



**RESEARCH**

**QUARTERLY MONITOR  
OF CANADA'S ICT LABOUR MARKET**

**The Information and Communications Technology Council | 2020 Q4**





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## **Preface:**

ICTC is a national center of expertise on the digital economy. With over 25 years of experience in research and program development related to technology, ICTC has the vision of strengthening Canada's digital advantage in the global economy. Through forward-looking research, evidence-based policy advice, and creative capacity building programs, ICTC fosters innovative and globally competitive Canadian industries, empowered by a talented and diverse workforce.

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The opinions and interpretations in this publication are those of the authors and do not necessarily reflect those of the Government of Canada.



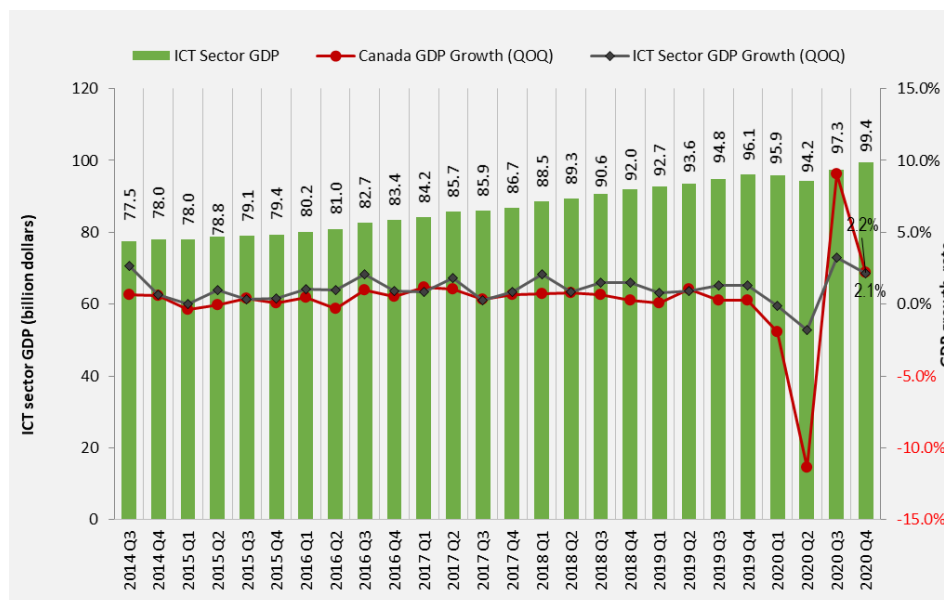
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## OUTPUT AND OUTLOOK

### GDP Growth

Figure 1 – ICT sector GDP



Source: ICTC; Statistics Canada

### Analysis and Insights

- ❖ After suffering a mild decline in the second quarter<sup>1</sup> (Q2) of 2020, the ICT sector demonstrated strong growth in both the third quarter<sup>2</sup> (Q3) and fourth quarter<sup>3</sup> (Q4) of 2020.
- ❖ Real GDP<sup>4,5</sup> in the ICT sector grew by 2.1% in Q4 of 2020 when compared to Q3 of 2020. The ICT services<sup>6</sup> subsector grew by 2.2%, while the ICT manufacturing<sup>7</sup> subsector grew by 0.6%.
- ❖ The Canadian economy as a whole grew by 2.2% in Q4. This is the second consecutive quarter in which the growth of the wider Canadian economy has exceeded the growth of the ICT sector (in Q3, the ICT sector grew by 3.3% while the wider Canadian economy grew by 9.1%).
- ❖ The ICT sector contributed approximately \$99.4 billion in GDP to Canada's economy, accounting for roughly 5.1% of Canada's total economic output (GDP). This is a decline from Q3, when the ICT sector contributed approximately \$97.3 billion in GDP, representing 5.2% of Canada's total economic output. The ICT sector occupies a marginally larger position in the Canadian economy than it did at the start of the COVID-19 pandemic, accounting for 4.9% of the Canadian economy in Q1<sup>8</sup> of 2020.

<sup>1</sup> April 2020 – June 2020

<sup>2</sup> July 2020 – September 2020

<sup>3</sup> October 2020 – December 2020

<sup>4</sup> In 2012 chained dollars. Chained dollars are real dollar amounts adjusted for inflation.

