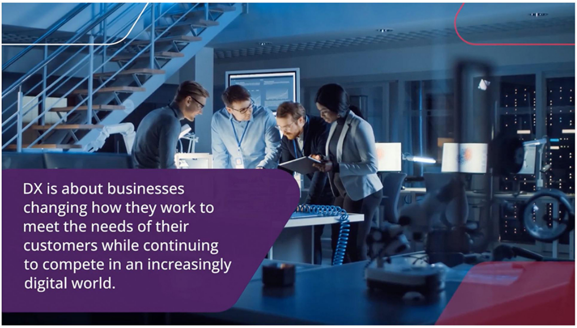
ICTC CTIC Digital Transformation

Introduction to Digital Transformation

Click the "Play" icon for an overview of this module. You could also click the "+" sign below the video to reveal the transcript.



DX is about businesses changing how they work to meet the needs of their customers while continuing to compete in an increasingly digital world.

[Media description: Animated video introducing the concept of DX, with text overlays of various images that depict DX such as robotic arms assisting with the manufacturing process and businesspeople using new technologies.]

Video Transcript +

Objectives

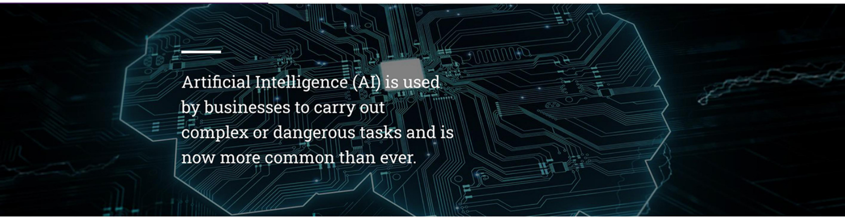
By the end of this module, students will be able to:

- Compare digitization, digitalization, and digital transformation
- Recognize the main qualities of a digital organization
- Identify an example of digital transformation within a case study
- Refer to examples to demonstrate the benefit of digital transformation for a Canadian business
- Describe the drivers for digital transformation within the Canadian economy
- Recognize the business value delivered by examples of digital transformation

Before you start, let's first **reflect** on **what you already know** about Digital Transformation (DX).

Lesson 6 of 12

Artificial Intelligence (AI)



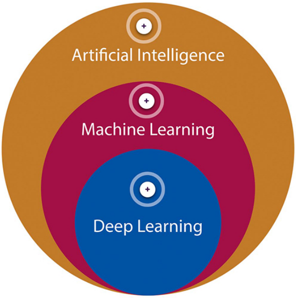
Artificial Intelligence (AI) is used by businesses to carry out complex or dangerous tasks and is now more common than ever.

Now that we have covered the use of AI, let's look at its definition and how it compares to similar technologies.

AI refers to the ability of the machine to replicate some form of human capability (e.g., recognizing voices or faces). It is a system or machine that mimics human intelligence in the performance of tasks, and can iteratively improve. AI technology focuses on the process and capability for data analysis to enhance human capabilities and contributions.

AI technology currently contributes to businesses by increasing productivity through automating processes or tasks. It's important to distinguish AI technology from other similar technologies.

Click the "+" signs below to view brief definitions of technologies similar to AI.



[Media description: A diagram of three overlapping circles with each of the circles representing one technology. The size of each circle corresponds to the relative size of the technology it represents. Small circle represents Deep Learning, medium circle represents Machine Learning and big Circle represents Artificial Intelligence. Artificial Intelligence encompasses machine learning, which encompasses deep learning.]

Let's look at the **main types** of **AI technology**.

Click the flashcards below to learn about each type of AI technology.

These are systems that only react. They don't form memories, and they don't use past experiences to make decisions.

