



Géopolitique et souveraineté numérique

Enjeux, implications
et opportunités



#play14

Cédric Pontet

CTO @ Agile Partner, Founder @ #play14, Agile Coach, Software & Cloud Architect, DDDer, EventStormer, and Sketchnoter

Luxembourg · [Contact info](#)

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Agile Partner S.A.



Université Henri Poincaré
(Nancy I)



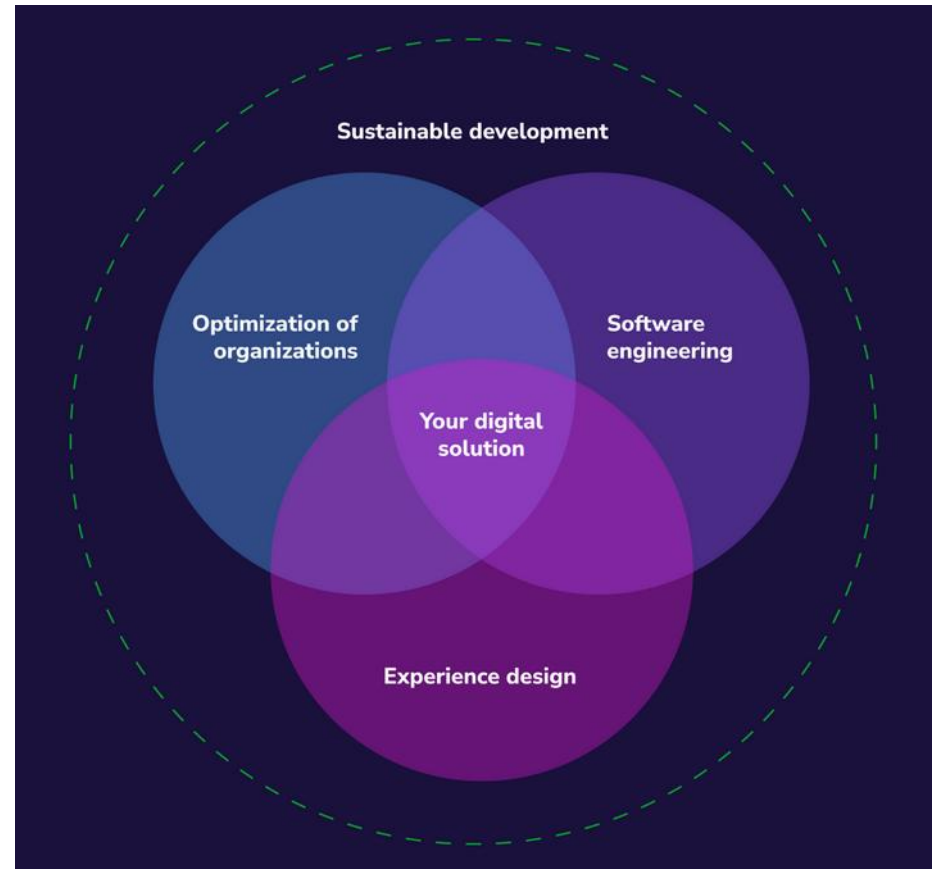
agilepartner



**We are above all craftsmen
- designers, architects and engineers,
who create your digital products**

**We also help your teams to deliver
faster and better by developing your
agile capabilities**

- Founded in 2004
- 50+ employees
- More than 200 solutions



My history at Voxxed Days Luxembourg

- 2016 – Events Everywhere: breaking monoliths and silos
- 2017 – Apprentissage, comment fonctionne notre cerveau (quicky)
- 2018 – No talk 🙊
- 2019 – EventStorming: From big picture to software design
- 2020 – No event 😞
- 2021 – No event 😞
- 2022 – Distributed Wars - Ce ne sont pas les frontières que vous recherchez...
- 2023 – Domain-Driven Design : retour aux sources
- 2024 – Event-driven vs event sourcing : quelle est vraiment la différence ?

Am I qualified to talk about that?

About as much as any concerned European citizen



27 Member States
450 million people
23 million businesses
20 EU countries use €
24 official languages
16.7 trillion € GDP

Digital sovereignty

The ability of a state to **control and manage** their own **digital infrastructure, data, and technologies without dependence on** or **undue influence** from **foreign entities or external actors**.

It encompasses the right to make decisions about **digital assets**, **data privacy, cybersecurity**, and the **use of technology**, ensuring that these decisions **align with local laws, interests, and values**.

Why talk about digital sovereignty now?

What has changed?

Effects of politics on technology

Political decisions can have **significant and wide-ranging effects** on technology.

Government policies and actions shape the **development, use, and impact** of technology:

- Funding and investment
- Regulation and legislation
- Education and workforce policies
- International relations and trade
- Infrastructure decisions
- Ethics and social responsibility

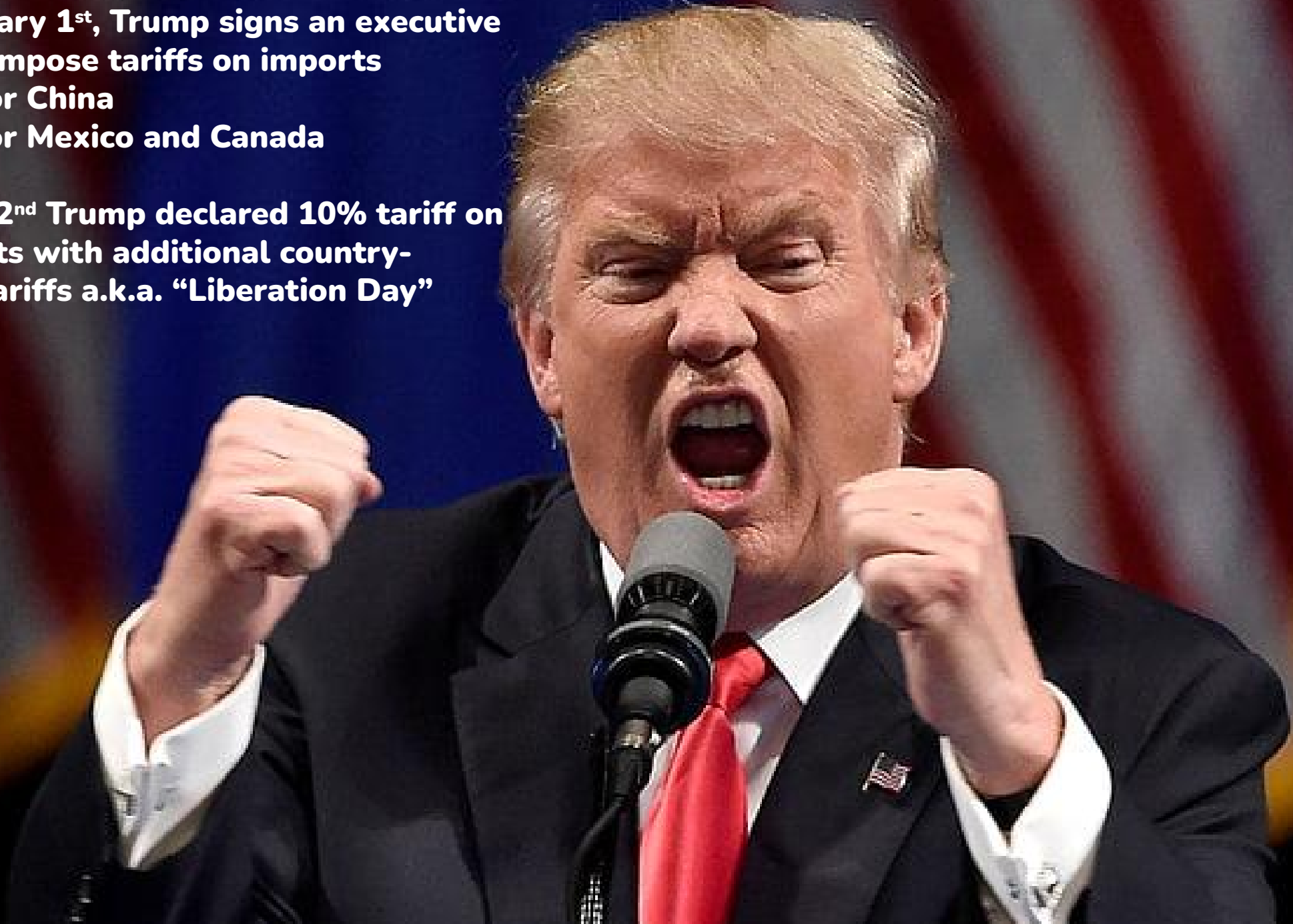
**On January 20th 2025, Donald
Trump swears oath for his
second term as President of the
United-States of America**



On February 1st, Trump signs an executive order to impose tariffs on imports

- **10% for China**
- **25% for Mexico and Canada**

On April 2nd Trump declared 10% tariff on all imports with additional country-specific tariffs a.k.a. “Liberation Day”



A man with a beard, wearing a white shirt, is seen from the back, pointing his right index finger at a large, stylized upward-pointing arrow. The background is a complex digital financial visualization. It features a grid of numbers, some in white and some in blue, including values like 3.55, 3.57, 0.1, 7, 10, 20, 40, 50.1, 77.5, 83.5, and 57. There are also large, semi-transparent arrows pointing in various directions (up, down, left, right). A candlestick chart with pink and blue bars is visible on the right side. The overall theme is financial markets and data analysis.

On Thursday April 5th and Friday April 6th alone, \$6.6 trillion in value was wiped out before markets closed for the weekend

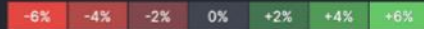
ECONOMY

Trump's tariffs turn global markets red

Stock markets have tumbled as the impact of President Donald Trump's tariffs reverberates across the globe. Last week, US stocks suffered their worst two-day loss in history, with \$6.6 trillion in value erased on Thursday and Friday.



Past one week performance of stocks listed on US stock exchanges. Size represents market cap.



Source: finviz.com | April 9, 2025 | 05:30 CMT

@AJLabs ALJAZEERA

ECONOMY

How much is \$10 trillion?

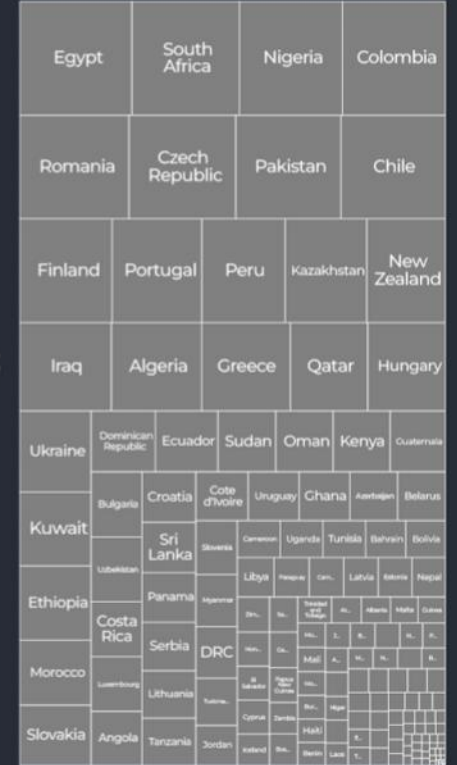
According to Bloomberg, since Trump slapped tariffs on more than 180 countries on April 2, three days of market losses have wiped out approximately \$10 trillion in global equity value, which is about 10 percent of global GDP.

