2019

Profile of the Yukon's ICT Sector: Appendices

Luigi Zanasi Economist and Research Northwest

April 30, 2019

THIS PAGE HAD BEEN INTENTIONALLY LEFT BLANK

CONTENTS

LIST OF DATA TABLES

DATA TABLES

INDUSTRY STRUCTURE

Table A - 1 Yukon Business Counts by Selected NAICS Industry: With and Without Employees: December 2018

	1 to 4 employees	5 to 9 employees	10 to 19 employees	20 to 49 employees	50 to 99 employees	100 to 199 employees	200 to 499 employees	500 plus employees	Total with employees	Without employees	Grand total
3341 Computer and peripheral equipment manufacturing	0	0	0	0	0	0	0	0	0	0	0
3342 Communications equipment manufacturing	0	0	0	0	0	0	0	0	0	1	1
3343 Audio and video equipment manufacturing	0	0	0	0	0	0	0	0	0	0	0
3344 Semiconductor and other electronic component manufacturing	0	0	0	0	0	0	0	0	0	0	0
3346 Manufacturing and reproducing magnetic and optical media	0	0	0	0	0	0	0	0	0	0	0
4173 Computer and communications equipment and supplies merchant wholesalers	0	0	0	0	0	0	0	0	0	2	2
5112 Software publishers	0	0	0	0	0	0	0	0	0	1	1
5173 Wired and wireless telecommunications carriers (except satellite)	2	1	0	1	2	0	0	0	6	0	6

	1 to 4 employees	5 to 9 employees	10 to 19 employees	20 to 49 employees	50 to 99 employees	100 to 199 employees	200 to 499 employees	500 plus employees	Total with employees	Without employees	Grand total
5174 Satellite telecommunications	1	0	0	0	0	0	0	0	1	0	1
5179 Other telecommunications	2	0	0	2	0	0	0	0	4	2	6
5182 Data processing, hosting, and related services	1	0	0	0	0	0	0	0	1	2	3
5415 Computer systems design and related services	3	1	1	0	0	0	0	0	5	17	22
8112 Electronic and precision equipment repair and maintenance	0	0	0	0	0	0	0	0	0	3	3
Total	9	2	1	3	2	0	0	0	17	28	45

Sources: Statistics Canada. Table 33-10-0105-01 Canadian Business Counts, with employees, December 2018
           Statistics Canada. Table 33-10-0106-01 Canadian Business Counts, without employees, December 2018

Table A - 2 Yukon Business Counts by Selected NAICS Industry: With and Without Employees: December 2014

	1 to 4 employees	5 to 9 employees	10 to 19 employees	20 to 49 employees	50 to 99 employees	100 to 199 employees	200 to 499 employees	500 plus employees	Total with employees	Without employees	Grand total
3341 Computer and peripheral equipment manufacturing	0	0	0	0	0	0	0	0	0	0	0
3342 Communications equipment manufacturing	0	0	0	0	0	0	0	0	0	0	0
3343 Audio and video equipment manufacturing	0	0	0	0	0	0	0	0	0	0	0
3344 Semiconductor and other electronic component manufacturing	0	0	0	0	0	0	0	0	0	0	0
3346 Manufacturing and reproducing magnetic and optical media	0	0	0	0	0	0	0	0	0	0	0
4173 Computer and communications equipment and supplies merchant wholesalers	0	1	0	0	0	0	0	0	1	0	1
5112 Software publishers	0	0	0	0	0	0	0	0	0	0	0
5171 Wired telecommunications carriers	0	0	0	1	2	0	0	0	3	0	3
5172 Wireless telecommunications carriers (except satellite)	1	0	1	0	0	0	0	0	2	1	3
5174 Satellite telecommunications	1	0	0	0	0	0	0	0	1	0	1
5179 Other telecommunications	1	0	0	0	0	0	0	0	1	0	1

	1 to 4 employees	5 to 9 employees	10 to 19 employees	20 to 49 employees	50 to 99 employees	100 to 199 employees	200 to 499 employees	500 plus employees	Total with employees	Without employees	Grand total
5182 Data processing, hosting, and related services	1	0	0	0	0	0	0	0	1	3	4
5415 Computer systems design and related services	4	2	2	0	0	0	0	0	8	17	25
8112 Electronic and precision equipment repair and maintenance	0	0	0	0	0	0	0	0	0	3	3

Sources: Statistics Canada. Table 33-10-0023-01 Canadian Business Counts, with employees, December 2014
Statistics Canada. Table 33-10-0024-01 Canadian Business Counts, without employees, December 2014

Table A - 3 Yukon Business Counts by NAICS Clusters: 2008 through 2010, 2013, 2015, 2017

	2008	2009	2010	2013	2015	2017
Manufacturing, wholesalers, repair & maintenance (NAICS: 3341, 3342, 3344, 3346, 4173, 8112)	12	8	8	12	8	7
Telecom carriers (NAICS: 5171, 5172, 5174, 5179)	7	4	6	4	6	6
Software publishers, data processing & systems design (NAICS: 5112, 5182, 5415)	46	47	39	44	40	25
Total	65	59	53	60	54	38

Source: Yukon Bureau of Statistics, Business Survey, Yukon, 2008 to 2017. Special Data Request

Table A - 4 Yukon Total Output: ICT Industries: $ Millions: 1997 through 2015

	BS334B0 Electronic product manufacturing	BS51200 Software publishers	BS11200 Tele com-munications	BS17000 related services	BS18000 Data processing, hosting, and related services	BS541500 Computer systems design and related services	ICT	Grand total all industries
1997	0.0	0.3			0.7	1.8		1,946.0
1998	0.0	0.0			0.7	2.9		1,896.7
1999	0.1	0.0			0.2	3.1		1,885.2
2000	0.1	0.0			0.2	4.0		2,058.6
2001	0.2	0.0			0.1	3.6		2,157.9
2002	0.1	0.0			0.6	3.2		2,166.9
2003	0.8	0.0			0.6	0.0		2,182.6
2004	0.3	0.0			0.6	4.5		2,373.2
2005	0.4	0.0			0.6	4.5		2,646.1
2006	0.5	0.0			0.3	5.3		2,769.6
2007	0.5	2.6	59.2		0.5	6.0	68.8	2,943.6
2008	0.6	1.6	64.2		2.1	5.3	73.8	3,204.4
2009	0.6	1.4	68.8		2.2	5.9	78.9	3,422.9
2010	0.7	1.5	77.7		1.8	7.0	88.7	3,823.1
2011	1.2	1.9	85.2		1.3	6.4	96.0	4,115.6
2012	2.2	0.0	84.9		0.3	8.1	95.5	4,234.1
2013	1.8	0.0	107.4		0.2	7.7	117.1	4,349.3
2014	0.6	0.0	114.9		0.1	5.9	121.5	4,494.7
2015	0.5	0.0	103.9		0.1	6.2	110.7	4,265.4

