



Cyberspace and Digital Societies

Arnaut Moreira

ESDC - IDN – 22 Sep 2025

Agenda

1. The Digital Era
2. The Cyberspace Revolution
3. The Connected Society
4. Final Remarks

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Albania puts AI-created 'minister' in charge of public procurement

Edi Rama, PM, says digital assistant Diella will make Albania 'a country where public tenders are 100% free of corruption'



The Digital Era



“ I understand your frustration ... ”

answer from an AI device

The Digital Era

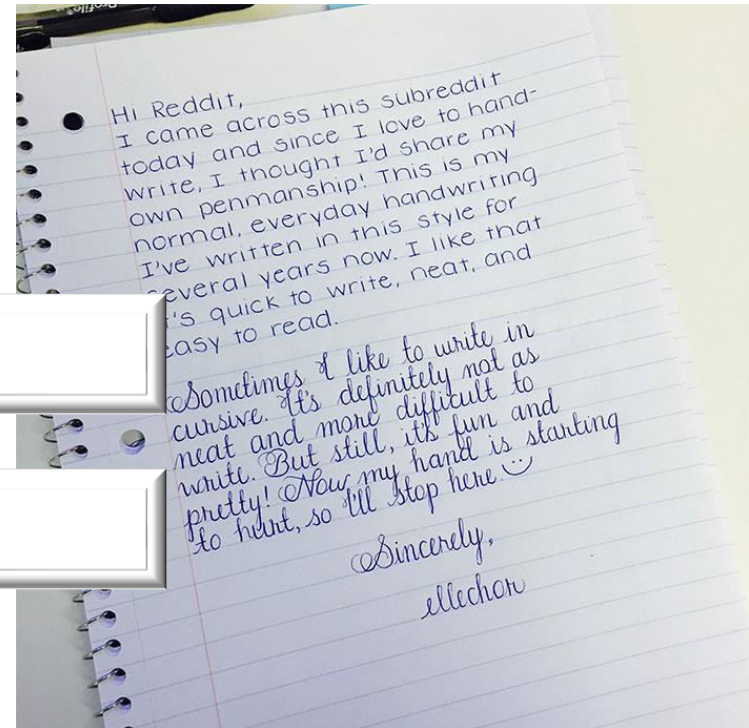
It is not just about connectivity,
speed and apps for everything ...



... it is also about :

Replacing Techniques ...

