



Course material

Course:

Understanding the digital supply chain and its stakes for humanitarian actors

Video:

0.2 Introduction to the Global Digital Ecosystem - Vincent

Concepts (extracted from automatically generated subtitles):

Main contractor. Supply chain. Today's digital world. Digital services. Following modules. Digital supply chain. Digital world. Simple terms. Integration of digital technologies. Humanitarian organisation. End-to-end supply chain of goods. Cyber criminals. Later module. First part of our mooc. Attractive target.



[to video sequence search](#)

(within Understanding the digital supply chain and its stakes for humanitarian actors.)



[to video](#)

Center for Digital Education. More educational support material here:

<https://www.epfl.ch/education/educational-initiatives/cede/educational-technologies-gallery/boocs-en/>

UNDERSTANDING THE DIGITAL SUPPLY CHAIN AND ITS STAKES FOR HUMANITARIAN ACTORS

EPFL
EssentialTech
Centre



EPFL
**Center for
Digital Trust**

...

notes

summary

0m 0s





Imagine you're building a house.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

0m 6s



.....

.....

.....

.....

.....



You hire a main contractor to manage the project. This main contractor will, in turn, hire many subcontractors, who will bring in materials like bricks, tiles, wood beams,

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

0m 13s





and electrical wiring to build and deliver certain parts of the house. Now, what if, hidden in those materials there was a flow, like a brick that crumbles or electric wires that spark a fire?

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

0m 25s





Well, in today's digital world, we face the same risk with every and all digital services we use. In the digital world, the supply chain is not about physical goods,

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

0m 37s



.....

.....

.....

.....

.....



it's about the software, the hardware, and the services that power everything we do, and just like a trembling brick, a single vulnerability can cause catastrophic damage.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

0m 49s






A man with glasses and a mustache, wearing a dark sweater, stands with his hands clasped. To his right, the text "The Global Digital Ecosystem" is displayed in large, bold, black letters on a light beige background.

Hello, my name is Vincent Graf Narbel, and I work at the Data Protection Office of the ICSE as a tech lead and legal advisor. Welcome to the first part of our MOOC on the Global Digital Ecosystem.

notes


summary

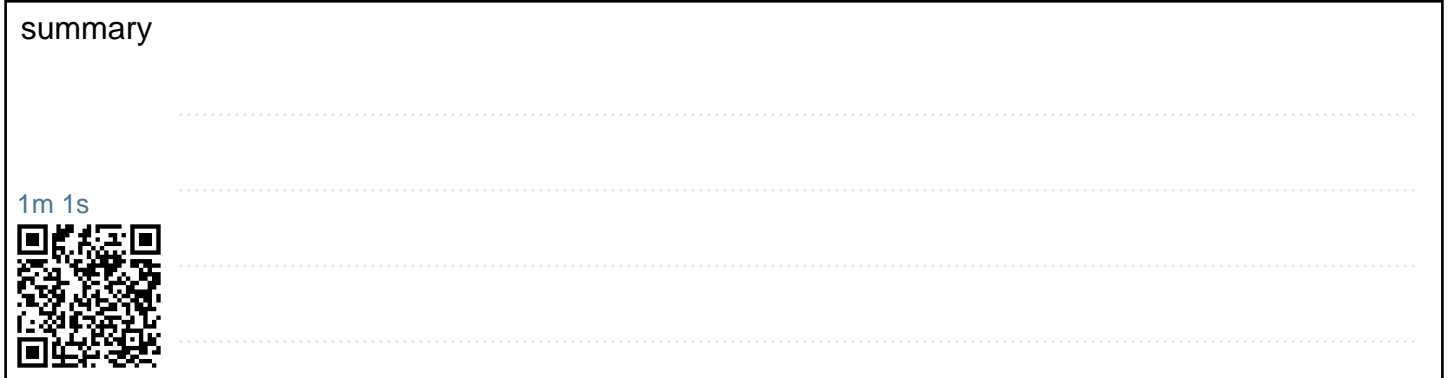
1m 1s



summary

1m 1s







What do we mean by the digital supply chain? Well, let's start by stating what it is not. It is not about the integration of digital technologies

notes

summary

1m 13s





in logistic warehouse or manufacture to optimise and automate the end-to-end supply chain of goods. What is it then? In simple terms, what we mean by the digital supply chain,

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

1m 25s



.....