Source: Statistics Canada. Table 36-10-0488-01   Output, by sector and industry, provincial and territorial

Table A - 5 Value of Products and Services Supplied by Yukon ICT Industries, 2015, in $ Thousands, Basic Prices

Products and Services Supplied by the ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommun-ications	Total ICT
Advertising, public relations and related services				$127	$127
Broadcast and other media rights				$5	$5
Business support services				$238	$238
Cable, satellite and other program distribution services				$5,773	$5,773
Commercial and industrial machinery and equipment (except office equipment) rental and leasing services			$99	$130	$229
Computer equipment rental and leasing services	$6				$6
Computer systems design and related services (except software development)	$4,210	$10		$21	$4,241
Contract production of live performing arts performances, live sporting events and copyrighted works				$23	$23
Custom software design and development services	$1,563	$0			$1,563
Data processing, hosting, and related services	$0	$64		$690	$754
Fixed Internet access services				$14,659	$14,659
Fixed telecommunications services (except Internet access)				$55,652	$55,652
Internet advertising				$95	$95
Licensing of rights to non-financial produced intangible assets (except software and other copyright licensing)				$8	$8
Licensing of rights to use audiovisual works				$8	$8
Management, scientific and technical consulting services			$0	$474	$474
Mobile telecommunications services				$25,498	$25,498

Products and Services Supplied by the ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommun- ications	Total ICT
Movie, television program and video production, post-production and editing services				$40	$40
Office administrative services				$135	$135
Own-account research and development (except software development)	$94		$80	$1	$175
Own-account software design and development services	$15		$3	$133	$151
Recorded music and other sound recordings				$13	$13
Rental and leasing services of other goods				$150	$150
Rental of non-residential real estate			$122	$8	$130
Repair and maintenance services (except for buildings and motor vehicles)			$172	$0	$172
Total ICT	$12,436	$148	$952	$207,762	$221,298

Source: Statistics Canada. Table 36-10-0478-01   Supply and use tables, detail level, provincial and territorial

Table A - 6 Value of Products and Services Purchased by Yukon ICT Industries, 2015, in $ Thousands, Basic Prices

Products and Services Purchased by ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommuni-cations	Total ICT
Accident and sickness insurance services	$14		$0	$0	$14
Accounting, tax preparation, bookkeeping and payroll services	$6	$0	$0	$134	$140
Admissions to live performing arts performances			$0	$89	$89
Admissions to live sporting events			$0	$75	$75
Advertising air time on radio			$0	$34	$34
Advertising air time on television			$0	$24	$24
Advertising space in printed newspapers	$0		$0	$23	$23
Advertising space in printed periodicals and in other printed publications			$0	$65	$65
Advertising, public relations and related services	$6		$19	$133	$158
Agricultural, lawn and garden machinery and equipment				$78	$78
Air freight transportation services				$18	$18
Air passenger transportation services	$31		$11	$307	$349
Air specialty services	$19		$0	$997	$1,016
Alcoholic beverages for consumption	$9		$0	$87	$96
Amusement and recreation services			$0	$212	$212
Architectural, engineering and related services			$50	$265	$315
Audio and video equipment and unrecorded media				$40	$40
Audio recording services and copyright administration				$33	$33
Automotive insurance services	$0	$0	$0	$42	$42

Products and Services Purchased by ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommuni-cations	Total ICT
Banking and other depository credit intermediation services - explicit charges	$14			$330	$344
Batteries				$25	$25
Beer	$0		$0	$35	$35
Boilers, tanks and heavy gauge metal containers	$11		$0	$138	$149
Books	$0			$46	$46
Bottled water, soft drinks and ice	$0	$0	$0	$28	$28
Business support services	$42	$0		$223	$265
Cable, satellite and other program distribution services			$0	$65	$65
Chemical products, n.e.c.	$11		$0	$122	$133
Commercial and industrial machinery and equipment (except office equipment) rental and leasing services			$0	$1,809	$1,809
Communication and electric wire and cable				$1,014	$1,014
Computer systems design and related services (except software development)	$1,081			$3,103	$4,184
Computers, computer peripherals and parts	$0			$39	$39
Courier, parcel, and local messenger and delivery services		$0	$7	$177	$184
Data processing, hosting, and related services	$118			$416	$534
Deposit intermediation services indirectly measured (FISIM)	$19	$0	$1	$335	$355
Diesel and biodiesel fuels			$15	$413	$428
Distilled liquor				$5	$5
Electricity	$15		$0	$1,120	$1,135

Products and Services Purchased by ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommuni-cations	Total ICT
Employers' social contributions	$204	$0	$23	$3,945	$4,172
Employment services	$38	$0		$181	$219
Fabricated metal products, n.e.c.				$69	$69
Facilities and other support services	$56	$0		$180	$236
Fees for the distribution of television and radio program channels (affiliation payments)				$2,299	$2,299
Fixed Internet access services	$14	$0		$680	$694
Fixed telecommunications services (except Internet access)	$13	$0	$0	$10,141	$10,154
Foam products (except for construction)			$41		$41
Freight transportation arrangement and customs brokering services			$12	$40	$52
Gasoline	$0	$0	$15	$360	$375
General purpose software	$71	$7		$171	$249
Glass (including automotive), glass products and glass containers				$10	$10
Hand tools, kICThen utensils and cutlery (except precious metal)	$5		$0	$97	$102
Heating and cooling equipment (except household refrigerators and freezers)				$57	$57
Heavy fuel oils	$0			$14	$14
Holding company services (imputed)	$7	$0	$0	$203	$210
Holding company services and other financial investment and related activities	$0			$342	$342
Internet advertising			$0	$57	$57
Investigation and security services	$20	$0		$330	$350

Products and Services Purchased by ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommuni-cations	Total ICT
Investment banking services	$2	$0	$0	$211	$213
Legal services	$9	$0	$0	$103	$112
Liability and other property and casualty insurance services	$0		$0	$48	$48
Licensing of rights to non-financial produced intangible assets (except software and other copyright licensing)		$0		$18	$18
Life insurance services				$91	$91
Light fuel oils	$3			$177	$180
Lighting fixtures				$11	$11
Lubricants and other petroleum refinery products			$0	$151	$151
Major appliances				$15	$15
Management, scientific and technical consulting services				$1,688	$1,688
Metal valves and pipe fittings				$112	$112
Mobile telecommunications services	$0	$0	$0	$1,290	$1,290
Motor vehicle rental and leasing services	$0		$0	$453	$453
Motor vehicle repair and maintenance services	$0	$0		$122	$122
Movie, television program and video production, post-production and editing services			$0	$55	$55
Natural gas liquids and related products	$0		$17	$8	$25
Newspapers	$0			$18	$18
Office administrative services	$0	$0		$1,511	$1,511
Office supplies (except paper)		$1		$24	$25