Three-day market losses



\$10 trillion

GDP of more than 150 countries



Source: AJ Jazeera, Bloomberg, World Bank | April 9, 2025 | 05:30 CMT

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\$10,000,000,000,000

S&P 500 Index since January 2025

The S&P 500 has experienced significant losses. The benchmark lost 10 percent in two days to end last week, its worst losses since the COVID-19 pandemic, which tanked global markets. Investors fear Trump's high tariff may push most of the world into a recession.



As of April 8, 2025 - market close

Source: Nasdaq

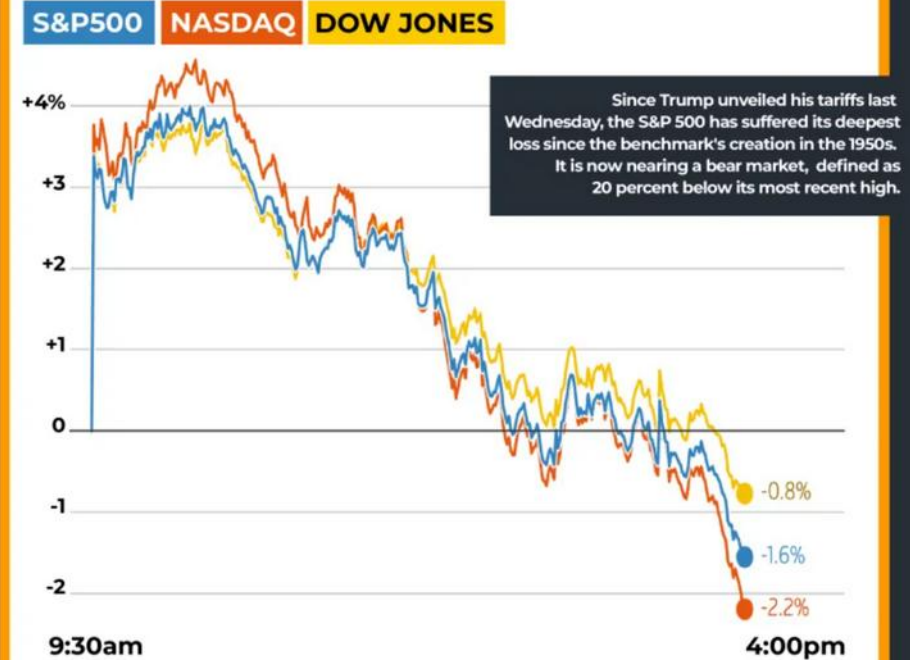


ECONOMY

US markets carnage

Trump's punishing tariffs have shaken a global trading order that has persisted for decades, raised fears of recession and wiped trillions of dollars off the value of stocks in the United States and worldwide.

TUESDAY'S MOVEMENT IN US MARKETS



Source: Reuters, LSEG | As of market closing April 8, 2025

@AJLabs ALJAZEERA

Some 90%, or 450, of stocks listed on the Standard & Poor's 500 index have declined during that period

Weaponization of digital assets

The Russian method

Turning digital tools, platforms, technologies, or content into **instruments used for harm, manipulation, or warfare**

Using digital resources in aggressive, harmful, or deceptive ways to advance a particular agenda, cause damage, or gain strategic advantage

- Cyberwarfare
- Disinformation campaigns
- Ransomware attacks
- Digital extortion and blackmail
- Financial manipulation

Hacker mercenaries working for autocratic governments

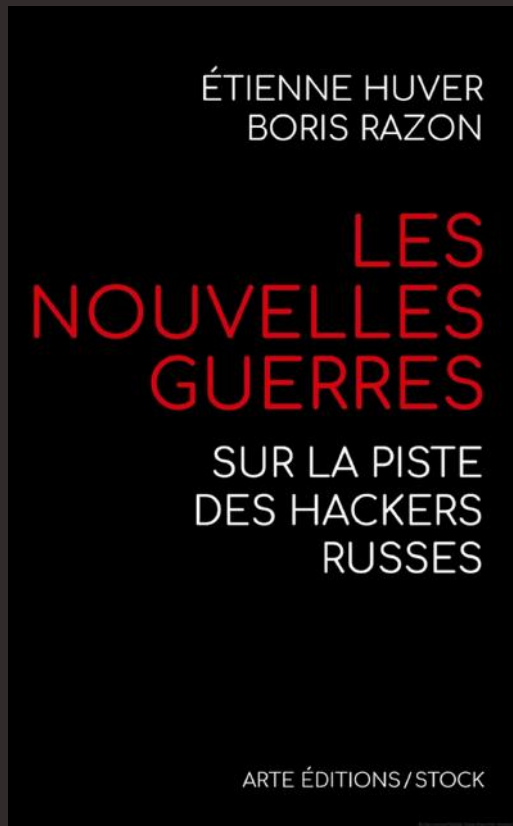
Suspicion of Russian **hackers interfering in foreign affairs** is widespread and well-documented, particularly concerning **elections and geopolitical events**.

The topic remains a major concern in international cybersecurity and politics.

- Troll farms
- Ukraine 2014 → 2025
- US presidential elections 2016
- French presidential elections 2017
- European elections 2024
- Romania presidential elections 2025

Sur la piste des hackers russes

Hacking into US Democratic Party e-mails, power cuts in Ukraine...
Etienne Huver investigated cybercriminals suspected of working for Vladimir Putin.



Etienne Huver
Slug News
Prix Albert-Londres
2016

- [Arte – Documentaire : Les nouveaux mercenaires russes](#)
- [France 24 - Hackers russes : le numérique comme arme de guerre](#)
- [France Inter – L’instant M : Les hackers russes : nouvelles armes de guerre](#)

Weaponization of digital assets

The US method

Turning **digital tools, platforms, technologies**, or **content** into instruments used for **harm, manipulation**, or **warfare**

Disrupting your operations by requesting from hyper-scalers hosting the services supporting your infrastructure to stop delivering them

Over 80% of Europe's digital technologies are imported

These dependencies primarily involve the United States and China, as well as major tech companies based in these countries

Digital infrastructure

Amazon, Microsoft, and Google dominate **almost 70%** of the European cloud computing (IaaS) market, while Europe's largest cloud provider holds a mere 2% share

R&D and patenting

EU firms represent only **7% of global R&D spending** in software and internet technologies, compared to **71% by US** firms and **15% by Chinese** companies.

Critical raw materials

China controls about 90% of global rare earth refining capacity

Key resources such as

- Lithium
- Cobalt
- Nickel
- Gallium
- Graphite
- Tungsten

Microchips

Europe consumes about 20% of the world's microchips
but manufactures only 9%

Artificial intelligence

Since 2017, **70% of foundational AI models** have been developed
in the **United States** and **15% in China**

Data sovereignty

How likely is it that US Authorities emit a legal request to your cloud or SaaS vendor to give them access to your data?

CLOUD Act

Clarifying Lawful Overseas Use of Data

A US law (2018) that allows US authorities to demand data from US-based tech companies, even if the data is stored outside the United States.

- **Data Sovereignty Risk**

Data stored by EU companies with US-based cloud providers (e.g., Microsoft, Google, Amazon) may be subject to US legal requests, including criminal investigations.

- **Potential GDPR Conflict**

The CLOUD Act may clash with EU data protection laws (GDPR), especially regarding data transfers outside the EU.

- **Compliance Challenges**

EU companies face uncertainty over whose laws to follow if US authorities request data in ways that violate EU privacy laws.

- **Need for Due Diligence**

When choosing cloud providers, EU companies must assess risks and legal obligations related to cross-border data requests.

Cloud weaponization

How likely is it that AWS, Azure or GCP stop providing cloud services your system depends on, if the US government request them to?