Limited Memory

Theory of Mind

Self-Awareness

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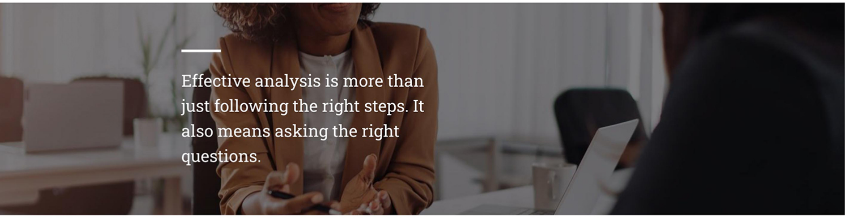
Lesson 2 of 2

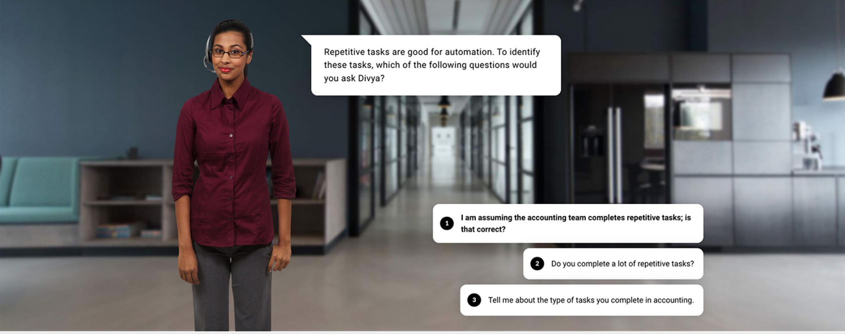
Asking Analysis Questions



Effective analysis is more than just following the right steps. It also means asking the right questions.

As you start out on your DX career, a key skill that may be useful is interviewing stakeholders to help identify opportunities for transformation.

Complete the scenario below to practice asking effective questions.



Repetitive tasks are good for automation. To identify these tasks, which of the following questions would you ask Divya?

1. **I am assuming the accounting team completes repetitive tasks; is that correct?**
2. Do you complete a lot of repetitive tasks?
3. Tell me about the type of tasks you complete in accounting.

Once you have completed the scenario, click "**CONTINUE**" to move on to the **next part of the unit.**

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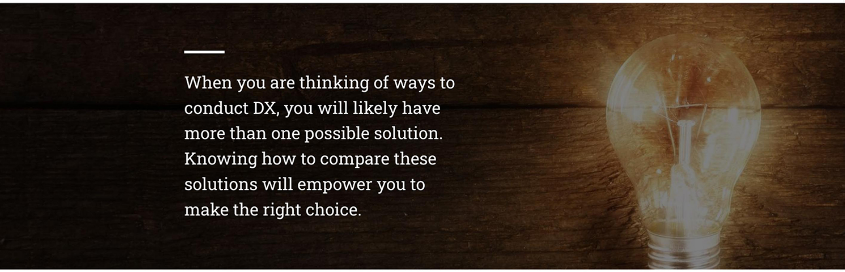
Comparing Two Potential DX Solutions



When you are thinking of ways to conduct DX, you will likely have more than one possible solution. Knowing how to compare these solutions will empower you to make the right choice.

In the previous unit, you saw that you might come up with more than one solution involving DX. How can you find the best solution to this problem?

Sometimes the answer is to implement all the solutions, as they may complement each other. Other times, one solution will clearly stand out as being superior to the others and make the decision easy. In this unit, you will learn some strategies and techniques for comparing DX solutions.

[Media description: An image of a person pushing the final piece of a puzzle into place so that it connects with the rest of the puzzle, completing it.]

However, things are not always so simple. Because of the fluid, transcendental, and difficult-to-define nature of DX, solutions may seem so different that comparing them would be like comparing apples to basketballs. On the other hand, the differences between them could be as subtle as different brands of SaaS. Over time, even a small difference can have a big impact when you consider savings over time, scalability, and the risk of technologies becoming obsolete or out-competed.

So, what should you do when you can only have one solution and making a choice is difficult and complicated? Which factors do you look at?

