source	
US patents law	Spoken word			Technology & planning	
	Writing			Web development	
	Writing			Web development	
	Writing			Web portals	
	Writing and editing science based reports			Wireless design & implementation (ie: Hotels)	
	Writing, children's books				
	Writing, literature				
	Writing, novels				
	Writing, travel				

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EXPERTISE CLUSTER G- Marketing and Communications (Including Graphic Design and Social Media)	EXPERTISE CLUSTER H- Engineering (Including Engineering Consulting; excluding engineering related to Mining and Exploration)	EXPERTISE CLUSTER I- Tourism (excluding Tour Operators and Wholesalers)	EXPERTISE CLUSTER J- Management Consulting	EXPERTISE CLUSTER K- Environment and Sustainable Development	EXPERTISE CLUSTER L- Other
Digital marketing	Engineering consulting	Sports and Tourism, Marketing and Communications	Banking (strategy)	Climate change science and impacts on the North	Architecture, building design and construction
Advertising	Engineering consulting	Tourism Marketing	Business development	Cultural and natural resource management	Capital markets for junior mining companies
Advertising	Engineering consulting, electrical and industrial system design	Tourism planning	Community facilitation	Economic development for northern remote and First Nations communities	Food and beverage services
Advertising	Engineering consulting, environmental	Western Arctic regional expertise	Corporate organization	Environmental consulting	Herbal health and healing
Brand communications	Geomatics engineering	Yukon & Alaska history and tourism	Economic development for northern remote and First Nations communities	Environmental consulting	Music industry (booking agent)
Brand communications	Geotechnical engineering		Financial strategy	Environmental consulting	
Communications consulting	Permafrost engineering		First Nation Fiscal Policy	Environmental implications of oil and gas development	
Communications, non-profit	Small hydro projects (IPP)		Government relations	Permafrost engineering	
Communications, podcasts	Surveying, legal and engineering		Human resources design	Renewable energy	
Creative concept development			Northern management consulting	Research, environmental sustainability	
Graphic design			Organizational & political development	Small hydro projects (IPP)	
Graphic design			Organizational development	Sustainability planning	
Graphic design			Program evaluation	Wind energy assessment	
Illustrations for advertising			Program evaluation		
Market research			Project management software for project managers		
Marketing and meeting planning			Relationship management including all stakeholders		
Marketing communications Marketing, musicians Social media Social media Visual Communications Visual communications			Strategic development Strategic development		

Appendix D

Survey of Yukon's Knowledge Sector (2012)

Participant Comments Regarding Key Issues (in addition to those in the report)

Internet

"It's the biggest roadblock to our business, costing us \$750 a month. We had to change the style of our business with a 20 GB data cap, and cumbersome workarounds. Currently, we are sending a 30 GB files a hard drive, Air North guaranteeing us same-day delivery to clients in Vancouver and Calgary. The Internet is slow, pricey and doesn't have enough bandwidth."

"Unlimited Internet download/upload or much smaller penalties. If you are dealing with large files (e.g., video) then it is easy to max out the current limit - extra GBs it can become very expensive. As cloud computing becomes more mainstream Yukon should be in a position to take advantage and allow Yukon-based businesses to compete equally. Geographically, we are often restricted by the distances, and here we have an opportunity to make those distances irrelevant - this should be a higher priority for us than for locations with access to a larger local markets."

"When I first moved up I would have said 0, so it has improved in the past 10 years but it has a long ways to go. Certainly redundancy and price is the biggest issue. The price inflation for bandwidth up here is very costly."

"Price for the Internet is awful and reliability is bad. If they are down for a day, I am out of 1,000 bucks. No way we are using the full capacity of the existing fiber-optic cable. Northwestel throttles bandwidth by controlling speeds and controls applications through ports [the initial difficulties using Skype for phone calls made that apparent]."

"Fundamentally, number one: fix the internet, and the pricing of the bandwidth. Number two: mobile phone technology. It is unbelievable that we still can't use iPhones outside of Whitehorse. Communications technology needs to improve."

"Price is ridiculous, reliability is okay. It's \$120 a month for the highest data cap versus \$30 in Toronto. Northwestel could use some competition."