.....

.....

.....

.....



The digital supply chain includes:

- Software programs you use to run operations.
- Hardware and devices like phones, computers and routers that software run on.
- Networks that route the data between end points.
- Cloud services that store and process your data.
- Outsourced partners or vendors who help you manage IT systems.


is the entire ecosystems of providers, technologies, and services, that we rely on to operate our digital tools. This includes things like the software programs that you use to run your operations, the hardware and devices like phones, computers, and routers, that the software runs on, the network that route the data between the endpoints,

notes

summary

1m 37s





The digital supply chain includes:

- Software programs you use to run operations.
- Hardware and devices like phones, computers and routers that software run on.
- Networks that route the data between end points.
- Cloud services that store and process your data.
- Outsourced partners or vendors who help you manage IT systems.

the cloud services that store and process your data, and even outsource partners or vendors who help you manage your IT systems.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....


.....

.....

.....

.....

1m 59s





Today, every organization depends on this interconnected web.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

2m 9s



.....

.....

.....

.....

.....



For example, when you install a software update, you are trusting the company that created it and everyone they worked with, like the developers, the testers, and the vendors. You hope that they've done their job securely.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

2m 13s





But there's a catch. This supply chain isn't always secure. Now, why is this so important? Because cyber criminals have realised

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

2m 25s



.....

.....

.....

.....

.....



that instead of attacking one organisation directly, they can target the digital supply chain. By compromising a single weak link, they can impact dozens or even thousands of organisations.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

2m 37s



.....

.....

.....

.....

.....



Several examples will be discussed in the following modules, but let me mention one recent and one much older case. In September 2024, several thousands of pages

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

2m 49s





exploded simultaneously in Lebanon and Syria. The impacted pages all belonged to a particular organisation which purchased them through a normal channel.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

3m 1s





However, the supply chain of these devices has been compromised, and a small explosive was added, which would detonate upon a specific signal.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

3m 13s





A much older case is the case of the company called Crypto AG, a Swiss company that sold encryption devices to states worldwide, but that was secretly controlled by US and German intelligence agencies.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

3m 25s



.....

.....

.....

.....

.....



From the 1950s to the early 2000s, the algorithms of the Crypto AG encryption systems included a backdoor that allowed the US and Germany to spy on government's communications.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

3m 37s



.....

.....

.....

.....

.....



These two examples and others show how the digital supply chain can be used as a weapon to compromise confidentiality that is stealing private information,

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

3m 49s



.....

.....

.....

.....

.....



or business continuity causing outages and operational chaos. The complexity of the ecosystem of suppliers has various consequences.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

4m 1s





The extremely large attack surface makes it very difficult to ensure adequate protection is in place.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

4m 10s





In addition, the dominance of some stakeholders on specific technologies, think, for example, about Starlink or Microsoft,

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....





renders the system even more vulnerable to the behaviour of threat actors. We will see some examples in the course. The depth of the digital supply chain notably presents some very weak links.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

4m 25s





As we will also see in our later module, critical components such as the semiconductors that are required for CPUs and GPUs, rely only on a few companies for the entire world.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

4m 37s



.....

.....

.....

.....

.....



The situation has consequences at a geopolitical level. We will discuss the global natures of the digital ecosystem and its geostrategic stakes, in a dedicated chapter as well.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

4m 49s





In the digital world, humanitarian organisation rely on the same supply chain than any other actors to deliver their humanitarian services to vulnerable populations.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

5m 1s





This situation is not necessarily the same outside the digital world, where humanitarian organisation may decide to rely on specialised networks of suppliers. As humanitarian workers,

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

.....

.....

.....

5m 13s





we need to understand what is at stake in the digital supply chain, and what we can do to mitigate the risks and the potential harms to the people we serve. The digital supply chain is the backbone of modern business,

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

.....

.....