Public cloud IaaS vendors in 2024

Up to 70% of worldwide workloads run on



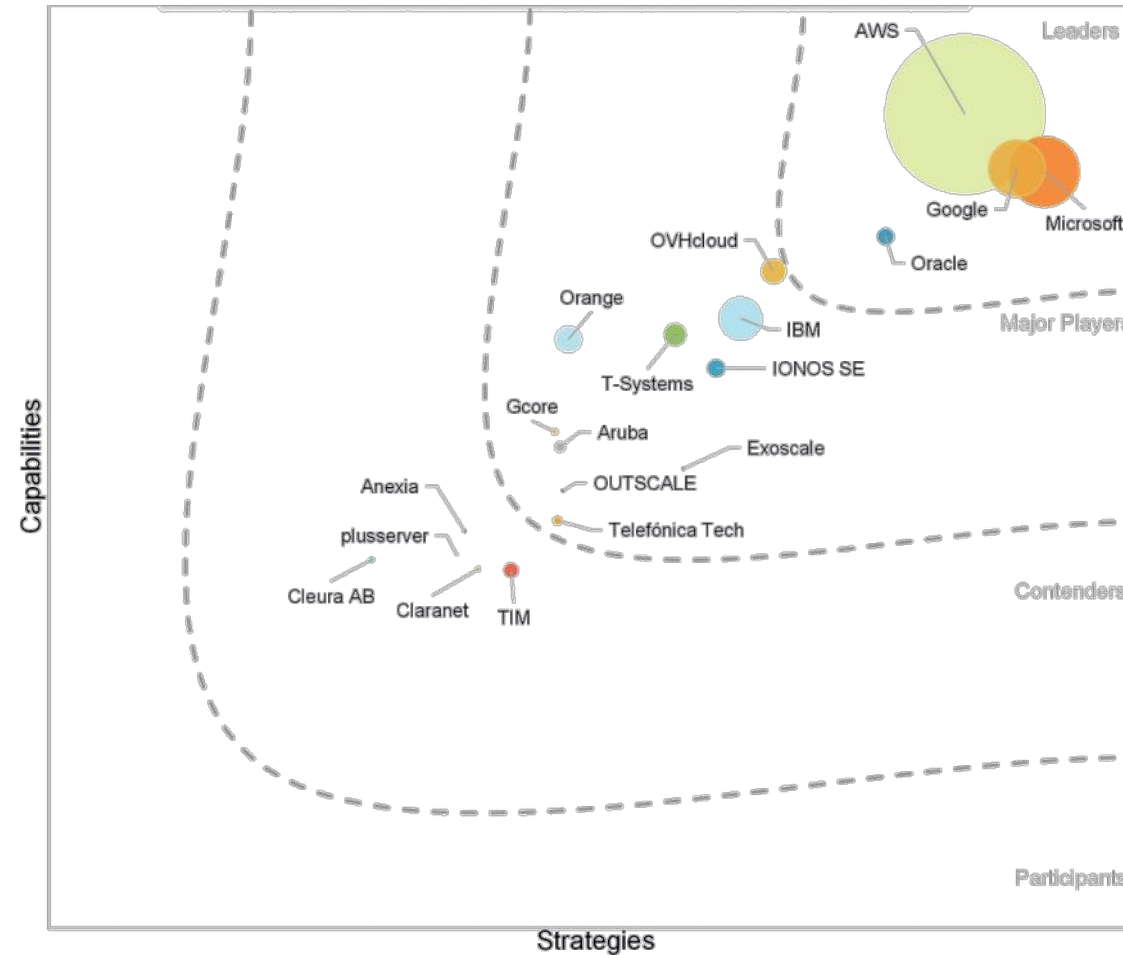
30-33%



20-24%



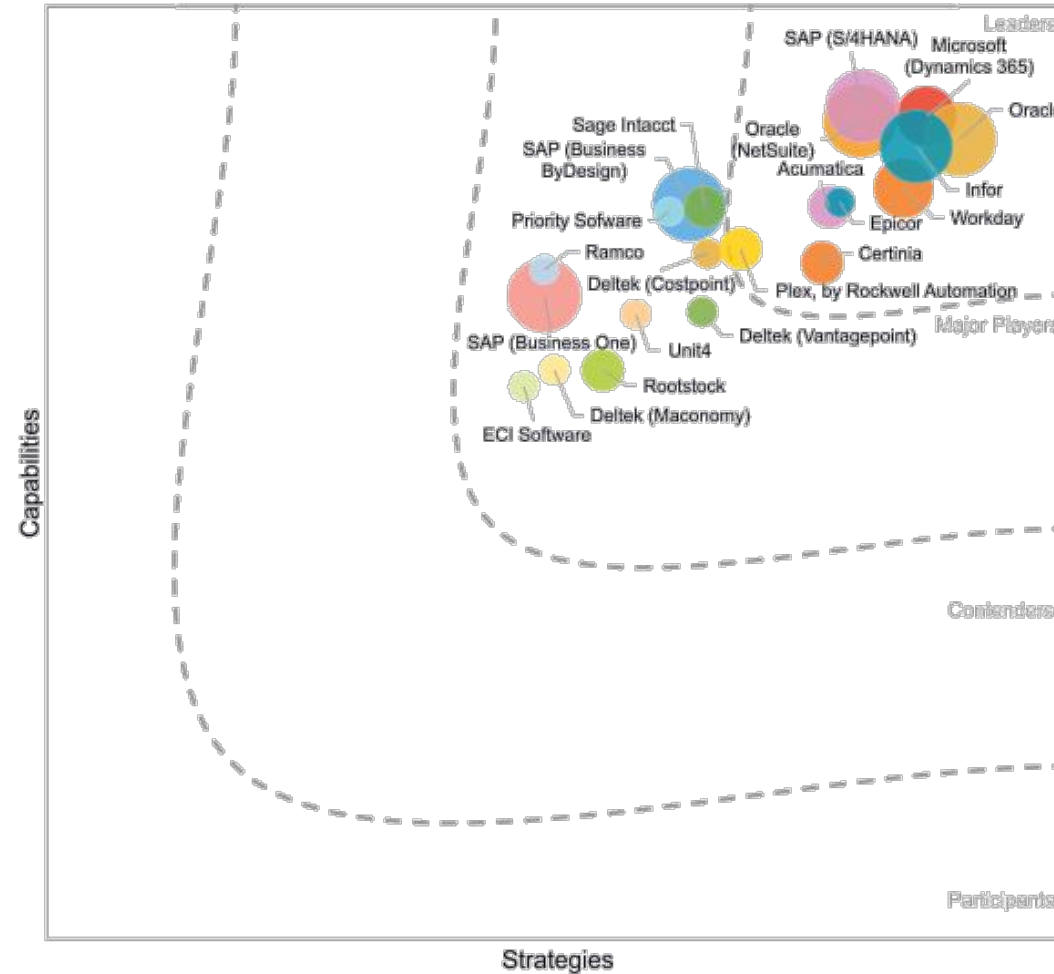
10-12%



Source: IDC, 2024

Worldwide SaaS and cloud-enabled apps in 2024

Built on



Source: IDC, 2024

WE'RE DOOMED!

★ THE GAME OF

GLOBAL PANIC ★

Unless...



BY M. HORTON

**I should start migrating
away from US public cloud now!**

Gradual response

Depending on your context and the criticality of your digital assets

Apply public cloud best practices

- Apply policies
- Limit available regions
- Encrypt everything
- Externalize your keys (HSM)
- Plan for recovery (DRP)

Sovereign options offered by hyperscalers

Hyperscalers are very aware of sovereignty issues
and already propose some options

AWS European Sovereign Cloud

- **Fully Sovereign Infrastructure:** Operated independently from existing AWS Regions
- **Located in Europe:** All infrastructure and services run and reside within the European Union
- **Operated by EU Residents:** Only EU residents will have control of operations and support
- **Independent Operations:** Day-to-day operations managed only by EU-based personnel and entities
- **Data Residency and Access Controls:** Designed to allow customers to keep all data and metadata within the EU

[AWS Digital Sovereignty](#)

• **Familiar AWS Experience:** Same APIs, services, and tools as standard AWS

Sovereignty requirements of customers



Data residency

I want to know where all my data is, and control where that data is stored and transferred to at all times.



Operator Access Restriction

I want to be sure that neither AWS nor a foreign government can access my data in the cloud.



Resiliency and Survivability

I want to be sure that I can sustain operations despite any kind of foreign disruption and influence.



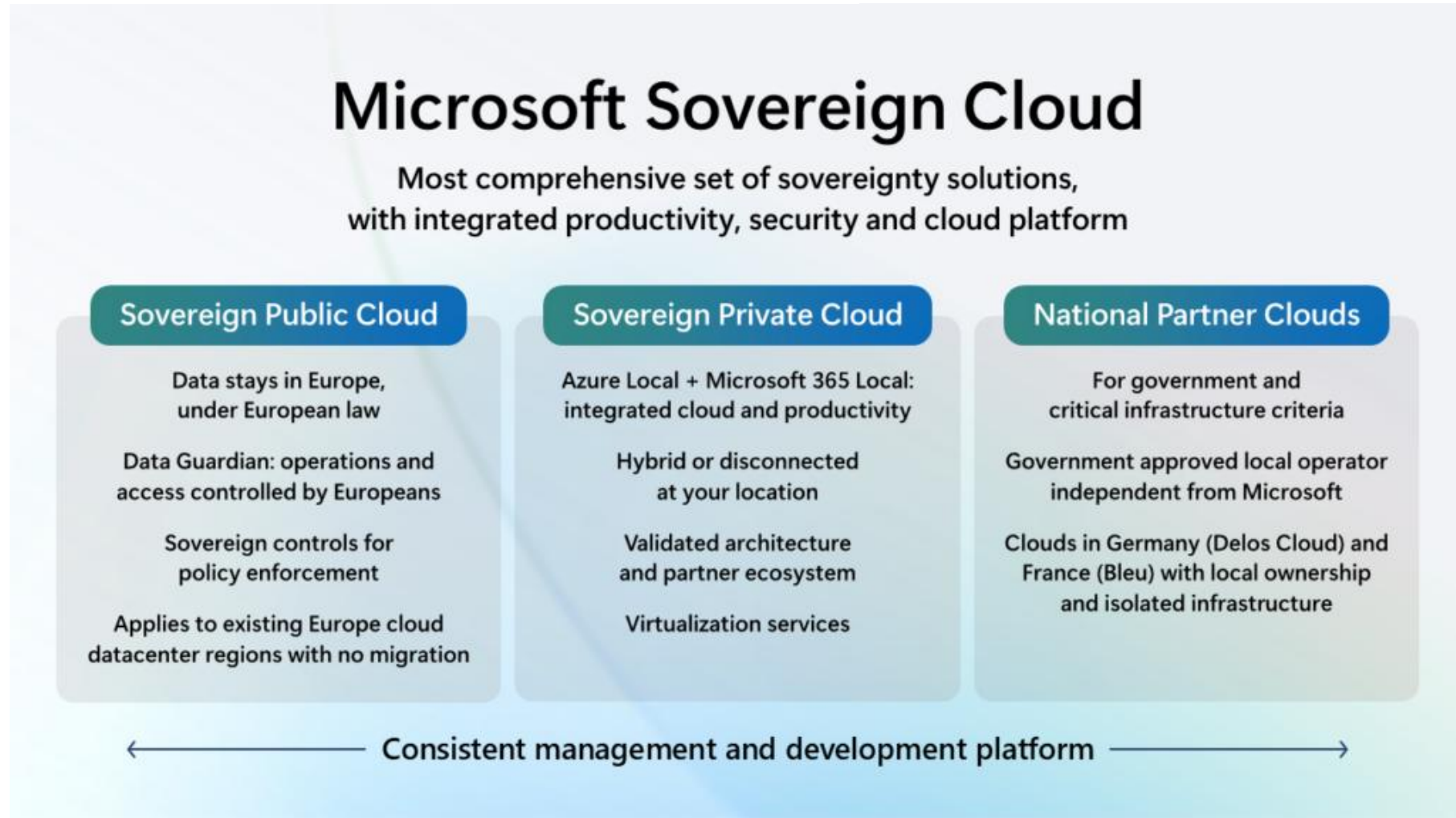
Operational Autonomy

We want our digital industries and sectors to thrive and compete at the global level.

[AWS re:Invent 2023 - AWS European Sovereign Cloud: A closer look \(SEC216\)](#)

Announcing comprehensive sovereign solutions empowering European organizations

Jun 16, 2025 | [Judson Althoff - Executive Vice President and Chief Commercial Officer](#)



EU already protects your strategic autonomy

Key aspects include:

- Control over essential technologies (e.g., cloud, AI, semiconductors)
- Data sovereignty (keeping data within EU jurisdiction)
- Reduced dependence on non-EU tech giants
- Ability to set and enforce own digital standards and regulations

GDPR already protects you

GDPR Chapter V restricts transfers of personal data outside the EU unless *adequate protection* is guaranteed.

Article 48: Direct requests from non-EU authorities (like US law enforcement) are not a valid legal basis for data transfer unless based on an international agreement (like an MLAT—Mutual Legal Assistance Treaty).

EU companies and subsidiaries are obligated to avoid illegal data transfers. They must challenge overly broad requests and seek legal remedies.

Data can only be shared if strictly necessary, with narrow proportionality, and any transfer should be limited as much as possible.

National data protection authorities can investigate, block, or sanction unlawful transfers to foreign governments.

EU AI Act

The **European Union Artificial Intelligence Act** is the world's first comprehensive law specifically regulating artificial intelligence.

Its aim is to ensure that AI systems are safe, transparent, and respect fundamental rights.

The Act was formally adopted by the European Parliament in March 2024 and by the Council in May 2024, and will start to apply in stages, with the strictest requirements rolling out over the next few years.

Digital Service Act (DSA)

Major piece of European Union legislation, adopted in 2022, that aims to create a safer and more transparent online environment. It is part of the EU's broader **Digital Services**

Package alongside the **Digital Markets Act (DMA)**.

The DSA introduces new obligations for online platforms, especially large ones, with the goal of:

- **Protecting users' rights online**
- **Combating illegal content**
- **Improving transparency of algorithms and advertising**

- **Increasing accountability for big online**

European alternatives for digital products

European alternatives for digital service and products,
like cloud services and SaaS products

European Alternatives

Categories



Web analytics services

A web analytics service tracks user behavior...

30 alternatives



Cloud computing platforms

A cloud computing platform provides on-d...

12 alternatives



Content delivery network (CDN) services

A content delivery network (CDN) is a geo...

6 alternatives



Email providers

An email provider provides its users with a...

21 alternatives



Virtual private server (VPS) hosts

A virtual private server (VPS) hoster provid...

23 alternatives



Search engines

A search engine allows their users to search...

6 alternatives



Transactional email service

A transactional mail service offers users the...

4 alternatives



Domain name registrars

Domain name registrars are companies tha...

12 alternatives



Time tracking apps

A time tracking app is an application that h...

13 alternatives



Navigation apps

Navigation apps help you get from A to B.

8 alternatives



Uptime monitoring services

An uptime monitoring service periodically ...

11 alternatives



File hosting services

With a file hosting service, users can uploa...

11 alternatives



Machine translation services

A machine translation service (translator) is...

5 alternatives



Object storage providers

Object storage providers allow their users t...

12 alternatives



Microblogging services

A microblogging service allows users to po...

2 alternatives



European web analytics services

A web analytics service tracks user behavior on websites so that website owners can understand user usage and optimize their websites.