Products and Services Purchased by ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommuni-cations	Total ICT
Other architectural metal products				$36	$36
Other communications equipment				$564	$564
Other converted paper products	$0		$7	$31	$38
Other educational training and services	$0	$0		$17	$17
Other electrical equipment and components	$0	$0		$73	$73
Other electronic components	$0	$0	$25	$130	$155
Other information services				$426	$426
Other loan intermediation services indirectly measured (FISIM)	$6	$0	$0	$92	$98
Other membership services	$0	$0		$117	$117
Other miscellaneous general-purpose machinery				$26	$26
Other miscellaneous manufactured products				$36	$36
Other professional, scientific and technical services				$341	$341
Other published products	$0			$57	$57
Other transit and passenger transportation services by road				$7	$7
Other transportation support services				$1	$1
Paints, coatings and adhesive products	$0			$49	$49
Paper (except newsprint)	$0	$0		$40	$40
Paper office supplies				$13	$13
Paperboard containers				$15	$15
Parking services	$0		$0	$35	$35
Periodicals	$0			$61	$61
Plastic films and non-rigid sheets			$14		$14

Products and Services Purchased by ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommuni-cations	Total ICT
Plastic products, n.e.c.	$0		$0	$38	$38
Portfolio management services	$0			$185	$185
Postal services	$0	$0	$0	$187	$187
Prepared meals	$19		$13	$233	$265
Printed and integrated circuits, semiconductors and printed circuit assemblies	$0	$0	$0	$263	$263
Printed products	$16		$0	$836	$852
Property insurance services	$0		$2	$17	$19
Rail freight transportation services			$0	$15	$15
Real estate brokerage and other services related to real estate	$14	$0		$71	$85
Rental and leasing services of other goods				$11	$11
Rental of non-residential real estate	$98	$23	$0	$3,313	$3,434
Repair and maintenance services (except for buildings and motor vehicles)	$0		$9	$248	$257
Road transportation support services				$2	$2
Room or unit accommodation services for travellers	$25		$9	$242	$276
Rubber and plastic hoses and belts				$0	$0
Sales of other government services			$0	$98	$98
Sanitary paper products				$6	$6
Security brokerage and securities dealing services	$7			$176	$183
Services to buildings and dwellings	$23	$0	$0	$360	$383
Signs			$0	$33	$33
Small electric appliances				$13	$13

Products and Services Purchased by ICT Industries	Computer systems design and related services	Data processing, hosting, and related services	Other electronic product manufacturing	Telecommuni-cations	Total ICT
Soaps and cleaning compounds				$23	$23
Specialized design services	$13		$0	$217	$230
SuICTases, handbags and other leather and allied products	$0			$10	$10
Taxi and limousine services	$0		$0	$28	$28
Telephone apparatus	$21		$0	$829	$850
Threaded metal fasteners and other turned metal products including automotive			$0	$59	$59
Travel arrangement, reservation and planning services	$7	$0	$0	$70	$77
Truck transportation services for general freight	$0		$1	$86	$87
Truck transportation services for specialized freight	$3		$0	$71	$74
Tuition and similar fees for trade, technical and professional training	$0	$0		$9	$9
Tuition and similar fees for universities				$19	$19
Waste management and remediation services	$12			$55	$67
Water delivered by water works and irrigation systems	$20			$203	$223
Water freight transportation services				$3	$3
Water passenger transportation services				$8	$8
Wine and brandy				$9	$9
Wiring devices				$46	$46
Total ICT	$16,695	$188	$1,143	$266,623	$284,649

Source: Statistics Canada. Table 36-10-0478-01   Supply and use tables, detail level, provincial and territorial

ECONOMIC IMPORTANCE

Table A - 7 Value Added, ICT Industries, Yukon, 2017, millions of chained 2012 dollars

Industry	Value added
517 Telecommunications	$59.5
518 Data processing, hosting, and related services	$0.1
5415 Computer systems design and related services	$3.0
Other ICT industries ($0 or suppressed data)*	$6.2
Total ICT sector	**$68.8**

*Other ICT industries include:
- **3341 Computer and peripheral equipment manufacturing**
- **3342 Communications equipment manufacturing**
- **3344 Semiconductor and other electronic component manufacturing**
- **5112 Software publishers**
- **3343 Audio and video equipment manufacturing**
- **3344 Semiconductor and other electronic component manufacturing**
- **3346 Manufacturing and reproducing magnetic and optical media**
- **4173 Computer and communications equipment and supplies merchant wholesalers**
- **5112 Software publishers**
- **8112 Electronic and precision equipment repair and maintenance**

Source: Statistics Canada. Table 36-10-0402-01   Gross domestic product (GDP) at basic prices, by
industry, provinces and territories (x 1,000,000)

Table A - 8 Value Added, Major Industry Sectors, Yukon, 2017,
millions of chained 2012 dollars

Industries	2012 dollars
11 Agriculture, forestry, fishing and hunting	$4.2
21 Mining, quarrying, and oil and gas extraction	$265.4
22 Utilities	$40.9
23 Construction	$261.8
31-33 Manufacturing	$16.0
41 Wholesale trade	$36.7
51 Information and cultural industries	$73.4
52 Finance and insurance	$73.2
53 Real estate and rental and leasing	$355.3
54 Professional, scientific and technical services	$96.5
55 Management of companies and enterprises	$7.3
56 Administrative and support, waste management and remediation services	$31.2
61 Educational services	$130.4
62 Health care and social assistance	$208.6
71 Arts, entertainment and recreation	$11.8
72 Accommodation and food services	$75.0
81 Other services (except public administration)	$38.0
91 Public administration	$580.4
2017 Total	**$2,306.1**

Source: Statistics Canada. Table 36-10-0402-01   Gross domestic product (GDP) at basic prices, by
    industry, provinces and territories (x 1,000,000)

Table A - 9 Yukon ICT Sector Share of Yukon GDP, 1997 through 2017

	All industries ($ million in chained (2012) dollars)	Information and communication technology sector ($ million in chained (2012) dollars)	% of GDP
1997	1,558.9	17.3	1.1%
1998	1,486.0	26.7	1.8%
1999	1,482.8	29.5	2.0%
2000	1,535.2	36.6	2.4%
2001	1,599.1	40.0	2.5%
2002	1,584.8	44.4	2.8%
2003	1,570.9	41.9	2.7%
2004	1,647.9	43.8	2.7%
2005	1,684.7	45.3	2.7%
2006	1,763.1	50.1	2.8%
2007	1,852.9	51.7	2.8%
2008	2,032.1	54.9	2.7%
2009	2,158.7	55.9	2.6%
2010	2,252.5	63.7	2.8%
2011	2,362.5	67.5	2.9%
2012	2,456.5	66.7	2.7%
2013	2,493.5	67.8	2.7%
2014	2,509.7	69.5	2.8%
2015	2,319.0	68.4	2.9%
2016	2,481.3	68.5	2.8%
2017	2,553.2	68.8	2.7%