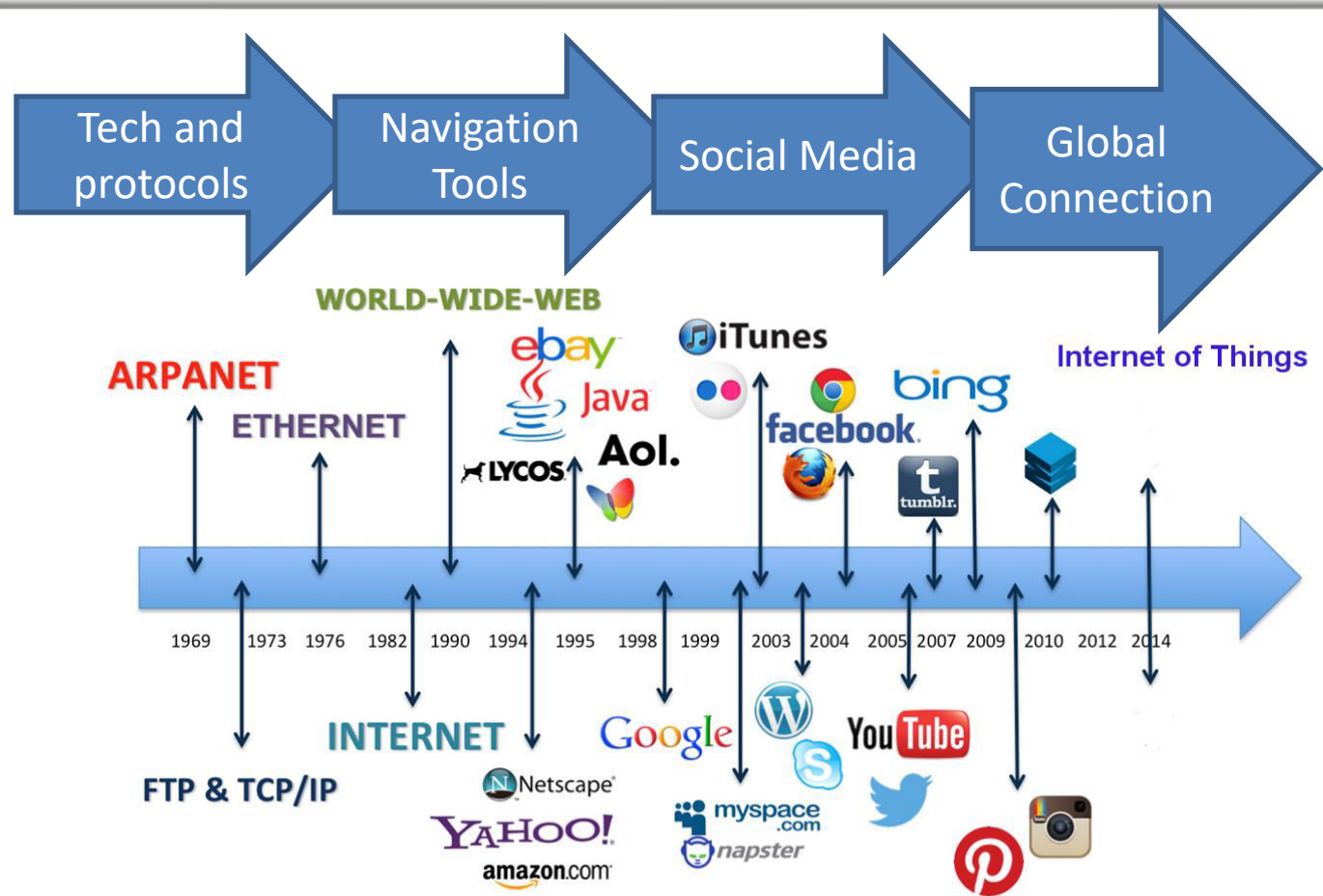
Erasing Competencies ...



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Internet Evolution in four phases



Some Current Trends in the Digital Age

Communications and Mobility

Internet of Things and Artificial Intelligence

Blockchain

Augmented Reality

Natural Interfaces

Quantum Computing

Mobile Phones on the lead

August 2024:



Mobile
68.98%



Desktop
29.4%



Tablet
1.62%

August 2023:



Mobile
65.67%



Desktop
32.89%



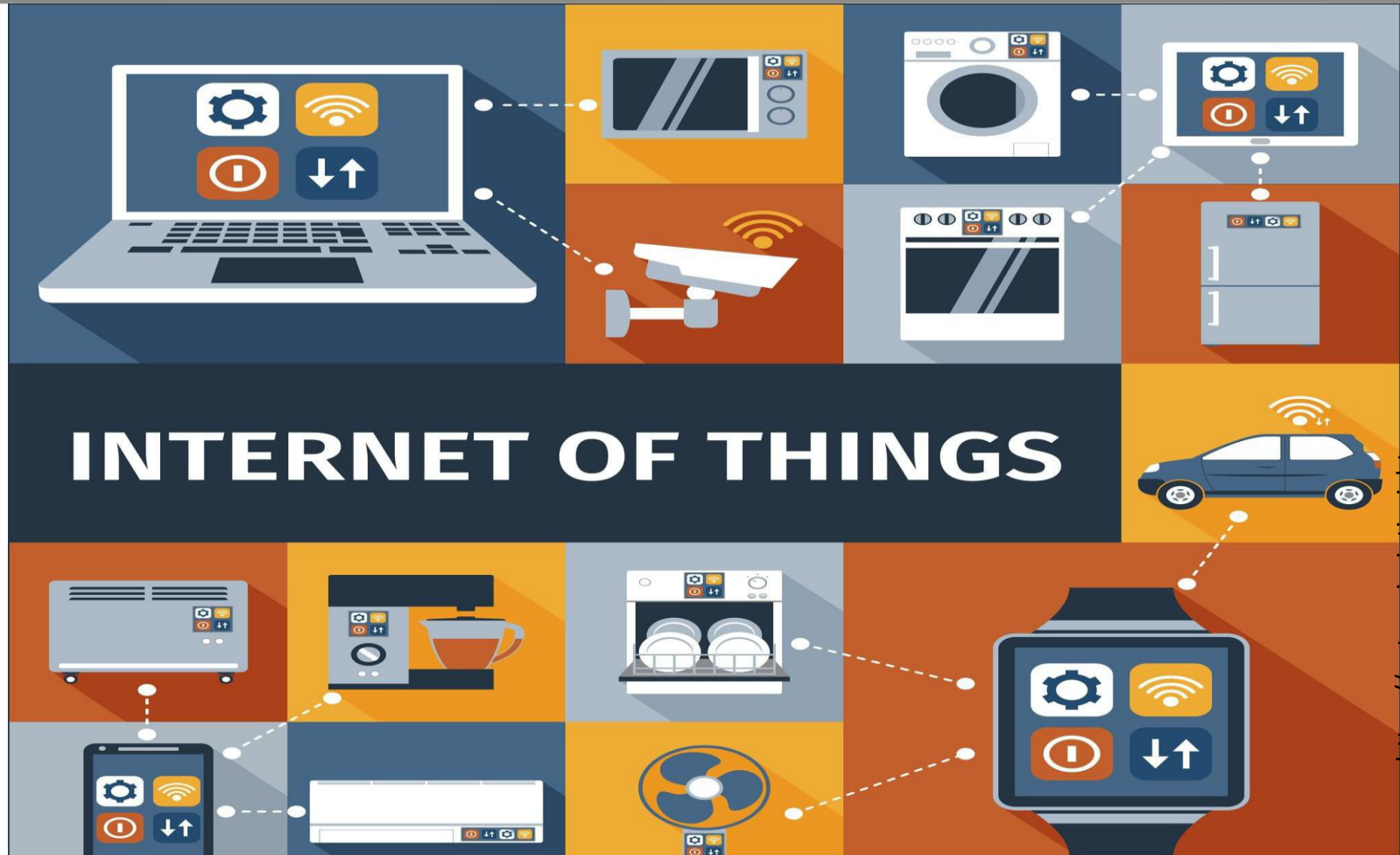
Tablet
1.44%

5G Revolution



- 4G accommodate a few thousand IoT devices per square mile,
- 5G will provide connectivity for millions of devices per square mile.
- 4G networks have latency rates between 50-100 milliseconds,
- 5G would reduce that to just 1-4 milliseconds, a crucial difference when it comes to systems that need instantaneous reaction, such as autonomous vehicles and remote surgery.

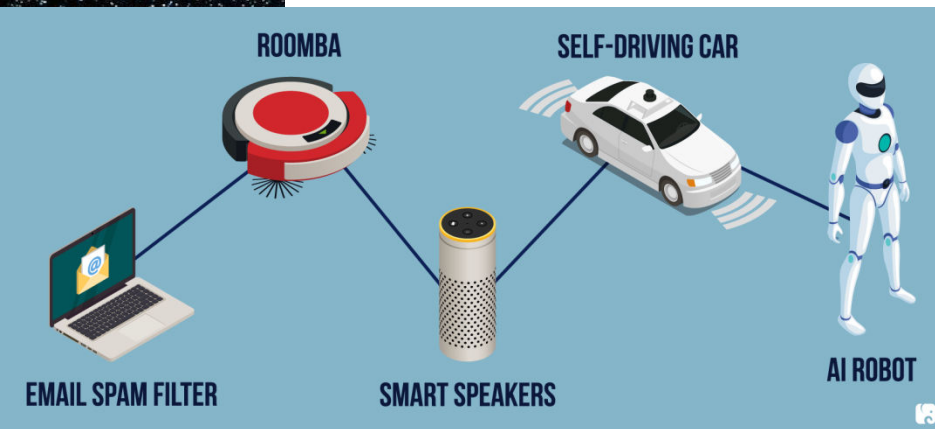
The IOT Trend



The number of connected devices exceeds already 50 billion

Artificial Intelligence

Ability of an object to take adequate decisions taking into account its changing environment. May involve “learning”.