This category contains services from companies based in a member state of the European Union (EU), the European Economic Area (EEA) and the European Free Trade Association (EFTA).
You can read more about the listing criteria [here](#).



Plausible

Estonia EU EU hosted
 Open source

Website

Plausible is cookie-less and lightweight web analytics service. Because it does not use cookies there is no need to show cookie banner for this service. The software is open-source so it is possible to self-host, but they also offer a hosted service.

[Read more](#)



Simple Analytics

Netherlands EU EU hosted

Website

Simple Analytics is a Dutch web analytics service that focuses on privacy. An interesting feature of Simple Analytics is that it is possible to see which tweet from Twitter was responsible for which amount of traffic.

[Read more](#)



Piwik PRO

Poland EU Free plan

Website

Piwik PRO is a web analytics service from Poland, with analytics, a tag manager and a consent manager. The consent manager is a customizable cookie banner, that asks user for consent.

[Read more](#)



Visitor Analytics

Germany EU EU hosted
 Free plan

Website

[Affiliate link](#)

Visitor Analytics is a web analytics service from Germany. It is cookie-free and supports accurate tracking with heatmaps and also recording mouse movements/scrolling of individual customers. Visitor Analytics also offers rather unusual features like polls and surveys with which feedback can be gathered from customers.

[Read more](#)



Pirsch

Germany EU EU hosted
 Open source

Website

[Read more](#)



nilly

Switzerland EFTA EFTA hosted

Website

[Read more](#)

Underscore_ : Quentin Adam, CEO of Clever Cloud



[What the US understood about the cloud \(and we didn't\)](#)



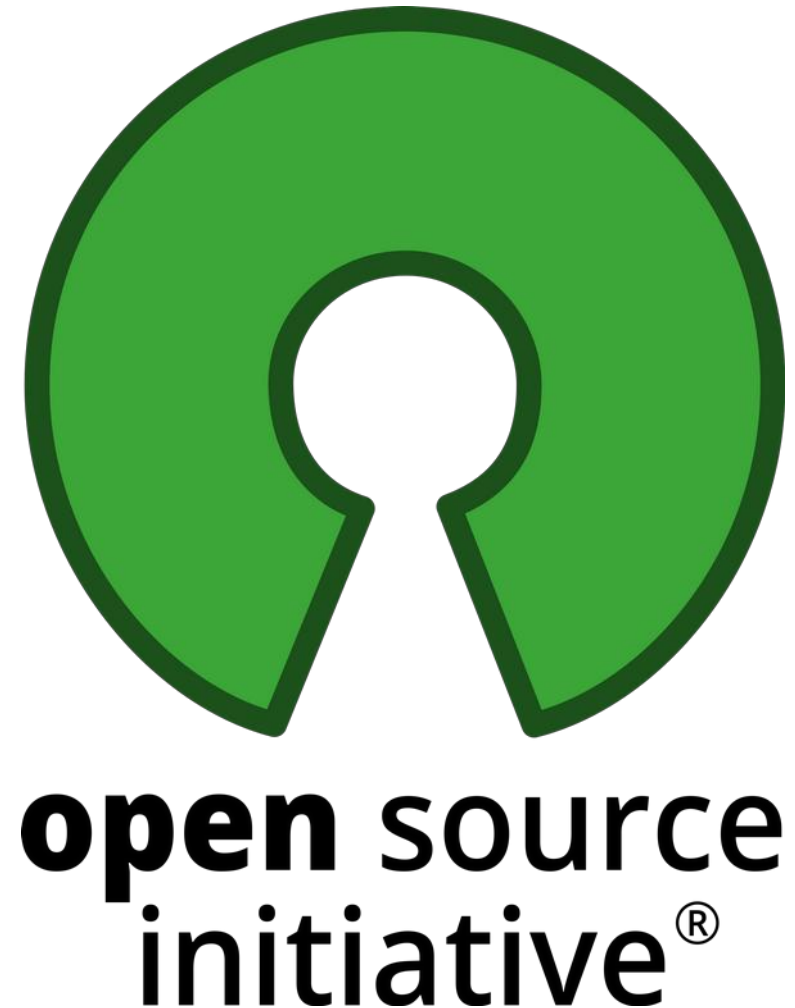
Open-source and open standards

There are many open-source tools and standards that are already at your disposal

Open source for sovereignty

Open-source software (OSS) is computer software that is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software and its source code to anyone and for any purpose.

The Open Source Initiative's (OSI) definition is recognized by several governments internationally as the standard or de facto definition.



The story of OpenTofu



In August 2023, HashiCorp announced that Terraform would move from the permissive open-source **MPL (Mozilla Public License)** to the more restrictive **BSL (Business Source License)**. This change worried many users, cloud vendors, and tech companies because BSL restricts use in some commercial scenarios and ends further contributions to truly open infrastructure tooling.



In response, prominent members of the Terraform community and major tech companies (like Google, GitLab, AWS, Red Hat, and others) formed **OpenTF**, which aimed to fork Terraform from its last open-source release and continue development in a fully open manner. Soon, OpenTF announced its name change to **OpenTofu**, after negotiation with HashiCorp over naming and trademarks.

Open standards

Internet & Web

- **HTML (HyperText Markup Language):** The standard markup for webpages.
- **CSS (Cascading Style Sheets):** Style sheets for web design.
- **HTTP (HyperText Transfer Protocol):** Enables communications between clients and servers.
- **SMTP (Simple Mail Transfer Protocol):** Standard for email transmission.
- **IMAP/POP3:** Standards for retrieving email.
- **WebRTC:** Standard for real-time communications in browsers.
- **XML (eXtensible Markup Language):** A flexible text format for structured data.
- **JSON (JavaScript Object Notation):** Open data interchange format.

Networking

- **TCP/IP (Transmission Control Protocol/Internet Protocol):** Core of internet networking.
- **DNS (Domain Name System):** Internet's phonebook.
- **SSH (Secure Shell):** Secure network protocol.

Data & File Formats

- **PDF (Portable Document Format):** Open document standard (since 2008, ISO 32000).
- **ODF (OpenDocument Format):** Open standard for office documents (used in LibreOffice).
- **SVG (Scalable Vector Graphics):** Vector image format for web.
- **MP3, OGG, FLAC:** Open standards for audio files.

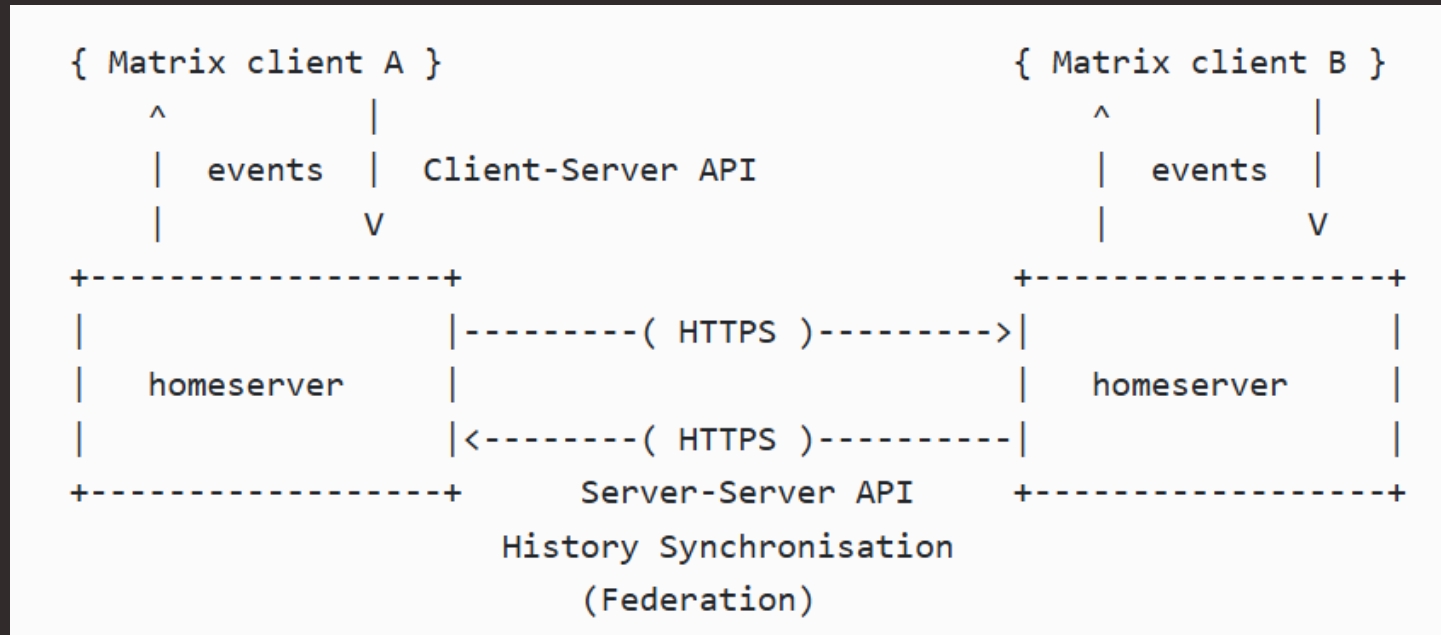
APIs & Interoperability

- **OAuth 2.0:** Standard for authentication (authorization delegation).
- **OpenID Connect:** Identity layer on top of OAuth 2.0.
- **OpenAPI (Swagger):** Describes RESTful APIs in a standard way.
- **SAML (Security Assertion Markup Language):** For exchanging authentication and authorization data.
- **ActivityPub:** Decentralized social networking communication protocol.

Telecommunications & Messaging

- **SMS (Short Message Service):** Standardized texting.
- **XMPP (Extensible Messaging and Presence Protocol):** Instant messaging protocol used by Jabber.

Matrix protocol



Matrix defines a set of open APIs for decentralised communication, suitable for securely publishing, persisting and subscribing to data over a global open federation of servers with no single point of control.

Uses include Instant Messaging (IM), Voice over IP (VoIP) signalling, Internet of Things (IoT) communication, and bridging together existing communication silos - providing the basis of a new open real-time communication ecosystem.

The CDMI counter example

CDMI (Cloud Data Management Interface): Standard for managing objects in cloud storage.

ISO/IEC 17826 Information technology

Cloud Data Management Interface (CDMI) Version 2.0.0 is an international standard that specifies a protocol for self-provisioning, administering and managing access to data stored in cloud storage, object storage, storage area network and network attached storage systems. The CDMI standard is developed and maintained by the Storage Networking Industry Association, who makes a publicly accessible version of the specification available.

Supported by: Hitachi, NetApp, DataCore, Fujitsu, Huawei, OpenStack

Amazon S3 API

The most widely adopted object storage API, used by AWS and many third-party and on-premises systems.

Supported by: AWS S3, MinIO, Ceph, Dell ECS, NetApp StorageGRID, Wasabi, Backblaze B2.

Strengths: Ubiquity, extensive documentation, language SDKs, robust third-party tool support.

Digital Commons

Digital commons are shared online resources—like content, tools, infrastructure, or knowledge—that are managed collectively by a community according to agreed-upon rules.

Key Features:

- Open access or shared use
- Collaborative management or governance
- Non-exclusive (many users can benefit simultaneously)
- Community-driven oversight

Examples:

- Wikipedia (free encyclopedia collectively edited and owned)
- Open-source software (e.g., Linux, collaboratively developed code)
- Creative Commons–licensed content (images, music, texts)

Data Commons

A data commons is a type of digital commons focused specifically on datasets and related tools/technologies. It is an organized ecosystem where datasets, analysis tools, and computing resources are pooled and shared, mainly for research, discovery, or innovation.