There are five steps you can follow when comparing two solutions. By following these steps, you can adopt a more organized method of assessing solutions.

Click the arrow buttons to explore a systematic approach to comparing DX solutions.

Step 1

Lay Out Your Business Cases Side by Side

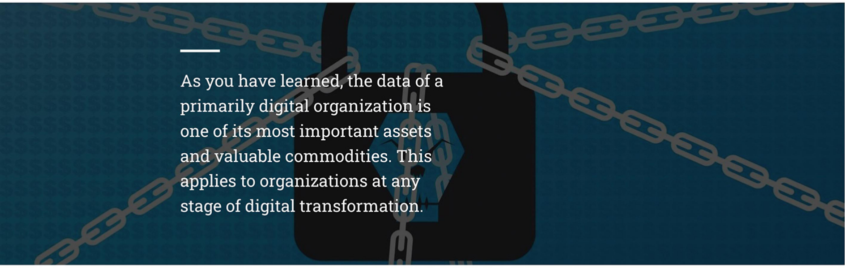
[Media description: An image of a woman standing and focusing on two documents that she is holding, one in each hand.]

You can do this digitally using word processing software or other software, or print/write them out and physically lay them out side by side. Either way, try to include as many details as you can.

① 2 3 4 5 ✓

Lesson 2 of 3

What Is Cybersecurity and Its Impact on Canada?



As you have learned, the data of a primarily digital organization is one of its most important assets and valuable commodities. This applies to organizations at any stage of digital transformation.

Many in-person businesses take measures to protect their goods, business models, ideas, and revenues from being stolen or inappropriately used. These measures include hiring security guards, buying patents, and installing cameras.

So, how would a digital business or an organization undergoing DX protect their data? The answer is cybersecurity. Let's take a look at its definition.

Cybersecurity can be defined in two ways:

- **The state of being protected against the criminal or unauthorized use of data**
- **The measures to protect against criminal and unauthorized use of data**

If someone decides to **attack** or **affect** an organization's **data and information,** they have **several points of entry.**

When an organization decides to digitize its information, that information is stored on some computing equipment and through some kind of software. This can be done through the Cloud, the Internet of Things (IoT), the hard drive of a desktop computer, or an online storage service like Dropbox or Google Drive.

Wherever this data is stored, it is vulnerable to being stolen, corrupted, and even held for ransom by malicious individuals or even organizations that specialize in malware, ransomware, theft, and other forms of cybercrime.

[Media description: An image of four icons representing cybersecurity – email, fingerprint, locked computer, and locked cloud – connected to a lock icon.]

Now that we are beginning to learn the **importance** of cybersecurity, let's take a look at its **impact.**

Cybersecurity Impacts in Canada

In 2021, an estimated 18% of Canadian businesses reported being impacted by cybersecurity incidents. The reporting of cybersecurity incidents varied significantly by business size, with 16% of small businesses (10 to 49 employees), 25% of medium businesses (50 to 249 employees), and 37% of large businesses (250 or more employees) affected by cybercrime. Canadian businesses that were impacted by a cybersecurity incident spent a total of slightly over $600 million to recover from the effects of cybercrime, which is an increase of roughly $200 million from 2019.

To read more on cybersecurity statistics in Canada, you can access the Statistics Canada article here: Impact of cybercrime on Canadian businesses in 2021.

Click the "+" sign on each of the headings below to view some examples of how cybercrime impacted Canadian businesses.

Michael Garron Hospital −

In September 2019, a virus entered the servers of Michael Garron Hospital (MGH) in Toronto, which affected the functionality of many major computer systems, including clinical and administrative applications. The virus was suspected to have originated from one of the MGH computers. It was a type of ransomware called malicious software (malware) that encrypts data and programs to make them inaccessible, threatening to delete or corrupt them unless the victim complies with specific demands. Ransomware and other types of cyberthreats are explained in the next section.