<sup>5</sup> The underlying concepts, methods, classification systems, and data sources of the Canadian System of Macroeconomic Accounts (CSMA) have been recently updated, and these modifications are reflected in the GDP levels compared to previous editions of this research series

<sup>6</sup> This combines the North American Industry Classification System (NAICS) codes 4173, 5112, 517, 518, 5415, 8112. See Appendices

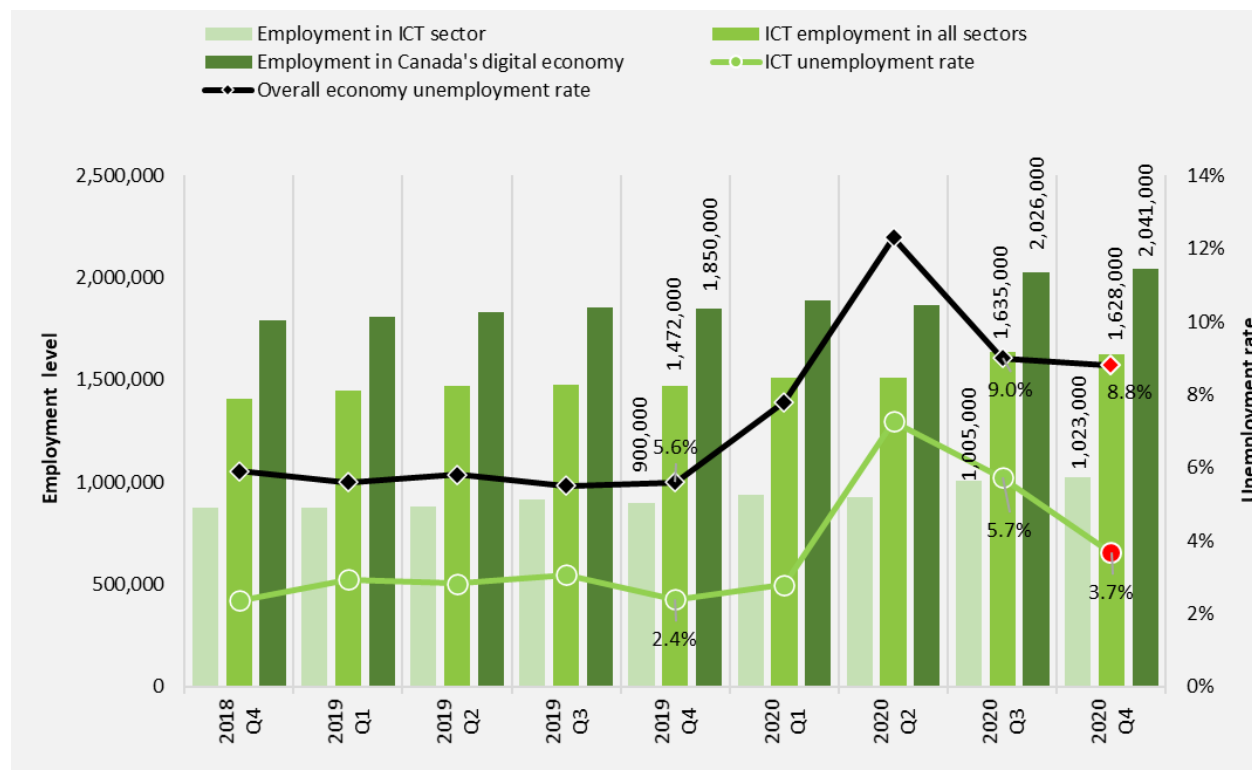
<sup>7</sup> This combines the North American Industry Classification System (NAICS) codes 3341, 3342, 3343, 3344, 3346. See Appendices