Source: Statistics Canada. Table 36-10-0402-01   Gross domestic product (GDP) at basic prices, by industry, provinces and territories

Table A - 10 Value Added, ICT Industries, 1997-2017, Yukon, millions of chained 2002 dollars

	5112 Software publishers	517 Telecommunications	518 Data processing, hosting, and related services	5415 Computer systems design and related services
1997	0.1		1.4	0.8
1998	0.0		0.6	1.0
1999	0.0		0.2	1.8
2000	0.0		0.2	2.5
2001	0.0		0.1	1.6
2002	0.0		1.2	1.7
2003	0.0		1.2	0.0
2004	0.0		1.1	2.9
2005	0.0		2.2	3.1
2006	0.0		0.9	4.3
2007	2.4	41.7	0.5	4.6
2008	1.5	43.9	1.8	4.1
2009	1.3	46.4	1.7	4.4
2010	1.4	53.5	1.3	5.1
2011	1.9	55.7	0.9	4.6
2012	0.0	55.6	0.2	5.0
2013	0.0	57.0	0.3	4.5
2014	0.0	59.7	0.2	3.5
2015	0.0	58.9	0.1	3.3
2016	0.0	59.5	0.1	2.9
2017	0.0	59.5	0.1	3.0

Source: Statistics Canada. Table 36-10-0402-01   Gross domestic product (GDP) at basic prices, by industry, provinces and territories (x 1,000,000)

Occupations, Employment and Incomes

Table A - 11 Number and % of Workers in ICT Occupations by Broad Industry Sector, Yukon, 2016

Industry	Number of workers in ICT occupations	% of total workers in ICT occupations
11 Agriculture, forestry, fishing and hunting	0	0.0%
21 Mining, quarrying, and oil and gas extraction	0	0.0%
22 Utilities	10	1.8%
23 Construction	10	1.8%
31-33 Manufacturing	20	3.5%
41 Wholesale trade	0	0.0%
44-45 Retail trade	25	4.4%
48-49 Transportation and warehousing	20	3.5%
51 Information and cultural industries	140	24.6%
52 Finance and insurance	0	0.0%
53 Real estate and rental and leasing	0	0.0%
54 Professional, scientific and technical services	110	19.3%
55 Management of companies and enterprises	0	0.0%
56 Administrative & support, waste management & remediation	10	1.8%
61 Educational services	10	1.8%
62 Health care and social assistance	20	3.5%
71 Arts, entertainment and recreation	0	0.0%
72 Accommodation and food services	0	0.0%
81 Other services (except public administration)	30	5.3%
91 Public administration	165	28.9%
Total	575	100.0%

Source: Statistics Canada, 2016 Census of Population, Catalogue no. 98-400-X2016298.

Table A - 12 Number and Sex of Employees in ICT industries, Yukon, 2016

Industry	Number of employees	Male	Female
3341 Computer and peripheral equipment manufacturing	0	0	0
3342 Communications equipment manufacturing	0	0	0
3343 Audio and video equipment manufacturing	0	0	0
3344 Semiconductor and other electronic component manufacturing	0	0	0
3346 Manufacturing and reproducing magnetic and optical media	0	0	0
4173 Computer and communications equipment and supplies wholesalers	10	10	0
5112 Software publishers	0	0	0
5171 Wired telecommunications carriers	275	160	110
5172 Wireless telecommunications carriers (except satellite)	30	30	0
5174 Satellite telecommunications	0	0	0
5179 Other telecommunications	0	0	0
5182 Data processing, hosting, and related services	0	0	0
5415 Computer systems design and related services	70	65	20
8112 Electronic and precision equipment repair and maintenance	35	30	0
Total	**420**	**280**	**130**

Source: Statistics Canada, 2016 Census of Population, Catalogue number: 98-400-X2016359
Note: Totals do not add up because of random rounding by Statistics Canada

Table A - 13 Median and Average Employment Income, ICT industries, Yukon 2016

Industries	Number of employment income recipients	Median employment income in 2015	Average employment income in 2015
3341 Computer and peripheral equipment manufacturing	0	$0	$0
3342 Communications equipment manufacturing	0	$0	$0
3343 Audio and video equipment manufacturing	0	$0	$0
3344 Semiconductor and other electronic component manufacturing	0	$0	$0
3346 Manufacturing and reproducing magnetic and optical media	0	$0	$0
4173 Computer and communications equipment and supplies wholesalers	10	$0	$0
5112 Software publishers	0	$0	$0
5171 Wired telecommunications carriers	275	$83,749	$80,353
5172 Wireless telecommunications carriers (except satellite)	30	$0	$0
5174 Satellite telecommunications	0	$0	$0
5179 Other telecommunications	0	$0	$0
5182 Data processing, hosting, and related services	0	$0	$0
5415 Computer systems design and related services	70	$42,419	$48,354
8112 Electronic and precision equipment repair and maintenance	35	$53,871	$40,624

Source: Statistics Canada, 2016 Census of Population, Catalogue number: 98-400-X2016359

Table A - 14 Sex of ICT workers, Yukon, 2016

Industry	Sex		
	Female	Male	Total
3341 Computer and peripheral equipment manufacturing	0	0	0
3342 Communications equipment manufacturing	0	0	0
3343 Audio and video equipment manufacturing	0	0	0
3344 Semiconductor and other electronic component manufacturing	0	0	0
3346 Manufacturing and reproducing magnetic and optical media	0	0	0
4173 Computer and communications equipment and supplies merchant wholesalers	0	0	0
5112 Software publishers	0	0	10
5171 Wired telecommunications carriers	110	160	270
5172 Wireless telecommunications carriers (except satellite)	0	20	30
5174 Satellite telecommunications	0	0	0
5179 Other telecommunications	0	0	0
5182 Data processing, hosting, and related services	0	0	0
5415 Computer systems design and related services	20	65	85
8112 Electronic and precision equipment repair and maintenance	0	30	30
Total	130	275	425

Source: Statistics Canada, 2016 Census of Population, Catalogue number: 98-400-X2016292

Table A - 15 Number of Employees by 10-Year Age Group in ICT Industries, Yukon, 2016