Key Features:

- Shared pool of datasets (often scientific or research-oriented)
- Tools/services for data management, analysis, or sharing
- Collective governance and access policies
- Enabling efficient data reuse, interoperability, and collaboration

Examples:

- NIH Data Commons (biological/health data for research)
- Genomic Data Commons (public genomics datasets)
- Open data portals (government, science, etc.)

FAIR principles

Findable

The first step in (re)using data is to find them. Metadata and data should be easy to find for both humans and computers. Machine-readable metadata are essential for automatic discovery of datasets and services

Accessible

Once the user finds the required data, she/he/they need to know how they can be accessed, possibly including authentication and authorisation.

Interoperable

The data usually need to be integrated with other data. In addition, the data need to interoperate with applications or workflows for analysis, storage, and processing.

Reusable

The ultimate goal of FAIR is to optimise the reuse of data. To achieve this, metadata and data should be well-described so that they can be replicated and/or combined in different settings.

GAIA-X

A Franco-German-led pan-European initiative to build a federated data infrastructure where data sovereignty, interoperability, and common standards are central.

Enable **secure, transparent, and sovereign information sharing and cloud services** across sectors (e.g., health, manufacturing, mobility).

Containers for portability

OCI (Open Container Initiative): Standards for container formats and runtimes.

The Open Container Initiative is an open governance structure for the express purpose of creating open industry standards around container formats and runtimes.



OPEN CONTAINER
INITIATIVE

Our Members

Alibaba Cloud

amazon
web services™

Chainguard

CISCO

docker

EasyStack
open cloud computing

Goldman
Sachs

Google

HUAWEI

IBM

Microsoft

openstack.

Red Hat

REPLICATED

sysdig

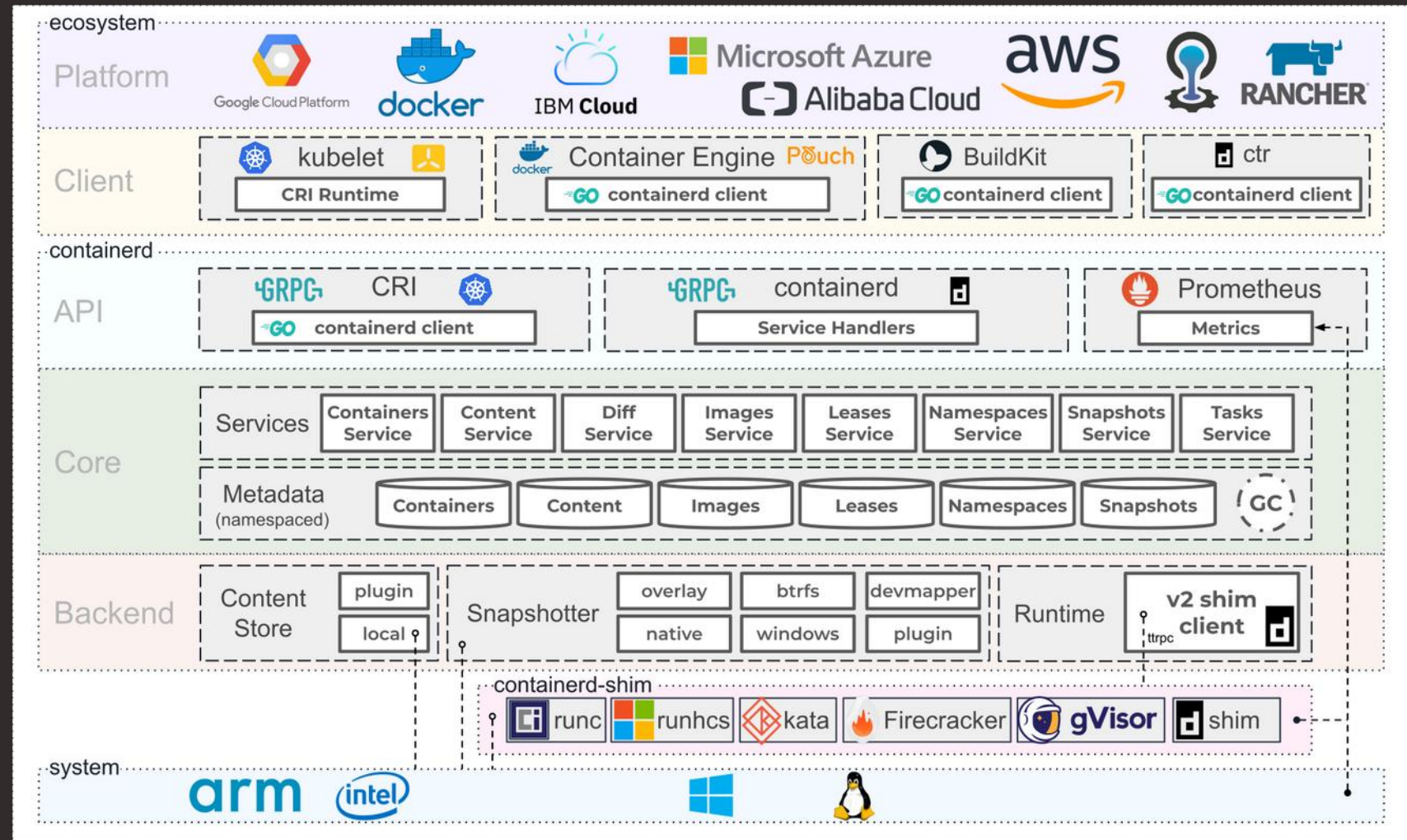
weaveworks

containerd

An industry-standard container runtime with an emphasis on simplicity, robustness and portability

As of February 28, 2019, containerd is officially a graduated project within the Cloud Native Computing Foundation, following Kubernetes, Prometheus, Envoy, and CoreDNS.

containerd is available as a daemon for Linux and Windows. It manages the complete container lifecycle of its host system, from image transfer and storage to container execution and supervision to low-level storage to network attachments and beyond.





CLOUD NATIVE

COMPUTING FOUNDATION

Application Definition & Image Build Database Continuous Integration & Delivery Streaming & Messaging

Scheduling & Orchestration Service Proxy API Gateway Service Mesh Remote Procedure Call Coordination & Service Discovery

Cloud Native Storage Cloud Native Network Container Runtime

Security & Compliance Automation & Configuration Container Registry Key Management

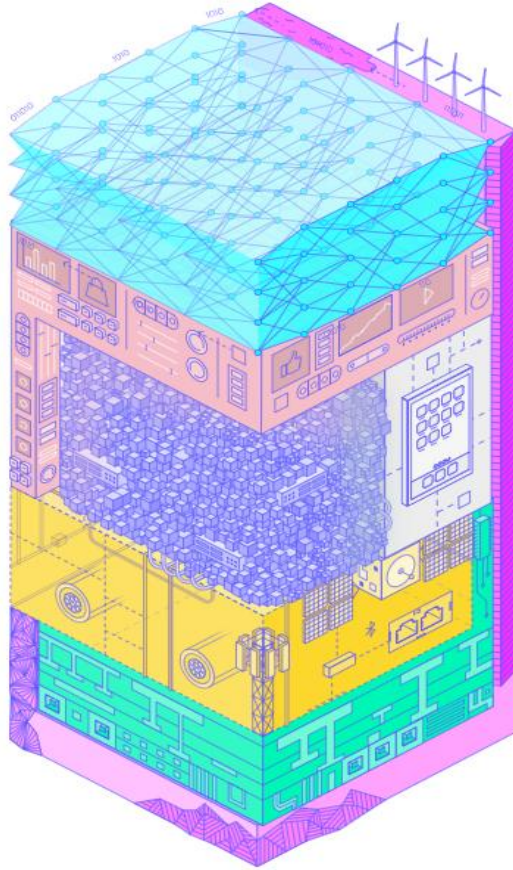
Observability Continuous Optimization Chaos Engineering Feature Flagging

Cloud Native Computing Foundation

EuroStack

Long-term EU initiative

Building a European alternative for technological sovereignty



EUROSTACK

Building a European alternative for technological sovereignty

Sovereign AI, open-source ecosystems, green supercomputing, data commons, and sovereign cloud: Building homegrown alternatives to empower Europe to reclaim control of its digital future—layer by layer, innovation by innovation.

**Digital autonomy is no longer a luxury,
it is the foundation of sovereignty**

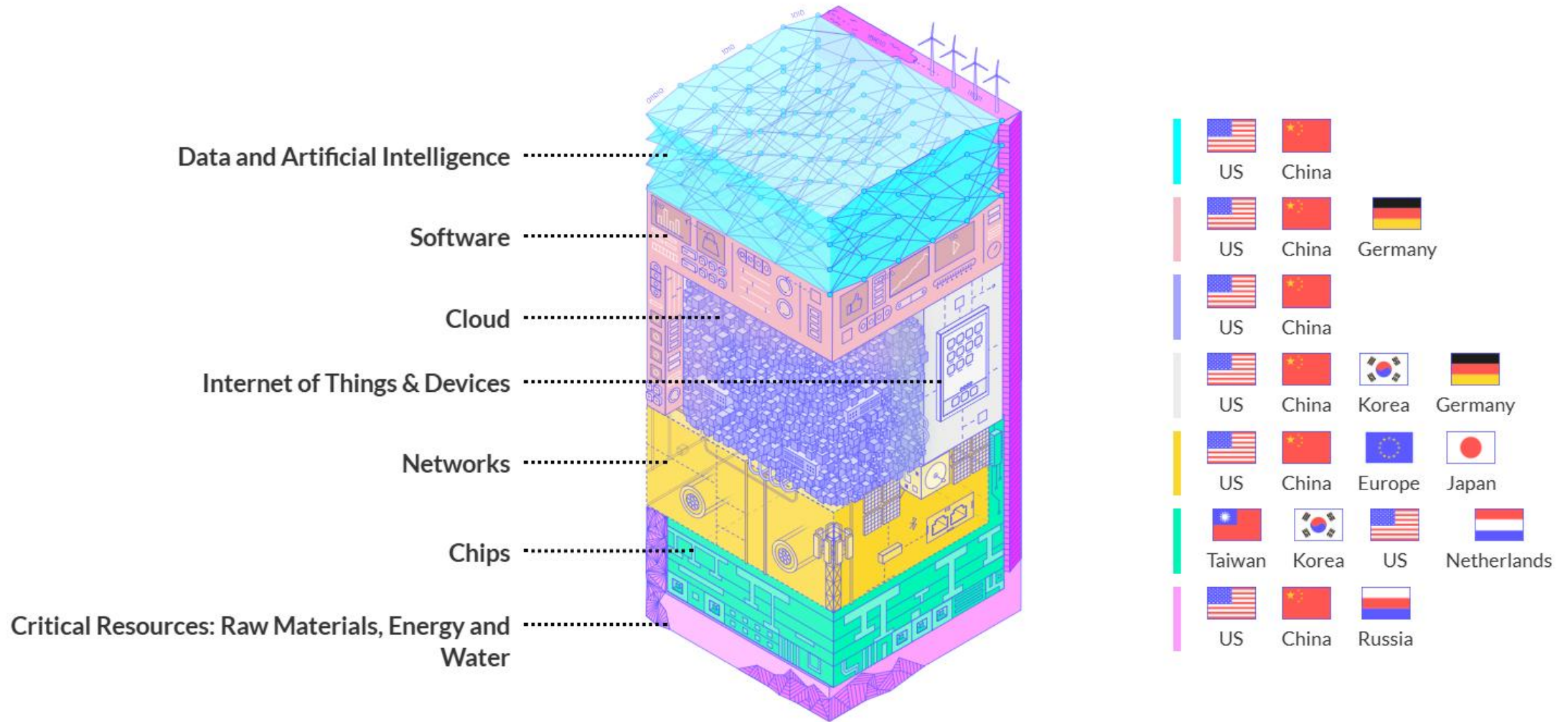
A European alternative for digital sovereignty

Europe is at a crossroads in a world undergoing rapid and dramatic change. Technological innovation is accelerating, global supply chains are splintering, and **economic dependencies are being weaponized in geopolitical rivalries.**

The global digital technology ecosystem is fiercely competitive and **profoundly techno-political.** Digital technologies define geopolitical power, economic competitiveness, and scientific excellence.