<sup>8</sup> January 2020 – March 2020

## LABOUR MARKET TRENDS

### Employment

Figure 2 – Employment in Canada’s digital economy



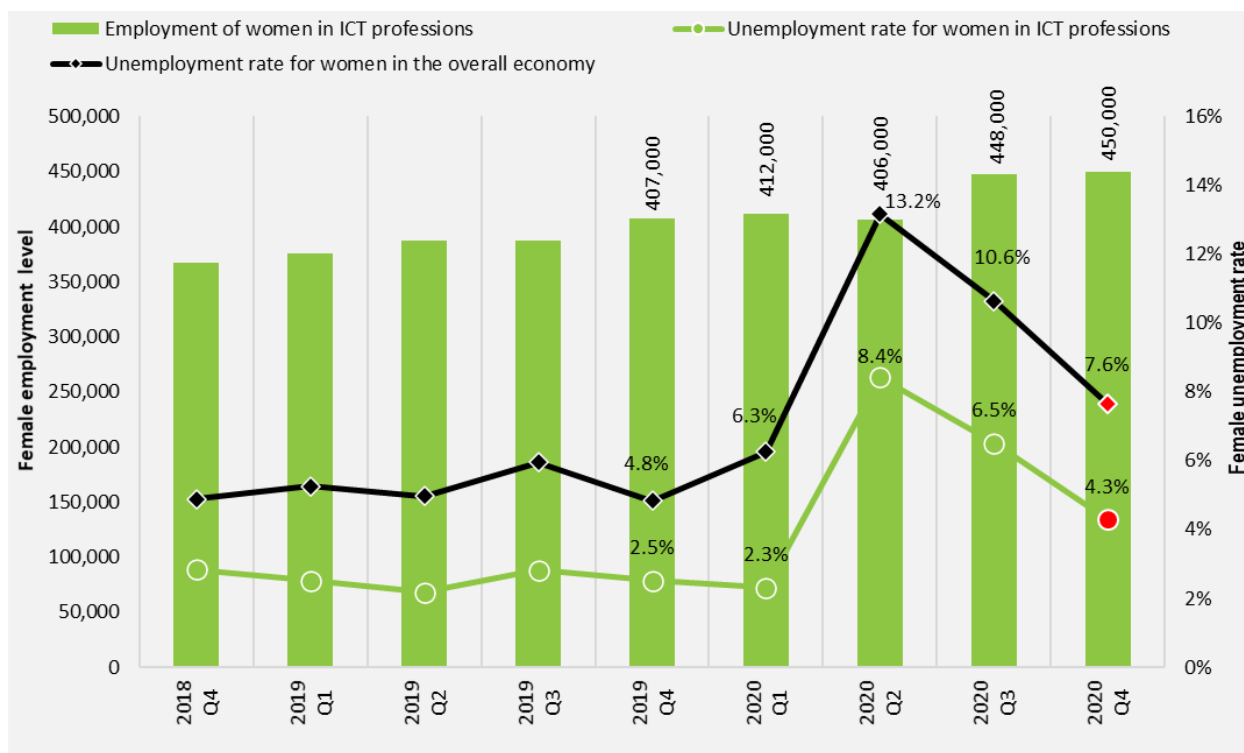
Source: ICTC; Statistics Canada

### Analysis and Insights

- ❖ An estimated 2,041,000 individuals were employed across the Canadian digital economy in Q4 of 2020. This included 609,200 ICT professionals working in the ICT sector; 1,018,300 ICT professionals working in non-ICT sectors; and 413,300 non-ICT professionals working in the ICT sector.
- ❖ In Q4 of 2020, there were approximately 1,628,000 ICT professionals employed across all sectors of the Canadian economy. This represented a decrease of 0.4% or approximately 7,000 jobs when compared to Q3 of 2020. Compared to the same period last year, ICT employment experienced an increase of 10.6%, resulting in a net gain of approximately 156,400 positions.
- ❖ Employment in the Canadian ICT sector increased by 1.8% or 18,000 jobs in Q4 of 2020 when compared to Q3 of 2020. On a year-over-year basis, employment in the ICT sector rose by 13.7%, corresponding to a net increase of 122,400 jobs.
- ❖ The unemployment rate among ICT professionals dropped from 5.7% in Q3 of 2020 to 3.7% in Q4 of 2020, while the national unemployment rate dropped from 9.0% to 8.8%.