The hospital did not make any payments to the cybercriminal. Instead, MGH applied cybersecurity measures to retrieve its data. Before the hospital's IT teams resolved the issue, there was nearly a week of downtime during which the hospital had to switch back to paper processes and using the telephone rather than digital communication and recording systems. They hired extra staff and volunteers to keep the hospital operational. Although the hospital was still able to provide fully operational emergency care, some of the outpatient services and appointments had to be cancelled.

After the IT issues were resolved, the hospital had a number of debrief evaluation sessions so they could learn from the experience and avoid future cyberattacks.

You can read more about this cybersecurity incident here: "Message From Sarah Downey, President And CEO Of Michael Garron Hospital."

[Media description: An image of the Michael Garron Hospital exterior entrance, viewed from the street.]

SickKids Hospital +

Harry Rosen Menswear Store +

Amnesty International Canada +

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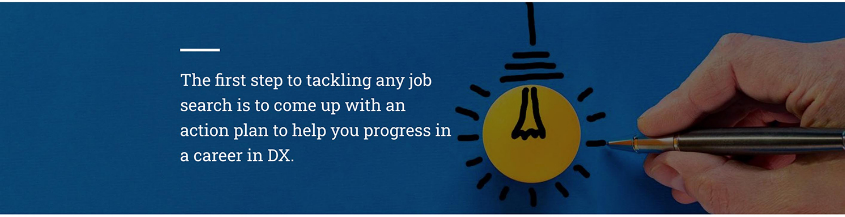
Lesson 2 of 3

DX Resume and Skill Building



The first step to tackling any job search is to come up with an action plan to help you progress in a career in DX.

The digital sector is broad and constantly evolving, so the skills, knowledge, and topics that are most relevant for career advancement will vary depending on the specific industry, job role, and organization.

Click the "+" signs on each of the headings below for some general areas to focus on to further a career in DX.

> ⓘ ICTC has programs, courses, and resources available for a number of these areas, and you can find links to these resources under some of the headings.

Business Strategy and Operations +

Customer Experience +

Data and Analytics –

DX relies on data and analytics to drive decision making and measure success. Knowledge of data management, analytics tools, and data visualization can help organizations extract insights from data and make informed decisions.

If you would like to learn more about data and analytics, ICTC has a course called "Big Data Fundamentals and Impact." Click the following link and scroll down to the course title for more details on this specific course:

- WIL Digital e-Learning Courses

Cybersecurity and Privacy –

DX exposes organizations to new cybersecurity and privacy risks. Knowledge of cybersecurity best practices and regulatory requirements, as well as privacy laws and data protection, is essential to ensure the security and privacy of data and systems.

ICTC has a special WIL program for cybersecurity training. If you would like to learn more, click the following link:

- Cybersecurity Training and Work Integrated Learning Program

Emerging Technologies −

DX often involves the adoption of emerging technologies such as artificial intelligence, blockchain, and the Internet of Things (IoT). Knowledge of these technologies and their potential applications can help organizations identify opportunities for innovation and competitive advantage.

ICTC's WIL program has courses available that cover a lot of these emerging technologies. Click the following links for more information on what WIL has to offer:

- Work Integrated Learning (WIL) Digital Program Overview
- WIL Digital e-Learning Course List

Organizational Change Management +

The **digital sector** rewards individuals who are committed to **continuous learning** and **personal development.** By staying **up to date** with the latest knowledge and skills, you can **increase your value** as a professional, **advance your career,** and achieve **greater job satisfaction.**

Takeaway Activity: Build your DX Resume

[Media description: An image of a man writing his resume on a laptop.]

One of the key steps of a career action plan is to create a resume that showcases your skills and experience in digital technologies. In "**Lesson 1 Introduction: Unit Building a Digital Resume**," you learned some best practices for crafting a DX-focused resume, and it is time to apply your new knowledge.

Go back to "**Lesson 1 Introduction: Unit Building a Digital Resume**" and use the guidelines there to create your resume.

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