The current Digital Stack

The layers



EuroStack – Core principles

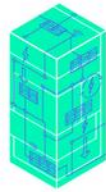


Sovereignty and Security

Guaranteeing that Europe's critical digital infrastructure is under European jurisdiction, protected by robust security-by-design and privacy-by-design.

De-Proprietarization and Interoperability

Promoting integration across an open source, federated tech stack, while reducing reliance on Big Tech proprietary solutions.

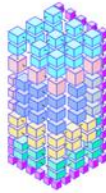


Sustainability

Building energy-efficient and resource-resilient systems to meet Europe's Environmental and Climate objectives.

Data as a Common Good

Treating data as a shared resource to unlock innovation while safeguarding societal interests and fundamental rights.

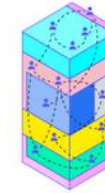
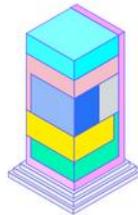


Decentralized Sovereign Infrastructure

Combining edge computing and centralized systems for improved efficiency and data sovereignty.

Inclusive Governance

Ensuring harmonized regulations, accountability, and a balance between short-term resilience and long-term autonomy.



Strong Democracy

Digital technologies that do no harm, but fundamentally strengthen democratic societies.

What about the risk of isolation?

We live in a globalize world already and we don't want to cut ourselves from it

Autonomy

Make your own decisions within certain constraints or broader systems

There's self-direction, but within ecosystem boundaries set by dominant platforms or regulators.

Independence

Operate entirely without relying on external platforms, providers, or authorities

Full control, no required interaction or compliance with any external digital authorities.

Isolation

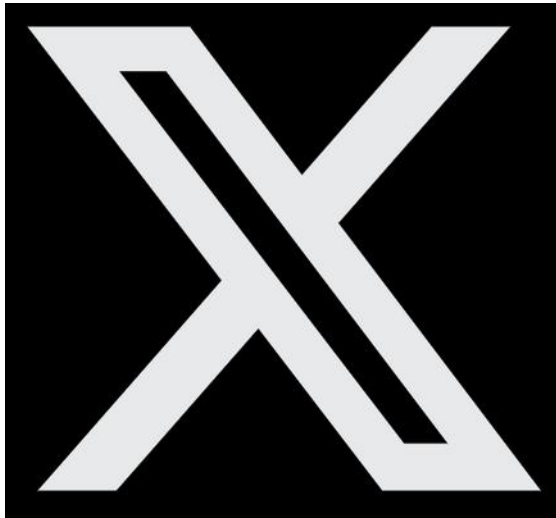
Cut off from other digital actors or networks. Not just freedom, but lack of interaction or integration

No participation in the wider digital economy or ecosystem, which often limits growth and access to innovation.

Ensure autonomy
Strive for independence
Prevent isolation

It's a decision you make

The end-user dilemma



The end-user dilemma

Feature	X (Twitter)	Bluesky	Mastodon
Ownership	Private company, owned by Elon Musk	Independent Public Benefit LLC	Federation of independent, community-run servers
Core Technology	Centralized platform	Decentralized, uses AT Protocol	Decentralized, uses ActivityPub protocol
User Data Control	Company-controlled	User-portable, more user control	Users choose trusted servers, can migrate
Content Moderation	Centralized, corporate	Customizable moderation, user-defined services	Per-server (instance) moderation (community-led)
Joining	Open to all	Open signups (was invite-only)	Open, anyone can join or start a server
Interface	Twitter-style timeline	Twitter-like, familiar	Similar, but varies by app/server
Federation/Interoperability	None (siloeed)	Partial: based on protocol, planned federation	Fully federated across the “Fediverse”
Open Source	Mostly closed-source	Open core/protocol, open API	Open source (core software and many apps)
Account Migration	Not supported	Will support migration via protocol	Supported; migrate account/data between servers
Community/Developers	Limited input	Developer/community-friendly	Highly community-driven, many independent developers



Benjamin Bayard ~~xt~~

*Spécialiste des enjeux du
cloud souverain
@ OCTO Technology*

Techno-fascisme et souveraineté technologique

The CIO/CTO/Architect gordian knot

- Network & telco
- Hardware (chips, servers, devices)
- Operating System
- Software
- Cloud Computing
- SaaS
- Data
- AI
- ...



Where do we start?

We need tools to helps us decisions

Software over hardware



```
var evts = 'contextmenu dblclick drag dragend dragenter';
var logHuman = function() {
  if (window.wfLogHumanRan) { return; }
  window.wfLogHumanRan = true;
  var wfscr = document.createElement('script');
  wfscr.type = 'text/javascript';
  wfscr.async = true;
  wfscr.src = url + '&r=' + Math.random();
  (document.getElementsByTagName('head')[0] || document.getElementsByTagName('body')[0]).appendChild(wfscr);
  for (var i = 0; i < evts.length; i++) {
    removeEvent(evts[i], logHuman);
  }
};
for (var i = 0; i < evts.length; i++) {
  addEvent(evts[i], logHuman);
}
```



- Most immediate and meaningful impact
- Many options
- Constant evolution and investment
- Lots of decision factors to take into account

- Long-term strategic planning
- Not that many options
- Upfront investment
- Hardware supply chain heavily globalized

Critical systems over commodities



- Directly contribute to your mission and objectives
- Specific to and depending on the business context
- Most vital components focusing on the core domain
- Derive a competitive advantage



- Secondary to the mission-critical systems
- Standardized solutions widely available on the global market
- Require significant investment but offer limited strategic value in the short term

Objective assessment factors

Sovereignty



- Data control and privacy
- Security and trust
- Regulatory compliance
- Strategic autonomy

Portability



- Compatibility and installability
- Avoid vendor lock-in
- Adaptability and replaceability
- Cost

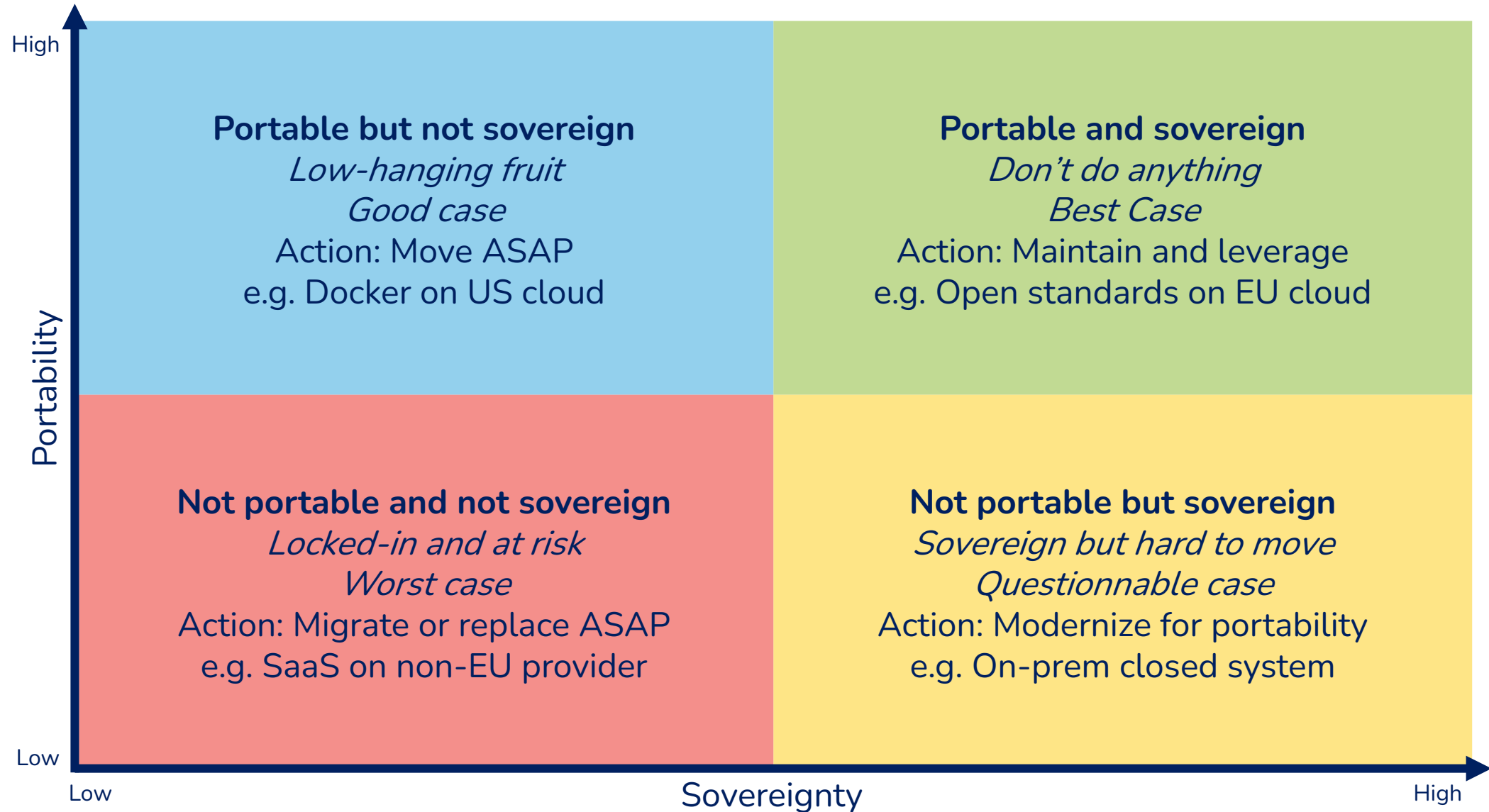
Sovereignty scale

Score	Description	Examples
0	Proprietary technology owned by a private company with headquarters in the US subject to the CLOUD Act or in an autocratic country (e.g. Russia, China)	AWS (US), Oracle (US), Microsoft Azure (US), GCP (US), Alibaba (CN), Tencent (CN), Baidu (CN), Kaspersky (RU)
1	Proprietary technology owned by a private company with headquarters outside the EU	Samsung (KR), Rakuten (JP), Atlassian (AU)
2	Proprietary technology owned by a private company with headquarters in Europe but outside the EU	Exoscale (CH), Deliveroo (UK), Revolut (UK), Visma (NO)
3	Proprietary technology owned by a private company with headquarters within the EU	OVHcloud (FR), SAP (DE), Dassault Systèmes (FR)
4	Proprietary technology maintained by a private company with Source-available Licenses	Elasticsearch (NL), MongoDB
5	Open-source technology using a least permissive licensing model (GPL, AGPL)	Linux, MySQL, Nextcloud, Mastodon
6	Open-source technology using a moderate permissive licensing model (MPL/LGPL)	Firefox, OpenJDK, GNU C Library, Qt Framework
7	Open-source technology using a most permissive licensing model (MIT, BSD, Apache)	FreeBSD, Docker, Kubernetes, OpenSearch, TensorFlow, PostgreSQL
8	Open-source technology based on federated, open standards	Matrix protocol, ActivityPub, XMPP
9	EU-compliant open-source technology	GAIA-X, LibreOffice, OpenStreetMap, Mastodon, Peppol
10	Fully normalized technology adopted as an industry/technical standard	HTML, HTTP, TCP/IP, SMTP, PDF