Industries	15 to 24 years	25 to 29 years	25 to 34 years	30 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 + years	All Ages
3341 Computer and peripheral equipment manufacturing	0	0	0	0	0	0	0	0	0
3342 Communications equipment manufacturing	0	0	0	0	0	0	0	0	0
3343 Audio and video equipment manufacturing	0	0	0	0	0	0	0	0	0
3344 Semiconductor and other electronic component manufacturing	0	0	10	0	0	0	0	0	0
3346 Manufacturing and reproducing magnetic and optical media	0	0	0	0	0	0	0	0	0
4173 Computer and communications equipment and supplies merchant wholesalers	0	0	0	0	0	0	0	0	0
5112 Software publishers	0	0	0	0	0	0	0	0	10
5171 Wired telecommunications carriers	10	20	40	15	70	110	40	10	270
5172 Wireless telecommunications carriers (except satellite)	0	0	0	0	15	10	0	0	30
5174 Satellite telecommunications	0	0	0	0	0	0	0	0	0
5179 Other telecommunications	0	0	0	0	0	0	0	0	0
5182 Data processing, hosting, and related services	0	0	0	0	0	0	0	0	0
5415 Computer systems design and related services	0	15	20	0	15	30	15	0	85
8112 Electronic and precision equipment repair and maintenance	0	15	15	0	0	0	0	0	30
Total	10	50	85	15	100	150	55	10	425

Source: Statistics Canada, 2016 Census of Population, Catalogue number: 98-400-X2016359

Table A - 16 Number of Individuals in ICT Occupations by National Occupation Code, Yukon, by Sex, 2016

	Female	Male	Total
0131 Telecommunication carrier managers	15	35	50
0213 Computer and information systems managers	10	50	55
1422 Data entry clerks	10	0	15
1423 Desktop publishing operators and related occupations	0	0	0
2133 Electrical and electronics engineers	0	15	15
2147 Computer engineers (except software engineers and designers)	0	10	10
2171 Information systems analysts and consultants	30	50	75
2172 Database analysts and data administrators	20	25	40
2173 Software engineers and designers	0	10	10
2174 Computer programmers and interactive media developers	10	15	20
2175 Web designers and developers	0	20	20
2241 Electrical and electronics engineering technologists and technicians	10	20	20
2242 Electronic service technicians (household and business equipment)	0	90	95
2281 Computer network technicians	25	75	95
2282 User support technicians	0	15	20
2283 Information systems testing technicians	0	0	0
7245 Telecommunications line and cable workers	0	10	10
7246 Telecommunications installation and repair workers	0	30	30
9222 Supervisors, electronics manufacturing	0	0	0
9523 Electronics assemblers, fabricators, inspectors and testers	0	0	0
Total	130	470	580

Source: Statistics Canada, 2016 Census of Population, Statistics Canada Catalogue no. 98-400-X2016294.

Table A - 17 Number of Individuals in ICT Occupations by National Occupation Code, Yukon, by Age, 2016

	15 to 24 years	25 to 29 years	25 to 34 years	30 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	25 to 64 years	65 to 74 years	75 years +	Total
0131 Telecommunication carrier managers	0	10	10	0	20	20	0	50	0	0	50
0213 Computer and information systems managers	0	0	0	0	15	20	10	50	10	0	55
1422 Data entry clerks	10	10	10	0	0	0	0	10	0	0	15
1423 Desktop publishing operators and related occupations	0	0	0	0	0	0	0	0	0	0	0
2133 Electrical and electronics engineers	0	0	0	10	0	0	0	10	0	0	15
2147 Computer engineers (except software engineers and designers)	0	0	0	0	0	0	10	0	0	0	10
2171 Information systems analysts and consultants	10	10	10	0	15	25	15	60	0	0	75
2172 Database analysts and data administrators	0	10	10	10	10	20	10	45	0	0	40
2173 Software engineers and designers	0	10	10	0	0	0	0	10	0	0	10
2174 Computer programmers and interactive media developers	0	0	0	0	0	15	0	20	0	0	20
2175 Web designers and developers	10	0	0	0	10	0	0	10	0	0	20
2241 Electrical and electronics engineering technologists and technicians	10	0	0	0	0	10	0	10	0	0	20
2242 Electronic service technicians (household and business equipment)	10	15	20	10	25	30	10	85	0	0	95
2281 Computer network technicians	10	0	25	15	25	25	10	85	0	0	95
2282 User support technicians	0	0	0	0	0	10	10	20	0	0	20
2283 Information systems testing technicians	0	0	0	0	0	0	0	0	0	0	0

	15 to 24 years	25 to 29 years	25 to 34 years	30 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	25 to 64 years	65 to 74 years	75 years +	Total
7245 Telecommunications line and cable workers	0	0	0	0	10	0	0	0	0	0	10
7246 Telecommunications installation and repair workers	0	10	15	0	0	10	15	35	0	0	30
9222 Supervisors, electronics manufacturing	0	0	0	0	0	0	0	0	0	0	0
9523 Electronics assemblers, fabricators, inspectors and testers	0	0	0	0	0	0	0	0	0	0	0
Total	60	75	110	45	130	185	90	500	10	0	580

Source: Statistics Canada, 2016 Census of Population, Statistics Canada Catalogue no. 98-400-X2016281.

Table A - 18 Number of Individuals in ICT Occupations by National Occupation Code, Yukon, by Employment Status, 2016

	Employed	Unemployed	Total
0131 Telecommunication carrier managers	50	0	50
0213 Computer and information systems managers	55	0	55
1422 Data entry clerks	10	0	15
1423 Desktop publishing operators and related occupations	0	0	0
2133 Electrical and electronics engineers	15	0	15
2147 Computer engineers (except software engineers and designers)	0	0	10
2171 Information systems analysts and consultants	75	0	75
2172 Database analysts and data administrators	35	10	40
2173 Software engineers and designers	10	0	10
2174 Computer programmers and interactive media developers	20	0	20
2175 Web designers and developers	15	10	20
2241 Electrical and electronics engineering technologists and technicians	25	0	20
2242 Electronic service technicians (household and business equipment)	85	10	95
2281 Computer network technicians	95	0	95
2282 User support technicians	15	0	20
2283 Information systems testing technicians	0	0	0
7245 Telecommunications line and cable workers	10	0	10
7246 Telecommunications installation and repair workers	30	0	30
9222 Supervisors, electronics manufacturing	0	0	0
9523 Electronics assemblers, fabricators, inspectors and testers	0	0	0
Total	545	30	580

Source: Statistics Canada, 2016 Census of Population, Statistics Canada Catalogue no. 98-400-X2016294.