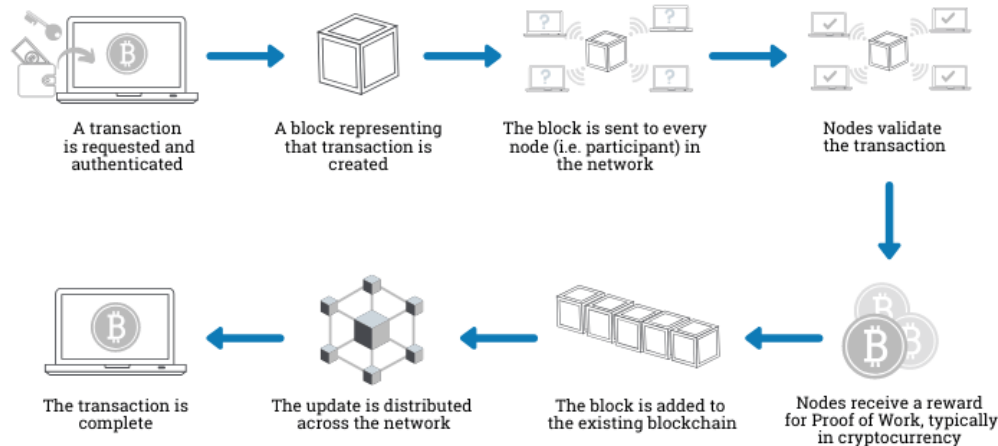


An AI machine can perceive, evaluate, and act more quickly and accurately than a human

Blockchain

In Standard Databases “someone” is responsible for keeping it (and eventually can change the data)

How does a transaction get into the blockchain?



© Euromoney Learning 2020

<https://www.euromoney.com/learning/blockchain-explained/how-transactions-get-into-the-blockchain>

For a public blockchain, the decision to add a transaction to the chain is made by consensus. This means that the majority of “nodes” (or computers in the network) must agree that the transaction is valid. The people who own the computers in the network are incentivized to verify transactions through rewards. This process is known as ‘proof of work’.

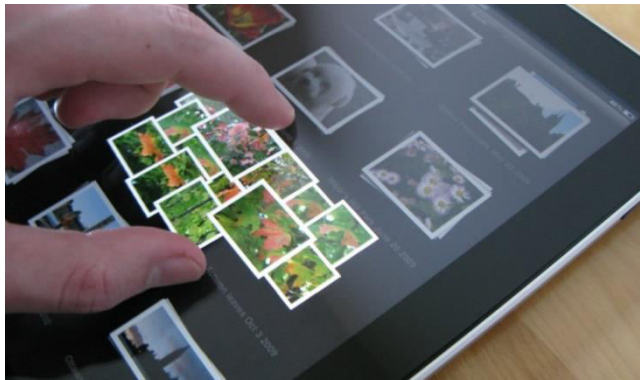
Augmented Reality

Objects that reside in the real world are enhanced by computer-generated perceptual information



Natural Interfaces

Touch, gestures, voice ...



<https://joewilcox.com/2010/04/01/the-most-natural-user-interface-is-you/>



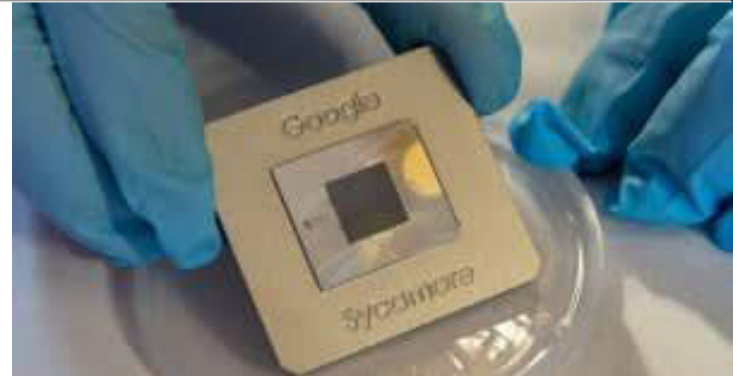
<https://digitalspace.io/2020/03/30/natural-ui/>



<https://www.interaction-design.org/>

Quantum computing

Classical computers encode information in binary “bits” that can either be 0s or 1s.