## Gender Diversity

Figure 3 – Women’s employment and unemployment



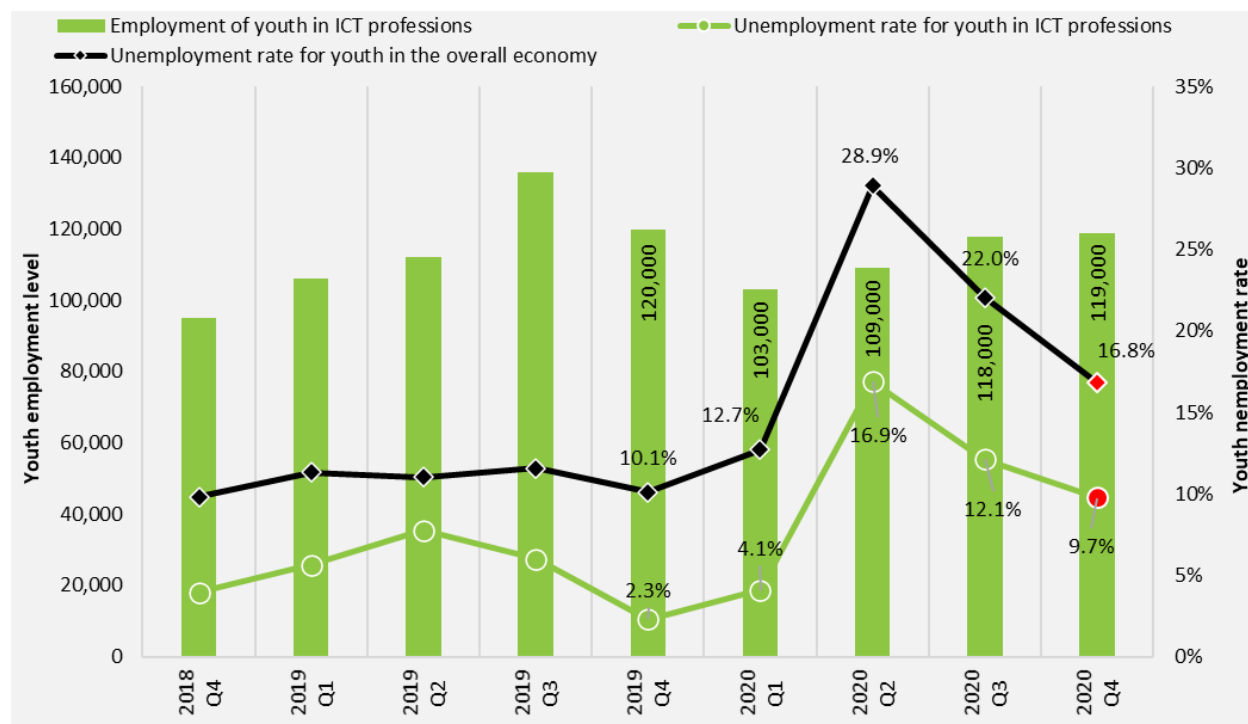
Source: ICTC; Statistics Canada

### Analysis and Insights

- ❖ The number of women employed as ICT professionals grew by 2,000 to reach 450,000 in Q4 of 2020. This represented an increase of 0.4% from Q3 of 2020, and an increase of 10.6% from Q4 of 2019.
- ❖ The share of women among ICT professionals increased slightly in Q4 of 2020. Women accounted for 27.6% of the employed ICT workforce in Canada, compared to 27.4% in Q3 of 2020. Women represent the exact same proportion of ICT professionals as they did in Q4 of 2019, a sign that the COVID-19 pandemic has had little to no effect on female participation in the tech workforce.
- ❖ The unemployment rate among women in ICT-related professions decreased from 6.5% in Q3 to 4.3% in Q4 of 2020. The national unemployment rate among women in all sectors decreased from 10.6% to 7.6% over the same period.