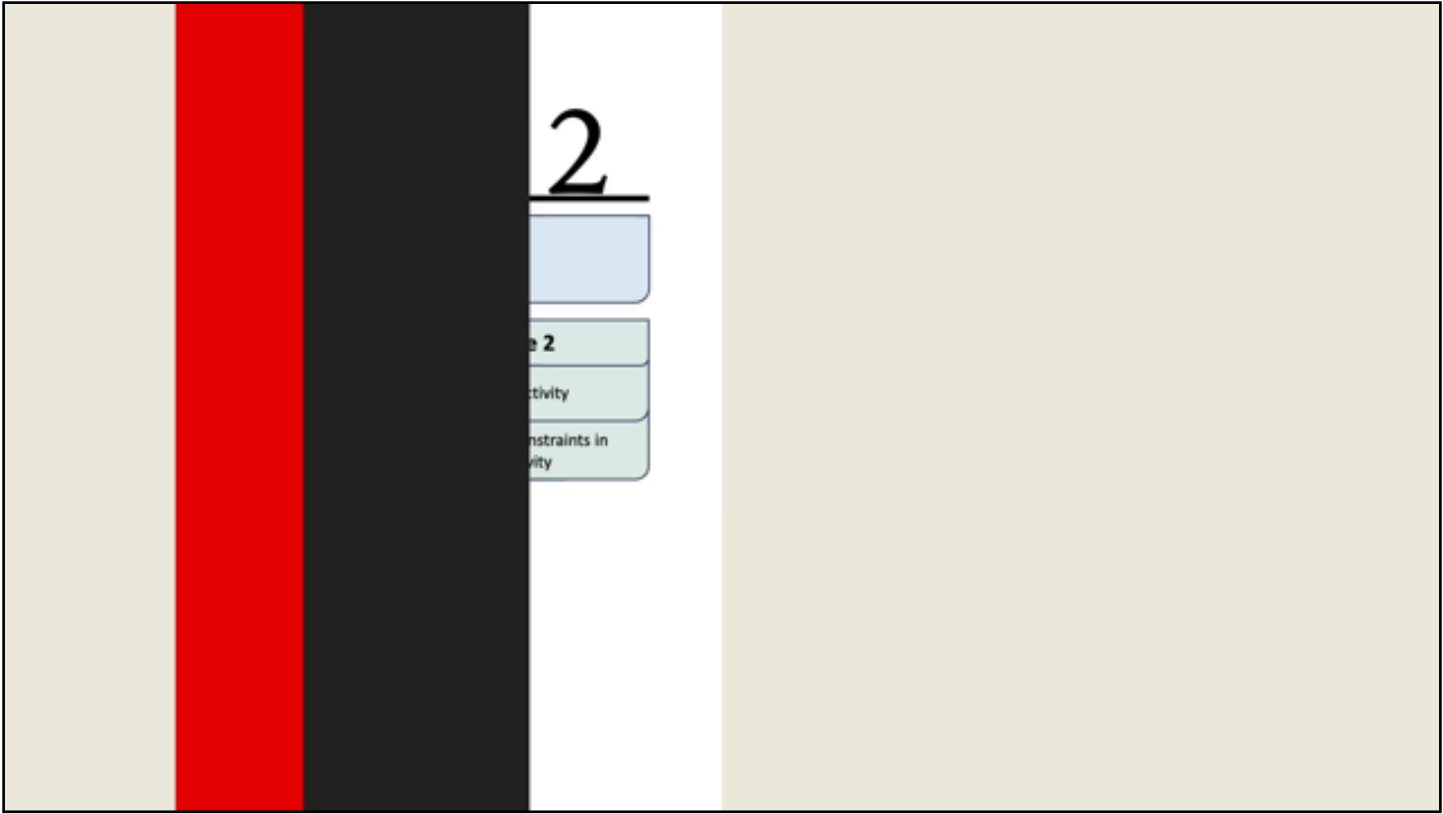
.....

.....

.....

5m 25s





and its security is essential to protect sensitive data, maintain trust, and ensure operations run smoothly. But it's also an attractive target for attackers because one weak link can have a massive ripple effect.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

5m 37s




.....

.....


.....

.....

.....



1



2


PART I
The Global Digital Ecosystem

Module 1

- 1.1. The hardware supply chain
- 1.2. The software supply chain
- 1.3. Threats and vulnerabilities

Module 2

- 2.1. Connectivity
- 2.2. Risks and constraints in connectivity



In the first module, our experts, ETH Professor Shweta Shinde, and EPFL Professor Mathias Payer, will explore the software and the hardware supply chain,

notes

summary

5m 52s





notes

6m 4s





See you there.

notes

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

summary

6m 23s



.....

.....

.....

.....

.....