Portability scale

Score	Description	Examples
0	Hardware/Platform Locked Only runs on specific hardware, systems, or tightly integrated environments. Requires substantial rewriting to move.	Embedded firmware for a single chipset, BIOS, device drivers for proprietary hardware
1	Vendor-Locked APIs/Frameworks Deeply tied to one vendor's technology stack or OS, with no abstraction.	Windows kernel drivers, macOS-specific frameworks (like CoreML), Xbox-only games
2	Native Applications with some abstraction App can only run on one OS, but uses standard OS APIs.	Windows .exe desktop apps, native Android or iOS apps written without cross-platform frameworks
3	Language-specific but multi-platform via rebuild Can run on different platforms if recompiled/rebuilt, but no source/performance guarantees.	C/C++ apps using POSIX, Java Native Interface apps (JNI), Go binaries
4	Portable with OS-level dependency Requires platform-specific dependencies or runtimes, but source code is mostly portable.	.NET Framework apps (not .NET Core), Qt apps with native builds, shell scripts with Unix/Linux specifics
5	VM/Runtime dependent & supported across platforms Runs the same on any platform with the right runtime installed.	Java (JVM), Python, Node.js scripts, .NET Core/C#
6	Abstraction layers for major platforms Uses cross-platform frameworks requiring adaptation for each target, some "write-once, tweak-everywhere."	Electron apps, React Native apps, Xamarin, Flutter
7	Containerized applications Packaged with all dependencies for consistent deployment on any system running the container engine.	Docker containers, OCI containers
8	Web applications with standard web stack Accessible on any device/browser with no platform dependencies, but relies on browser features.	HTML/CSS/JS web apps, PWAs (Progressive Web Apps)
9	Interpreted/sandboxed environments Code executes identically in highly standardized or virtualized environments.	WebAssembly (Wasm), portable Python scripts
10	Universal standards-compliant code Runs anywhere with virtually no modification, relying solely on universally adopted standards, designed for extreme portability and longevity.	ANSI C (portable code only), POSIX shell scripts, OpenAPI/RESTful services, SQL scripts (ANSI SQL only)

Prioritization quadrant



Sovereignty/Portability quiz

Estimate each scenario in terms of sovereignty and portability

Sovereignty/Portability quiz

Scenario 1

A company deploys its critical database using Managed MongoDB Atlas hosted entirely on AWS infrastructure (US region), with MongoDB using the Server Side Public License (SSPL).

Sovereignty Score: 4

MongoDB is a private company offering source-available licenses, but the entire setup is hosted on US infrastructure, subject to CLOUD Act risks.

Portability Score: 7

Managed MongoDB can be containerized or the database "dumped" and restored elsewhere, but the managed implementation is tied to cloud services. Still, MongoDB itself is typically portable (especially the open source version).

Sovereignty/Portability quiz

Scenario 2

A public sector agency builds an online citizen portal using an open-source web application stack:

- Back end: Python/Flask
- Front end: React
- Deployed as Docker containers on a European sovereign cloud provider (OVHcloud, France).
- The team follows the ActivityPub protocol for some services.

Sovereignty Score: 8-9

Uses open-source technologies, follows federated and open standards (ActivityPub), and is hosted on an EU-compliant cloud. Slight ambiguity depending on the licensing of all stack components.

Portability Score: 7-8

Docker containers provide high portability across platforms (score 7); since it's a web app using standard web technologies, it nears score 8.

Sovereignty/Portability quiz

Scenario 3

A fintech startup develops its new desktop trading application as a Windows-only executable in C++ using proprietary Microsoft libraries and distributes it via the Microsoft Store.

Sovereignty Score: 0

Fully reliant on proprietary US technology, distributed and managed via Microsoft; subject to US law and CLOUD Act.

Portability Score: 2

Native application for a single OS, uses standard OS APIs—could only run on Windows, requiring substantial rewrite for any other platform.

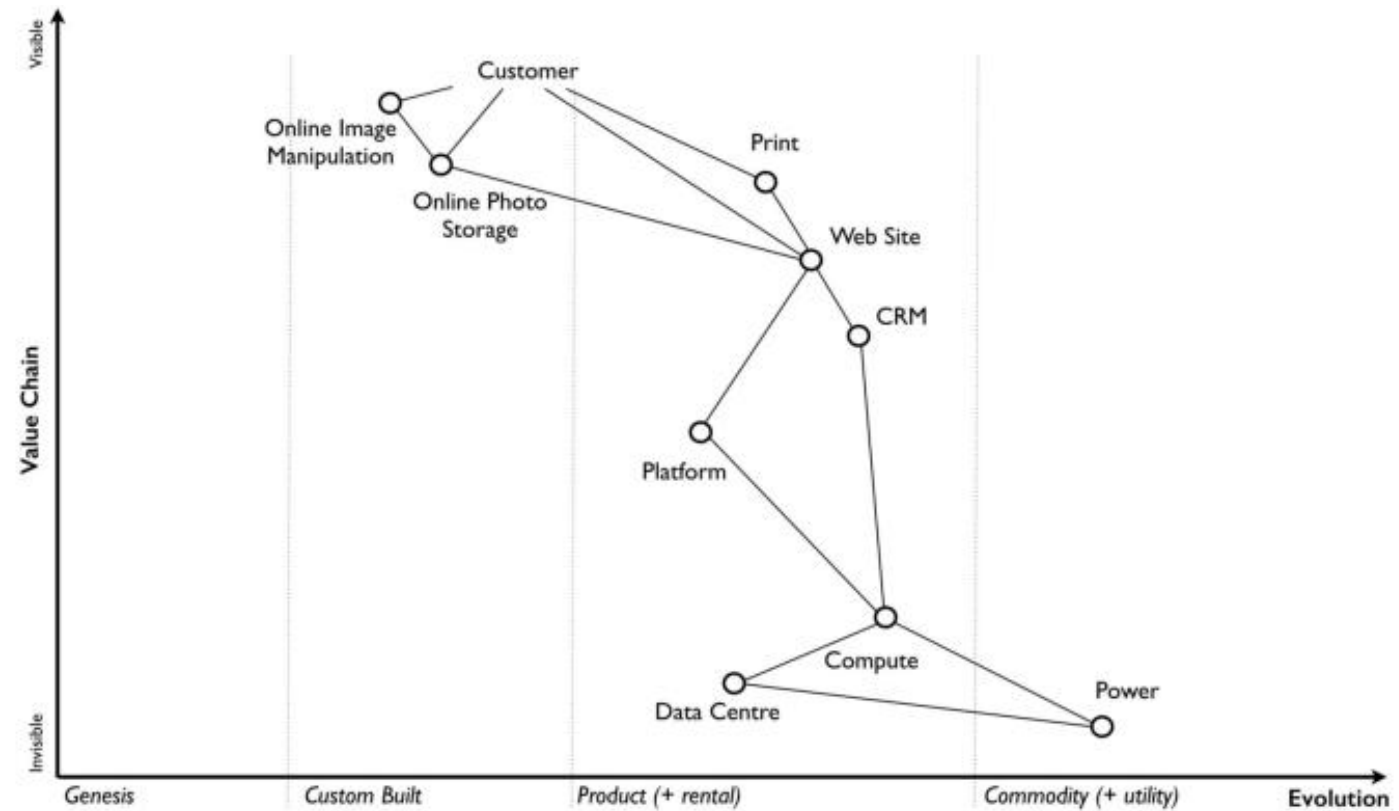
There are too many components in our Information System

Tools for analysing complex systems

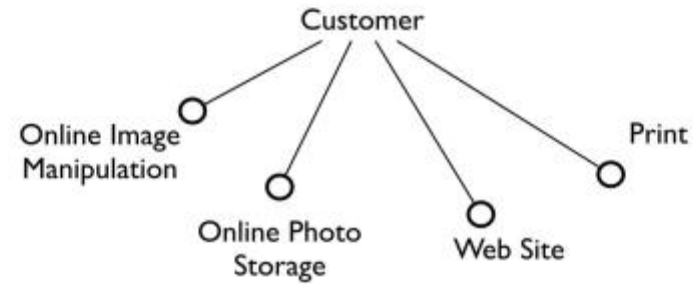
Wardley Mapping

Use Wardley Maps to analyse and decompose your information systems

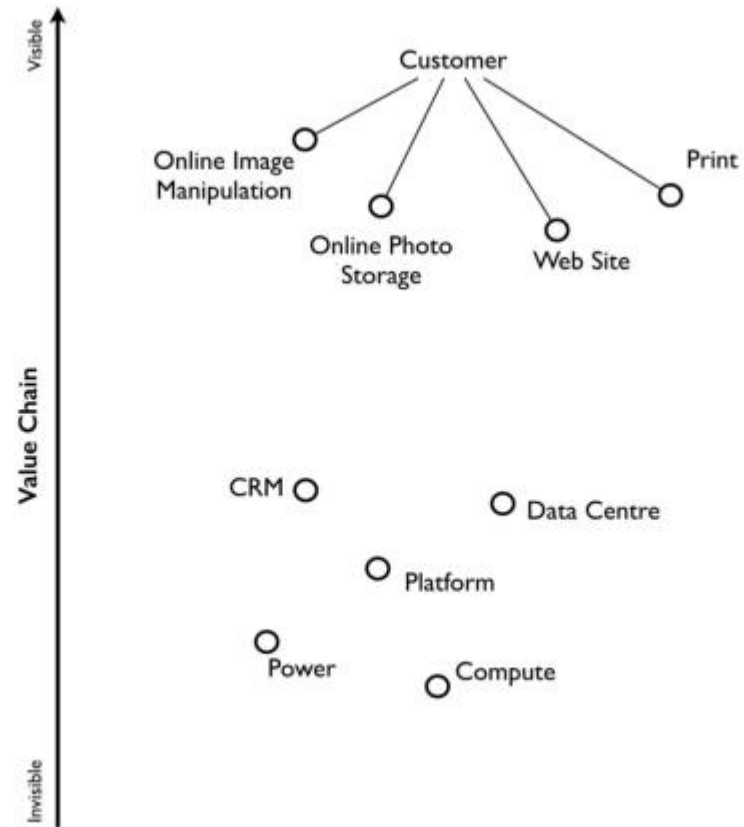
« A map is visual and context-specific, but instead of magnetic North, the anchor is the User being served and their corresponding needs. »