Table A - 19 Number of Individuals in ICT Occupations by National Occupation Code, Yukon, by Self-Employment Status, 2016

	All workers	Employees	Self-employed
0131 Telecommunication carrier managers	50	45	0
0213 Computer and information systems managers	55	50	10
1422 Data entry clerks	15	10	0
1423 Desktop publishing operators and related occupations	0	0	0
2133 Electrical and electronics engineers	15	15	0
2147 Computer engineers (except software engineers and designers)	10	0	0
2171 Information systems analysts and consultants	75	65	10
2172 Database analysts and data administrators	40	40	0
2173 Software engineers and designers	10	10	0
2174 Computer programmers and interactive media developers	20	15	10
2175 Web designers and developers	20	15	10
2241 Electrical and electronics engineering technologists and technicians	20	20	0
2242 Electronic service technicians (household and business equipment)	95	70	20
2281 Computer network technicians	95	100	0
2282 User support technicians	20	15	0
2283 Information systems testing technicians	0	0	0
7245 Telecommunications line and cable workers	10	10	0
7246 Telecommunications installation and repair workers	30	35	0
9222 Supervisors, electronics manufacturing	0	0	0
9523 Electronics assemblers, fabricators, inspectors and testers	0	0	0
Grand Total	580	515	60

Source: Statistics Canada Census 2016, 98-400-X2016375

Table A - 20 Median and Average Income of ICT occupations, Yukon and Canada, 2015

Occupation	Number of employment income recipients	Median employment income	Average employment income
YUKON			
0131 Telecommunication carriers managers	50	$104,023	$103,397
0213 Computer and information systems managers	55	$102,745	$98,092
2171 Information systems analysts and consultants	75	$79,460	$76,081
2172 Database analysts and data administrators	45	$87,063	$74,455
2242 Electronic service technicians (household and business equipment)	85	$53,799	$47,401
2281 Computer network technicians	95	$73,163	$67,993
7246 Telecommunications installation and repair workers	30	$82,033	$79,092
	435		
All Yukon workers	22,040	$46,648	$52,909
CANADA			
0131 Telecommunication carriers managers	14,235	$89,535	$99,521
0213 Computer and information systems managers	63,465	$99,688	$109,681
1422 Data entry clerks	39,535	$29,993	$31,556
1423 Desktop publishing operators and related occupations	1,735	$44,620	$49,819
2133 Electrical and electronics engineers	46,405	$89,942	$97,434
2147 Computer engineers (except software engineers and designers)	23,470	$87,918	$92,350
2171 Information systems analysts and consultants	159,895	$74,932	$76,121
2172 Database analysts and data administrators	21,675	$73,204	$74,828
2173 Software engineers and designers	47,545	$84,606	$88,987
2174 Computer programmers and interactive media developers	104,085	$68,788	$69,345
2175 Web designers and developers	25,735	$38,794	$42,382
2241 Electrical and electronics engineering technologists and technicians	44,490	$60,536	$64,687

Occupation	Number of employment income recipients	Median employment income	Average employment income
2242 Electronic service technicians (household and business equipment)	50,655	$43,969	$45,893
2281 Computer network technicians	67,625	$59,364	$61,327
2282 User support technicians	43,820	$50,763	$54,204
2283 Information systems testing technicians	9,925	$51,064	$51,809
7245 Telecommunications line and cable workers	10,680	$55,778	$57,329
7246 Telecommunications installation and repair workers	27,540	$58,477	$58,817
9222 Supervisors, electronics manufacturing	1,755	$57,926	$62,979
9523 Electronics assemblers, fabricators, inspectors and testers	15,795	$32,993	$35,933
All Canadian workers	**18,499,405**	**$37,231**	**$49,447**

Source: Statistics Canada, 2016 Census of Population, Statistics Canada Catalogue no. 98-400-X2016359.

Table A - 21 Percentage of workers in ICT Occupations by highest level of education, Yukon 2016

	No certificate, diploma or degree	Secondary (high) school diploma or equivalency certificate	Trades certificate or diploma other than Certificate of Apprenticeship or Certificate of	Certificate of Apprenticeship or Certificate of Qualification	College, CEGEP or other non-university certificate or diploma	University certificate or diploma below bachelor level	Bachelor's degree	University certificate, diploma or degree above bachelor level
0131 Telecommunication carriers managers	2.1%	20.2%	2.9%	1.7%	28.1%	4.4%	28.7%	12.0%
0213 Computer and information systems managers	1.1%	9.8%	1.2%	0.5%	26.0%	4.3%	37.6%	19.5%
1422 Data entry clerks	6.7%	37.2%	3.8%	1.2%	27.4%	2.6%	16.9%	4.2%
1423 Desktop publishing operators and related occupations	7.2%	29.0%	5.8%	4.4%	26.5%	4.7%	17.4%	5.0%
2133 Electrical and electronics engineers	0.0%	1.7%	0.7%	1.2%	10.1%	2.3%	57.4%	26.5%
2147 Computer engineers (except software engineers and designers)	0.0%	4.9%	1.2%	0.7%	18.5%	3.1%	45.2%	26.4%
2171 Information systems analysts and consultants	0.0%	9.9%	1.1%	0.4%	26.1%	4.1%	39.4%	18.8%
2172 Database analysts and data administrators	0.0%	9.9%	1.3%	0.3%	24.2%	3.7%	39.4%	21.1%
2173 Software engineers and designers	0.0%	6.8%	0.3%	0.2%	11.1%	2.3%	49.0%	30.2%
2174 Computer programmers and interactive media developers	0.0%	10.0%	0.9%	0.4%	23.4%	3.0%	43.2%	19.0%
2175 Web designers and developers	0.1%	16.5%	1.5%	0.6%	31.9%	4.2%	34.3%	10.9%
2241 Electrical and electronics engineering technologists and technicians	1.9%	14.3%	5.8%	7.0%	52.9%	3.9%	10.4%	3.9%
2242 Electronic service technicians (household and business equipment)	6.1%	26.3%	7.9%	6.2%	36.8%	3.0%	10.9%	2.8%
2281 Computer network technicians	2.1%	15.6%	3.6%	1.2%	44.2%	4.4%	22.0%	6.9%
2282 User support technicians	2.3%	19.4%	4.6%	1.4%	37.9%	3.8%	23.5%	7.1%
2283 Information systems testing technicians	1.9%	18.4%	1.7%	0.4%	24.1%	3.0%	35.6%	14.9%
7245 Telecommunications line and cable workers	8.1%	38.5%	10.3%	8.0%	26.5%	1.4%	5.7%	1.5%
7246 Telecommunications installation and repair workers	4.3%	27.9%	10.5%	5.4%	35.1%	3.2%	10.2%	3.3%

	No certificate, diploma or degree	Secondary (high) school diploma or equivalency certificate	Trades certificate or diploma other than Certificate of Apprenticeship or Certificate of	Certificate of Apprenticeship or Certificate of Qualification	College, CEGEP or other non-university certificate or diploma	University certificate or diploma below bachelor level	Bachelor's degree	University certificate, diploma or degree above bachelor level
9222 Supervisors, electronics manufacturing	8.8%	27.3%	5.2%	3.0%	29.6%	1.9%	17.4%	6.6%
9523 Electronics assemblers, fabricators, inspectors and testers	15.8%	36.3%	7.0%	2.9%	19.5%	3.0%	12.0%	3.5%
All ICT occupations	1.9%	14.7%	2.8%	1.7%	28.3%	3.5%	32.4%	14.7%
Total Yukon labour force (all occupations)	4.8%	24.8%	3.2%	5.6%	28.8%	1.6%	20.8%	10.4%

BACKGROUND: PREVIOUS STUDIES

Luigi Zanasi and Malcolm Taggart were collaborators in two previous studies of the tech industry in the Yukon. The two are very dated, however, key findings from each are summarized below.