"Cost of Internet and communication. On the other hand, it's a bloody miracle that I have access to services like people in Vancouver."

"Internet connectivity needs to improve in terms of price, bandwidth and the packaging of what you can download. It is not at all competitive."

"It's okay, but very expensive; more competition is needed, which would lead to better infrastructure and a push to modernize, which in turn would lower cost."

Role of Yukon College

Fundamentals:

“There are little islands of government entities, which don't communicate and network with each other. That applies to the Yukon College in terms of innovation and working with other educational institutions. YC is not really innovative.”

Becoming a University:

“I'd love to see a University here - currently it's more of a mixed trade school.”

“Because we don't have University here and our curriculum is BC-based, students are missing some prerequisites if they want to attend university in Eastern Canada.”

“Bring Yukon College to university level; do more collaborations with universities, including them coming here.”

“There are an amazing number of people already working within this sector now. Coming back to the Yukon College becoming a university- this will provide an anchor as a central network for people working in the Knowledge Sector. There needs to be more local support for these workers. One of the biggest complaints I hear from young knowledge workers is their ability to find professional support. I have seen some excellent people leave because they could not develop a career and strong enough network here. Their professional ceiling is limited in the Yukon. More professional development and guest speakers would be beneficial as well. I think it is very important for the younger knowledge sector workers, and I think all of this would come more naturally if we had a University here. Population growth (a city the size of 50-60,000) would also be necessary for creating a more dynamic environment for knowledge workers.”

“I'd love the college to become University, one focus being political science/self-government/aboriginal law. Let people from all over come here and learn about our unique experience. Give power to people by giving them an education.”

Networking and Mentoring:

“There is a serious gap between new knowledge workers in the industry and those who are close to retiring. When I am on the mine site, I don't have anyone to replace me when I am gone because they just don't have the necessary level of experience yet. We need some sort of course or workshop or mentorship program that would help to build up these students' work experience. It would be great to see a program that would bring students up here.”

"I would also like to see a networking list for people that take course-work at the College, that would promote local business. For example, providing a list of marketers or bookkeepers etc. to people in the admin program. I think having a directory of knowledge workers that was available to students at the College, for future job opportunities, mentorship etc. would be very beneficial."

"If (this survey) can contribute to the dialogue of moving the College towards a focus of continuing to build professional development, then we might see major changes within a generation.:"

Graphic and Web Design, Publishing, Communications, Film and Photography:

"Over the years that we've been doing this, we get phone calls from younger people and parents of kids who are graduating from high school, who say that they want to get into graphic design etc. and ask if they could come in as an intern and learn on the job. Our advice is that they always need to get some sort of education, and some initial base training. For a number of people it is not possible to leave the Territory. It seems like a good fit for Yukon College: a graphic design diploma, or website design diploma. It would be very supportive of not just our business but for young people in the Territory."

"If the College could run software programs specifically for professional photographers, or sponsor workshops that would directly assist a professional photographer."

"Eager students from the College who are willing to help me with research etc. for modest wages. I would pay more with training and interesting tasks. I am also not impressed with the teachers they have utilized to teach film to date. We need a more Northern approach. I would be like to teach some film courses."

"Writers' workshops and conferences."

"Step up the communications courses: higher level. We'd love to hire locally, especially in the design field. If there was a refresher course or a short-term course focusing on the latest in communications, to stimulate thinking."

"Graphic design software courses, especially adobe illustrator and In-design."

Hire local Expertise:

"The college needs to do more to attract professionals in their fields, especially as they relate to unique Yukon advantages that we have. We need to find areas where we can become world-renowned. For example, the Yukon College could have a school of Paleo-Biology, instead of always bringing in the human resources, or sending out the paleontological resources. We could become a world leader in this field like Russia."

“I think that continuing to expand and strengthen the education programs that we have available here in the Yukon is a very important factor in being able to increase the Yukon Knowledge Sector. More specifically, one of the key things that would really help us out up here would be the ability to train health professionals locally. I know that the College already has an LPN program, but we need to expand above and beyond that. We spend exorbitant costs bringing doctors up here, and paying for their housing, and then they stay for very short periods of time. In Northern BC, they’ve created a medical program locally, where they train doctors and nurses and other health practitioners. Studies show that where you practice and train is often where you will work geographically. If we had the means and the capacity to train more Yukoners in the health profession here in the Territory, I strongly believe they would stay and work here.”