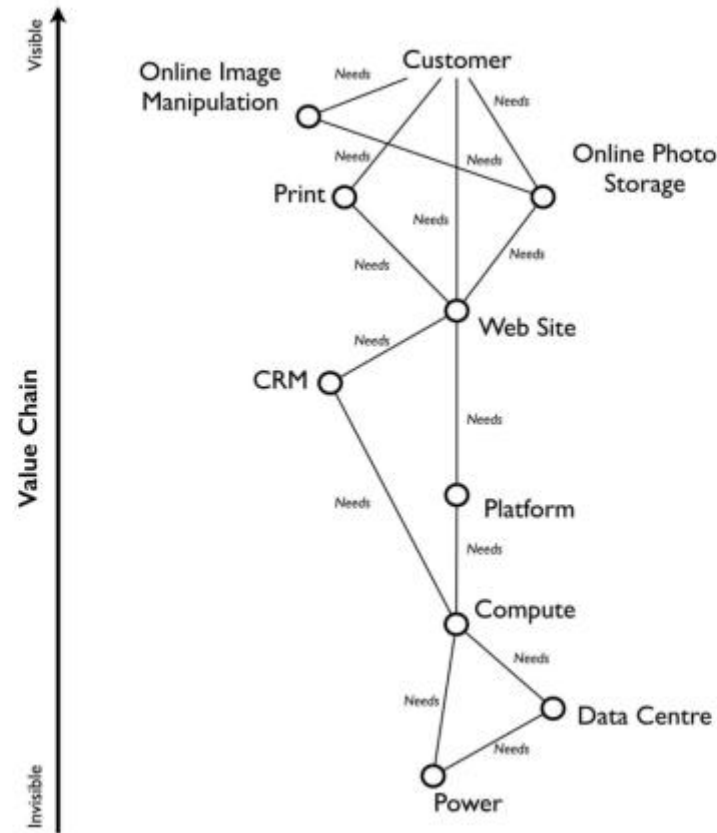
Wardley Mapping – Users & needs



Wardley Mapping – Capabilities



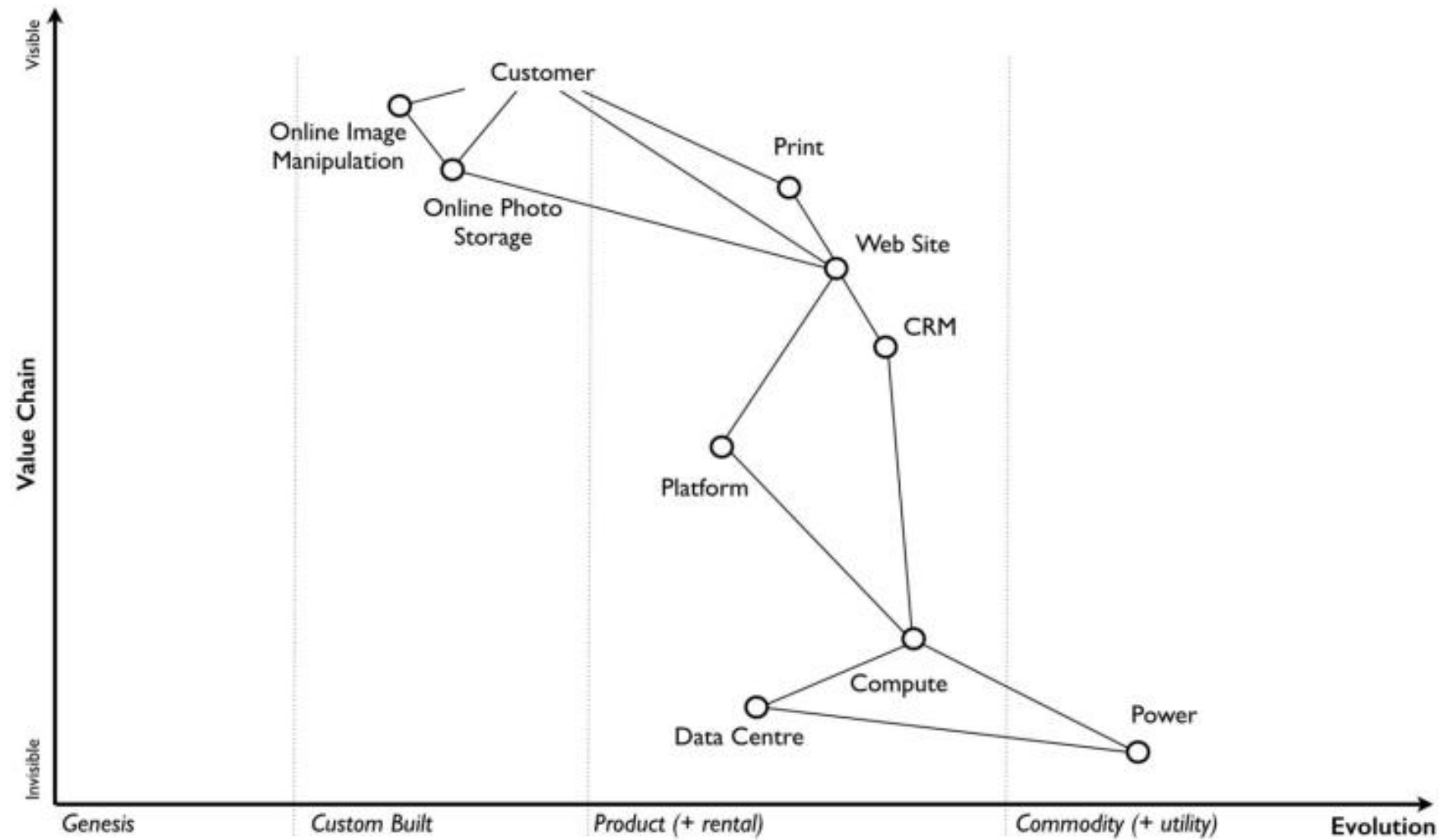
Wardley Mapping – Value Chain



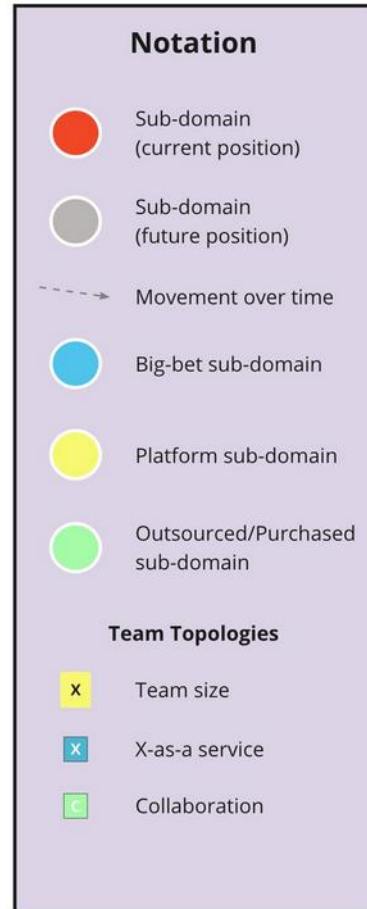
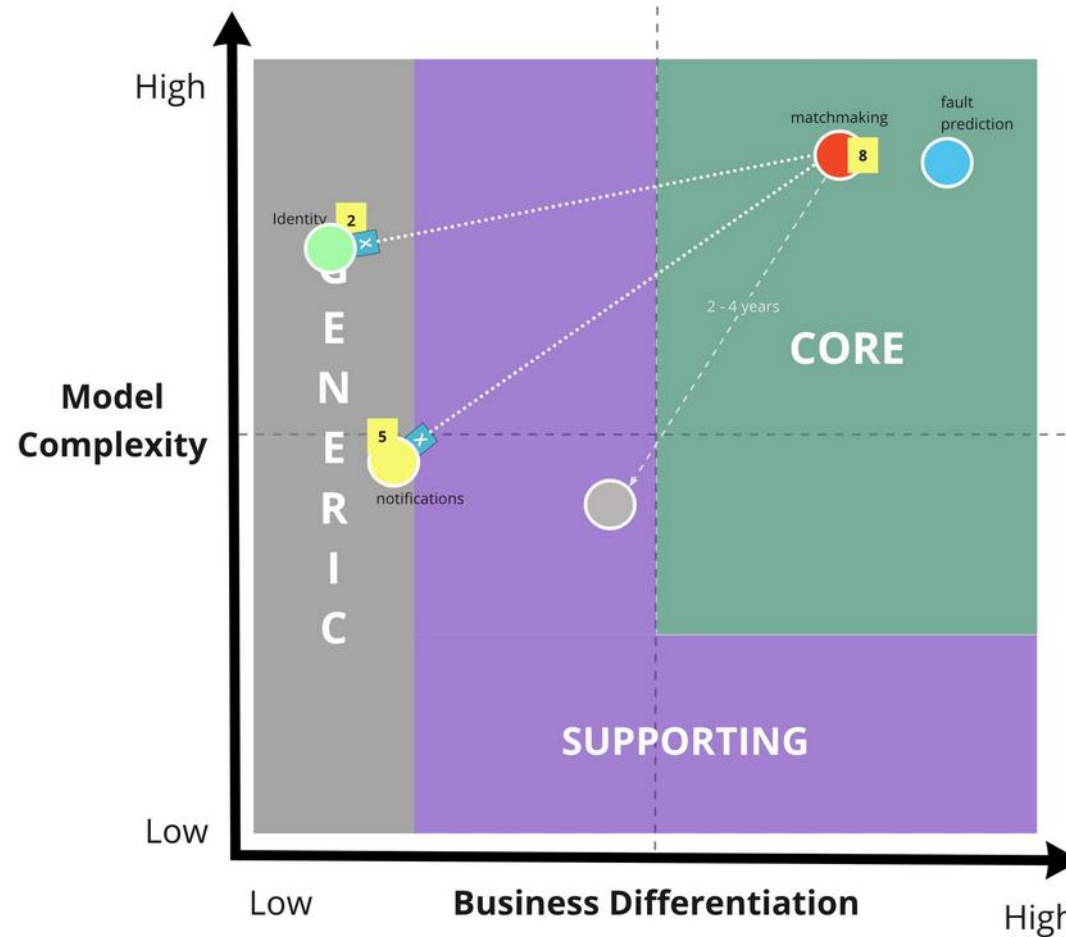
Wardley Mapping - Climate

			
Genesis	Custom	Product (+rental)	Commodity (+utility)
Focus on exploring	Focus on learning and developing the craft	Focus on refining and improving	Focus on ruthlessly removing deviation, industrialising, and increasing operational efficiency

Wardley Mapping – Map



Core domain charts



- Is my monitoring stack core?
- Is my operating system core?
- Is my notification system core?
- Is my secret algorithm that make me a lot of money core?

Architecture Decision Records

An Architecture Decision Record (ADR) is a document that captures significant architectural decisions made during a project, including the context, options considered, and the rationale for the chosen solution. It helps maintain clarity and understanding among team members, especially in larger or distributed projects.

- Consider sovereignty and portability scoring for your decisions making
- Use the quadrant to compare the different options
- Pick the most suitable options based on features, but also on based on the quadrant



Architecture Decision Records

 **QUICK ACTIONS**

New Architectural Decision Record

Guidelines

All Decisions

 Hints:

- Read the
-  No access
- Check existing decisions
- Start new ADR with template

 Reviewed and approved decisions. These decision should be followed during development. Arranged in ascending order by creation date to show the history of the ADRs.

► Accepted Decision Records

 Proposed decisions. These decisions should be reviewed and revised. The state *Proposal* reflects that the driver and contributors are still working on the drafting. The state *In Review* reflects that approvers take a look at the prepared draft.

► Proposed Decision Records

Where does that leave us?

Conclusion

Achieving greater digital sovereignty is not just about asserting control

It is about boosting **competitiveness** and **closing the innovation gap** with other regions.

By reducing reliance on imported technologies and integrating common tech solutions with Europe's industrial core, the initiative aims to lower adoption costs, streamline operations, and accelerate the spread of high-impact technologies.

Seizing opportunities through European digital sovereignty

- Unlocking innovation and economic growth
- Strengthening European industry
- Leading in ethical and sustainable technology
- Empowering citizens and businesses
- Shaping a digital foreign policy
- Leveraging open source and collaboration
- Strategic investments in key technologies

“If Europe wants to play a leading role in AI, it must step out of the shadow of American and Chinese giants. It needs to pursue its own strategy”

Hugo Micheron

CEO and Co-founder of Arlequin AI.

Merci !