In 2013 the Yukon Information Technology Industry Society (YITIS), the predecessor organization to Tech Yukon, produced a strategic plan for the industry through BDC with assistance from the Technology and Telecommunications Development Directorate (T2D2) of the Yukon government. Key findings are summarized in Section 3.

In 2014 YITIS, working with Kinghorn Consulting and with assistance from T2D2, produced an implementation plan for the ICT sector. Key findings are summarized in Section 4.

1. YUKON INFORMATION TECHNOLOGY (IT) LABOUR MARKET SURVEY, 2002

The October 2002 labour market survey, with Luigi Zanasi as lead author, was intended to:

- Describe the current IT labour market in the Yukon;
- Forecast the future labour market demand for IT workers in the Yukon; and,
- Develop a detailed problem statement on Yukon IT training and development.

Key findings included:

- The Yukon's IT sector is composed of about 60 firms or establishments employing about 220 people working in IT occupations. Two major employers are of note: the Yukon government ICT branch and NorthwesTel, each employing just under 40 people. The rest of both the private and public sector is made up of smaller employers. All are small by national standards;
- The small size and relatively unspecialized nature of the employers means that most workers need to be flexible and require multiple skill sets. Yukon IT workers do not readily fit into National Occupational Classification categories; their work tends to overlap these;
- Most IT workers do not require a computer science degree. The most common educational requirement was for a 2-year technical college diploma (40% of jobs);
- The sector has high job turnover and a very high rate of attrition as job-leavers tend to leave the territory;
- Forecast requirements are for between 25 and 35 job openings per year in the Yukon IT job market every year, reflecting the relatively large amount of turnover in the industry. Only about five of these annual job openings will be new positions. About 60% of hires are expected to be Yukon residents.
- There does not appear to be large-scale skill shortages in the Yukon. Potential shortages are easily mitigated by importing labour; and,
- Educational programs aimed at the Yukon IT labour market need to develop multi-skilled individuals.

2. YUKON INFORMATION TECHNOLOGY: MARKET RESEARCH STUDY, 2003

The June 2003 market research study, with Luigi Zanasi as lead author, was intended to:

- Provide a baseline measurement of the extent and types of IT use by Yukon businesses;
- Measure business expenditures on IT-related products and services, including imported products and services;
- Measure trends related to import as well as export of IT products and services using both baseline and market potential data; and,
- Obtain potential demand information required for a study on the feasibility of a Yukon internet portal.

Key findings included:

- Approximately 80% of Yukon businesses use information technology (IT), about the same as the Canadian average despite the smaller size of Yukon businesses;
- The 18% of businesses that do not use IT tend to have fewer employees and to be concentrated in the personal service and construction industries;
- About 80 per cent of Yukon private sector enterprises use personal computers with 91% using the Windows operating system;
- PCs were considered essential for the function of the firm by over 75% of respondents who owned one;
- On average, Yukon enterprises spent about $1,460 on personal computer purchases and an additional $440 on support for their PCs;
- Intranet or networks are more prevalent in the Yukon (31% of enterprises) than in the rest of Canada, where only 15% of enterprises had an intranet or network;
- The market for intranet/network support in the Yukon is about $180,000, of which $84,000 was purchased from Yukon firms, $76,000 was done in-house, and about $23,000 spent Outside. Firms with a network or intranet spent an average of $488 on support in the last year;
- Fewer than 10% of IT-using firms reported using a mainframe or server (8% of the total sample);
- About 18% of Yukon private sector firms owned specialized hardware in 2002. The private-sector Yukon market for specialized hardware is close to $1 million, of which $0.4 million was spent in the Yukon;
- More than three-quarters of Yukon enterprises use the internet (email and web), about the same as for Canada in 2002. Most use both the WWW and email. Cable is the most popular means of Internet access (40% of enterprises interviewed), followed by dial-up and DSL;
- On average, Yukon businesses spent about $600 on Internet access in the past year;
- 32% of the sample had a company web site, about the same as the rest of Canada in 2002. Close to 9% of all Yukon enterprises (27% of those with a Web site) used their site for electronic commerce, and of those, 6% can accept secure on-line payments. The percentages for e-commerce are in the same range as for Canada in 2000; and,
- Average web site hosting expenditures for those who knew their costs were $435 for firms with web sites. Design expenses amounted to an average of $3,425 while web site maintenance and update expenses average $880.

3. YUKON ICT SECTOR STRATEGIC PLAN, 2013

The strategic plan covered a broad range of issues from the industry's size and growth through challenges and opportunities to vision and specific goals to be met by the end of 2017.

Industry Size and Growth
- In the 2010 Yukon Business Survey, 80 Yukon businesses with a total of 576 employees identified as having ICT as a primary or secondary industry.
- The figures are heavily skewed by the presence of NorthwesTel, which accounts for almost all the employees in the telecommunications industry. As such, the industry is more accurately characterized as comprising mainly small companies, similar to the national ICT sector.
- in the 'Professional, Scientific and Technical Services' category, which includes software development and ICT support services, and accounts for 64 per cent of firms, the average size of firm is 2.4 employees. Furthermore, 40 per cent of firms made gross revenue less than $50,000 in 2009.
- Note, the survey figures above do not include an estimated 200+ additional ICT employees who either work in government or in private sector businesses that do not have ICT as a primary or secondary industry.
- The Yukon ICT sector contributed approximately $48 million to Yukon GDP in 2011. Between 2002 and 2011, contribution to GDP of the Canada ICT sector grew by 28.3 per cent. Over the same period, however, the contribution of the Yukon ICT sector grew by 11.6 per cent.

Assets and Core Competencies

Assets and core competencies include:

- A highly skilled workforce, comprised of more than 500 professionals working in ICT as a primary or secondary industry, and an estimated 200+ ICT professionals working within government and non-ICT industry;
- Large customers and employers, e.g., Yukon Government, NorthwesTel and First Nations governments are significant purchasers of local ICT products and services and employers of ICT workers;
- Yukon Government practice of setting ICT contract size and scope to enable local firms to compete;
- Local, northern and government-specific knowledge;
- Access to key influencers and decision makers in government and private business, as a result of the small market size;
- Close-knit community of suppliers is positioned for stronger collaboration to network, build critical mass, and pursue joint ventures;
- Government is willing to invest in partnerships with local ICT firms and Yukon College is prepared to develop training programs based on industry needs;
- A growing number of mid-sized software and telecommunications firms are able to sell their products and services outside the Yukon, positioning for increased exports.
- Internet infrastructure and resources that can be leveraged for greater value;
- Established organizations funding innovation and commercialization of ICT products and services (e.g., Yukon Technology Innovation Centre) and providing business mentoring;

- Access to the South via Internet and air connections, to enable the critical face-to-face aspect of business development;
- First Nations governments with capital to invest and desire to create jobs and effective government programs;
- Quality of life and lifestyle opportunities to attract new resident workers, combined with sufficient Internet service and air access to retain them.
- Distinct core competencies of the Yukon ICT sector include expertise in software solutions for small communities and government services, expertise in telecommunications for rural and remote locations, and cold climate research.