IT:

“Develop a course so that people can handle computers and computer networks; plus a course that results in good bookkeepers.”

“But having courses related to, or aimed at businesses that help business and government to understand and learn what technologies and processes out there could help them maintain their businesses. How could the government or businesses use innovative technology to do that? I think if Yukon businesses and government understood the advantages, benefits of the technology more, I would be able to have more local business.”

“A course about how to design and write macros. I could teach a course regarding scientific editing. Regarding software, we buy books and try out new software.”

Mining, Geology and Construction:

“I think the College is one of the biggest things, especially in regards to professional development, training and research. I would like to see much more research being conducted in connection to mining and mine technology. Improvements to Internet and connectivity would also be very important.”

“I think what the College has done for the mining and geology program has been a really positive step. I’m not really sure what else could help except continuing to build programs similar to the ones they already have.”

“I have to go outside for professional development. My field is far too specialized. I went to Australia last year to seek out professional development in my area of expertise. I would like to see more professional development in the Yukon for the mining industry, especially at the College but I couldn’t expect them to offer anything at my level or in my specialized field because I would likely be the only one to attend.”

“More courses for the core construction trades. The thinking is too academic, which jacks up the cost of labor. Qualified carpenters, electricians and mechanics are fundamental for the Yukon.”

Research, Innovation and Commercialization

“For my own company, there is not a lot of support for business advisory services (from Yukon College, the government or funding bodies) in terms of going from prototype to marketing and commercializing the product/service.”

“In terms of research and innovation, the self-government side is unique and we can export our knowledge to other areas. I've been to Moscow and Scandinavia, meeting with indigenous people there, as well as across Canada. We are cutting edge in the Yukon. Writing papers, implementing new concepts and ideas regarding self-government, presenting them elsewhere. Lessons learned in the Yukon.”

“Right now, the product is in the incubation phase - lots of research and innovation - trying to find a gap in the market. The research and commercialization is trying to fill that gap and the innovation is trying to meet the needs of that gap.”

“It definitely relates to commercialization- I am commercializing a product within a certain genre. Also, if I don't commercialize my work, I wouldn't be a successful writer. My work doesn't relate to research that anyone else is doing but I certainly have to research for my own work/writing. Innovation falls within the creative field, which is the field I work in. Also, the field I work in is changing drastically. People are finding that they can publish their own work online, and there are a lot more authors that are being much more innovative with their ability to self-publish and distribute their work online etc.”

“I do historical research, and innovation in the sense that I have to always keep up with technology, approaches and attitudes.”

“Many of my colleagues and I started off as academic researchers but we have all sort of morphed into something else. For example, we have become consultants for mining companies.”

“Our work focuses mostly on innovation- we are building stuff that hasn't been done before or doing something in a new way and then we have to commercialize the product. We do research for marketing and development of our products.”

“Definitely my career is mainly research. Most of the work we do at our organization is policy based, so we are attempting to be very innovative with the policy that we build. In regards to commercialization, we are not really selling a product but we do put together a lot of conferences, which we have to commercialize in a sense so that we can sell tickets. It's a company that really prides innovation above anything else and supporting that is a really big goal. We need to constantly be creating innovative policy initiatives to compete with the consulting market.”

“In media, innovation is a question of competitiveness. Innovation is a concept and a top objective for us.”

“When I started my podcasting business in the Yukon, podcasting was only just becoming an industry. I happened to be on the forefront of developing it. So yes, that was innovation.”

“100% of what I do is innovation in services for banks, like strategy.”

Yukon Research Centre
520 College Drive, PO Box 2799
Whitehorse, Yukon
Y1A 5K4
867.668.8895
yrc@yukoncollege.yk.ca
www.yukoncollege.yk.ca/research

Ylynx Management Consulting, Inc.
50 Grizzly Circle
Whitehorse, YT
Y1A 6J3
867.456.7506
stefan@ylynx.ca
www.ylynx.ca



Canadian Northern Economic
Development Agency

Agence canadienne de
développement économique du Nord