## Youth Inclusion

Figure 4 – Youth employment and unemployment



Source: ICTC; Statistics Canada

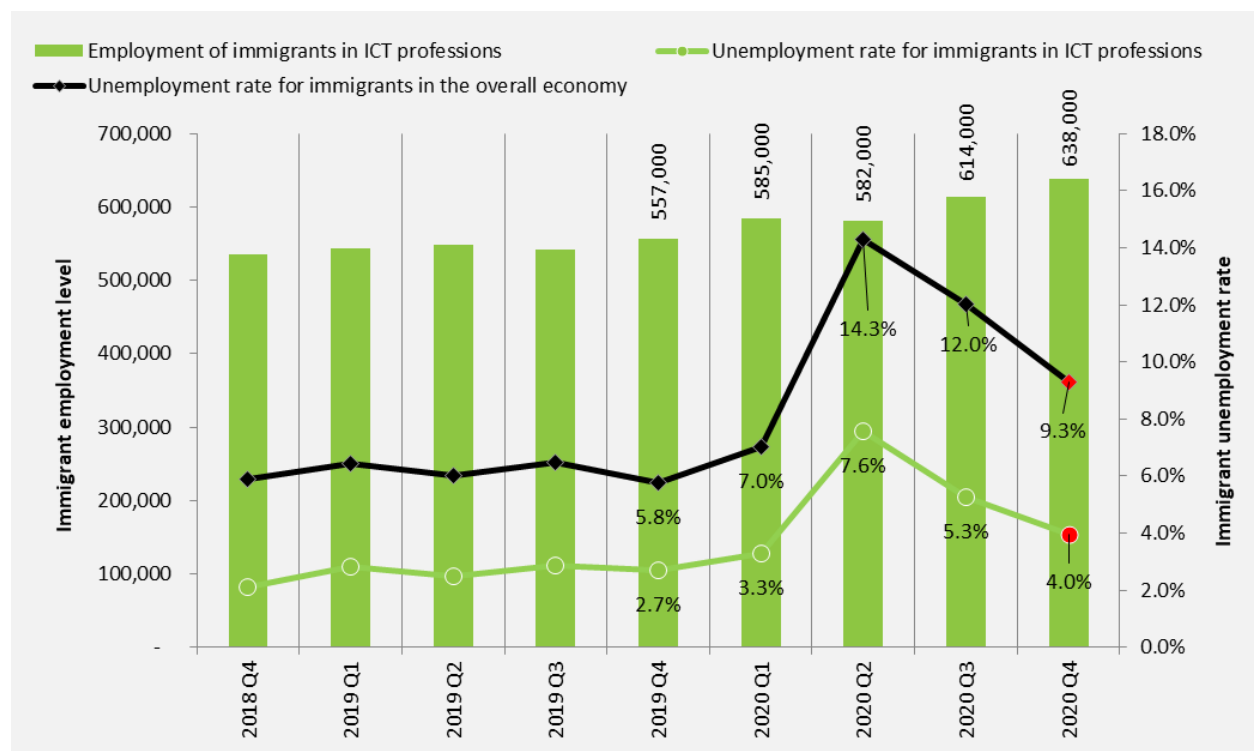
### Analysis and Insights

- ❖ Youths (15-24 years old) accounted for 11.9% of the employed workforce in Canada in Q4 of 2020. The share of youth among ICT professionals edged up to 7.3%. In total, 119,000 youth worked as ICT professionals in Q4 of 2020.
- ❖ ICT employment among youth increased by 0.8% or approximately 1,000 jobs in Q4 of 2020, compared to Q3 of 2020. Year over year, youth employment in ICT decreased by 0.8%, corresponding to a net loss of approximately 1,000 jobs.
- ❖ The overall unemployment rate for youth workers in ICT declined from 12.1% to 9.7% in Q4 of 2020. Over the same period, the unemployment rate among youth across all sectors of the Canadian economy decreased from 22.0% to 16.8%. The unemployment rate for youth in the ICT sector is still much higher than it was prior to the COVID-19 pandemic, which was 4.1% in Q1 of 2020.



## Immigrant Integration

Figure 5 – Immigrant employment and unemployment



Source: ICTC; Statistics Canada

### Analysis and Insights

- ❖ As technology diffuses across a wide cross-section of industries in the Canadian economy, demand for digital talent from abroad remains stable, even during the COVID-19 pandemic.
- ❖ There were approximately 638,000 immigrants<sup>9</sup> working as ICT professionals in Q4 of 2020. These individuals accounted for 39.2% of the employed ICT workforce in Canada.
- ❖ In Q4 of 2020, employment among immigrants in professional ICT roles increased by 3.9% compared to Q3 of 2020. This corresponds to a net gain of approximately 24,000 positions. On a year-over-year basis, the number of immigrants working as ICT professionals grew by 81,000 or 14.5%.
- ❖ The unemployment rate among immigrants in ICT professions decreased from 5.3% in Q3 of 2020 to 4.0% in Q4 of 2020. The unemployment rate among immigrants in ICT is less than half of the national unemployment rate among all immigrants, which decreased from 12.0% to 9.3% over the same period.

<sup>9</sup> Immigrants are defined as persons who were not born in Canada and who were not Canadian citizens by birth.