Challenges and Opportunities

Limited telecommunications infrastructure:

- Current broadband speeds available in the Yukon will support basic applications such as email, social networking, and online banking, but will not allow consistent delivery of data-heavy activities which citizens can expect to rely on for the delivery of public services, distance education and training, and e-health services.
- During initial consultations for this plan, cell phone coverage outside of Whitehorse was reported to be weak and limited to CDMA-based access.
- Recent improvements have resulted in 70% of the Yukon population outside Whitehorse having access to 4G HSPA coverage.
- Nevertheless, the gaps in coverage still present a challenge to adoption and use of ICT technologies in an age when products and services are increasingly accessed through mobile technology.

Expensive internet services:

- Both Yukoners and Yukon businesses have identified low affordability of Internet services as a key obstacle to creativity and innovation, as well as increased adoption and use of ICT.

Reliance on the Yukon government as a customer:

- The domestic market is dominated by the Yukon Government (YG), thus, the success and growth of the Yukon ICT sector is tightly linked to not only government capital and operating budgets, but also the effectiveness of the government's ICT budget planning and procurement processes.

Access to ICT skills and capacity:

- Yukon ICT businesses find it challenging to hire qualified resources for a number of reasons:
  o The level of training in ICT that is available locally has diminished dramatically in recent years.
  o Given the typical size of firms in the Yukon ICT sector, the requirement is typically for more generalist ICT skills. This is against a broader trend toward ICT resources becoming more specialized as technology advances.
  o Wages in the Yukon ICT sector are reportedly not competitive with other markets, such as Calgary.
  o Attracting skilled labour into the Yukon is also challenged by the cost of living in the Yukon, relative to wages.

Lack of scale:

- There is a lack of scale on both the demand and supply sides that challenges the Yukon ICT sector in planning and executing effective long-term investments.
- The sector is characterized by many small businesses, including numerous sole proprietors that lack the management capacity or access to capital and economies of scale required to grow to the next level.
- On the demand side, the domestic customer base is relatively small, limiting the growth of those ICT businesses that do not export their products and services.
- There is significant 'latent' demand in the small business sector. Many small businesses are reportedly under-utilizing technology due to poor experience with IT service providers.

Limited competitive advantages:

- Due to the challenges described above, the Yukon ICT sector does not have an outstanding competitive advantage to drive and support growth of export markets. Exceptions include:
  - Development, commercialization and export of technologies and solutions, and associated services, for the growing mining industry
  - Development, commercialization and export of sustainable cold climate technologies and related solutions for subarctic regions around the world.

Goals
- This plan envisions that by the end of 2017 the contribution of the ICT sector to Yukon GDP will have increased by 50 per cent, from $48 million (2011; in chained 2002 dollars) to $72 million.
- This growth will be driven by the ICT Services sub-sector, including software development; systems support services, telecommunications services and Internet services.
- In 2017, the ICT sector will be characterized by a greater number of SMEs, but also a greater number of larger SMEs (in both revenues and number of employees) through the scaling up of micro businesses that have been able to leverage the strategies set out in this plan to invest in and grow their businesses.

Strategies to achieve goals

- Increase broadband penetration.
- Foster industry collaboration.
- Enhance Yukon Government procurement policies and processes.
- Improve access to skills and resources.
- Improve marketing and communications for the domestic market.
- Focus on research and development that solves local problems and leverages the competitive advantages of Yukon firms.

4. YUKON ICT SECTOR STRATEGIC IMPLEMENTATION PLAN, 2014

The scope of this plan was: "To create a detailed plan that defines how to grow the ICT sector in the Yukon, and which considers how the ICT sector can support growth in other industries".

The implementation plan modified some of the strategies presented in the 2013 *Yukon ICT Sector Strategic Plan* as summarized in the following table:

FROM	TO
1. Increase broadband penetration	1. Ensure broadband supports the growth of the ICT and other sectors
2. Foster industry collaboration	2. Foster ecosystem collaboration
3. Strengthen role of YITIS	3. Strengthen role of YITIS
4. Enhance Yukon Government procurement policies	4. Enhance procurement and the supply chain
5. Improve access to skills and resources	5. Improve access to skills and resources
6. Focus on R&D to solve local problems and export Yukon ICT	6. Innovation and commercialization
7. Improve marketing and communication to the domestic market	7. Improve marketing and communication to the export market

Goals
1. Vibrant and growing ICT sector contributing significantly to GDP
2. Yukon economic growth enabled by the ICT sector
3. Affordable and reliable ICT services

Strategies
1. Ensure broadband supports the growth of the ICT and other sectors: Make the Yukon a competitive jurisdiction with respect to cost, penetration and reliability and remove obstacles restricting adoption.
2. Foster ecosystem collaboration: Create a community of enterprises that are linked with common interests and incentives to collaborate and grow the ICT sector. Within the ecosystem are anchor companies who train people to run companies, retain talent, help create spin off companies and redirect profits into R&D.
3. Strengthen role of YITIS: Strengthen the capacity of YITIS to execute on the strategic plan as well as delivering its stated mandate.
4. Enhance procurement and the supply chain: Improve the procurement process across the ecosystem, providing predictability for investment, including strategic reviews, import substitution, utilization of local ICT services, pooled purchasing and collaboration.
5. Improve access to skills and resources: Identify opportunities to attract and retain people in the Yukon, leveraging career planning, mentorship programs and creating great projects for people.
6. Innovation and commercialization: Support innovation and commercialization by providing the infrastructure, financial incentives, process of introducing new products and services, and the support for companies to compete globally.

7. Strengthen export capability: Improve marketing and communication to the export market, defining the Yukon's competitive advantage, strengthening export competencies and supporting individual companies to export.

Metrics

The key metrics used to measure progress toward the strategy's goals include:

- ICT sector contribution to total GDP: 3.5% (2017)
- Number of ICT companies: 100 (2017)
- Number of non-government ICT employees: 1,000 (2017)
- Number of good ICT projects: 5 per year (2014-2017)
- Engagement of anchor companies: 100% (2014-2017)
- YG/Crown Corps/City % purchasing local ICT versus outside (TBD)
- Number of YITIS members: 75% of ICT sector (2017)
- Revenues from new products and services launched (last 3 years) (TBD)
- Revenue target of the qualified pipeline (TBD)
- Revenue from exports (TBD)