## In-Demand jobs

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Prior to COVID-19, demand for ICT talent was high in Canada and was expected to increase over the next five years. For a detailed understanding of the medium to long-term factors affecting ICT talent and skills in Canada (prior to the COVID-19 pandemic), please refer to [ICTC's 2023 Labour Market Outlook](#).

COVID-19 has brought instability to all sectors of the Canadian economy. For an analysis of the potential impacts of COVID-19 on the Canadian ICT sector and digital economy, please refer to ICTC's recent whitepaper, [Economic Resiliency in the Face of Adversity](#). For a post-pandemic revision of projections made in the 2023 Labour Market Outlook report, please refer to [The Digital-Led New Normal: Revised Labour Market Outlook for 2022](#).

In Q4 of 2020, employment growth was strongest among the following ICT professions:

- ❖ Database analysts and data administrators – 12,600 new jobs, 26% increase from Q3 2020
- ❖ Electricians (except industrial and power system) – 12,500 new jobs, 13% increase from Q3 2020
- ❖ Information systems analysts and consultants – 11,200 new jobs, 4% increase from Q3 2020
- ❖ Web designers and developers – 9,700 new jobs, 34% increase from Q3 2020
- ❖ Electrical and electronics engineering technologists and technicians – 7,300 new jobs, 20% increase from Q3 2020

## APPENDICIES

### Digital Economy Labour Force

ICTC's labour market research captures critical economic and labour market indicators, helping to inform competitive business planning, as well as strong human resource strategies and decision-making related to the ICT sector. Combined, this research forms the foundation for driving the development of a more prosperous Canadian ICT sector, and a highly-skilled workforce able to compete in the global digital economy.

The sum of workers (workers that are employed in these occupations, as well as workers that are currently unemployed, but actively seeking employment) in these occupations and all other (non-ICT) occupations in the ICT sector (ICTC's framework of Canada's ICT sector is explained below) represent the total digital economy labour force in Canada. The table below summarizes the core ICT occupations:

Index	National Occupation Classification (NOC)	Occupation Title
1	0015	Senior managers - trade, broadcasting and other services, n.e.c.
2	211	Engineering managers
3	213	Computer and information systems managers
4	601	Corporate sales managers
5	1123	Professional occupations in advertising, marketing, and public relations
6	1253	Records management technicians
7	2133	Electrical and electronics engineers
8	2147	Computer engineers (except software engineers and designers)
9	2148	Other professional engineers, n.e.c.
10	2161	Mathematicians, statisticians and actuaries
11	2171	Information systems analysts and consultants
12	2172	Database analysts and data administrators
13	2173	Software engineers and designers
14	2174	Computer programmers and interactive media developers
15	2175	Web designers and developers
16	2241	Electrical and electronics engineering technologists and technicians
17	2281	Computer Network Technicians
18	2282	User support technicians
19	2283	Information systems testing technicians
20	4163	Business development officers and marketing
21	5223	Graphic arts technicians
22	5224	Broadcast technicians
23	5241	Graphic designers and illustrators
24	7241	Electricians (except industrial and power system)
25	7242	Industrial electricians



<b>26</b>	7243	Power system electricians
<b>27</b>	7244	Electrical power line and cable workers
<b>28</b>	7245	Telecommunications line and cable workers
<b>29</b>	7246	Telecommunications installations and repair workers
<b>30</b>	7247	Cable television service and maintenance technicians



## ICT Sector

The table below summarizes the ICT sector:

Index	North American Industry Classification System (NAICS)	ICT Sub-sector
1	3333	Commercial & service industry machinery manufacturing
2	3341	Computer & peripheral equipment manufacturing
3	3342	Communications equipment manufacturing
4	3343	Audio & video equipment manufacturing
5	3344	Semiconductor & other electronic component manufacturing
6	3345	Navigational, medical & control instruments manufacturing
7	3346	Manufacturing and reproducing magnetic and optical media
8	4173	Computer & communications equipment & supplies wholesale distribution
9	5112	Software publishers
10	5121	Motion picture and video industries
11	5171	Wired telecommunications carrier
12	5172	Wireless telecommunications carrier (except satellite)
13	5174	Satellite telecommunications
14	5179	Other telecommunications
15	5182	Data processing, hosting, and related services
16	5191	Other information services
17	5415	Computer systems design & related serv.
18	7115	Independent artists, writers and performers
19	8112	Electronic & precision equipment repair & maintenance