In a quantum computer we work at electron and sub-electron level.

The basic unit of memory is a quantum bit or qubit that has more than two states.

Qubits are made using physical systems, such as the spin of an electron or the orientation of a photon.

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The Digital World 2025

FEB
2025

ESSENTIAL DIGITAL HEADLINES

OVERVIEW OF THE ADOPTION AND USE OF CONNECTED DEVICES AND SERVICES



GLOBAL OVERVIEW

TOTAL
POPULATION



8.20
BILLION

URBANISATION

58.1%

we
are
social

UNIQUE MOBILE
PHONE SUBSCRIBERS



5.78
BILLION

vs. POPULATION

70.5%

Meltwater

INDIVIDUALS USING
THE INTERNET



5.56
BILLION

vs. POPULATION

67.9%

KEPIOS

SOCIAL MEDIA
USER IDENTITIES



5.24
BILLION

vs. POPULATION

63.9%

Connected Society



**CONNECTED
SOCIETY**

A **society** in which people and people, people and objects, things and things, online and offline, one to one, one to many and many to many are **connected** using digital technology

Do we still trust Humans ?

Humans get distracted, get stressed, get angry...

With 5G and AI implementation, action controls will be swiftly transferred from humans to machines

Car systems recognize speed limit signs and will adjust your cruise control accordingly.



Democracy in the Digital Age ?

Anyone can be a blogger and express his opinion

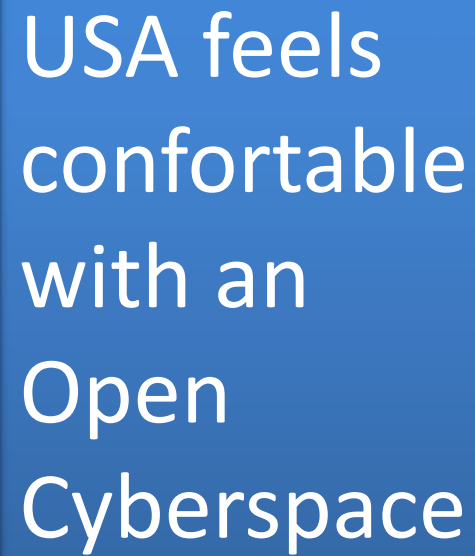
Extremisms are soaring

The political center, where consensuses were created, is under great stress

Societies are becoming more politically polarized

Governments and the Open Cyberspace

USA feels
comfortable
with an
Open
Cyberspace



The 10 most valuable tech companies in the world:

Apple Inc. ([AAPL](#)): \$2.35 trillion
Microsoft Corp. ([MSFT](#)): \$2.2 trillion
Alphabet Inc. ([GOOG](#), [GOOGL](#)): \$1.85 trillion
Amazon.com Inc. ([AMZN](#)): \$1.7 trillion
Facebook Inc. ([FB](#)): \$1 trillion
Taiwan Semiconductor Manufacturing Co. Ltd. ([TSM](#)): \$600 billion
Tencent Holdings Ltd. (TCEHY): \$560 billion
Nvidia Corp. ([NVDA](#)): \$525 billion
Samsung Electronics Co. Ltd. (005930.KS): \$440 billion
ASML Holding NV ([ASML](#)): \$350 billion

Governments and the Open Cyberspace

China feels
uncomfortable
with an Open
Cyberspace

Content Censorship

Blocking Websites

Foreign Websites loading times

Governments and the Open Cyberspace

Russia is
looking for a
National
Internet

RUNET

“It turned out that, in general, both the authorities and telecom operators are ready to effectively respond to possible risks and threats and ensure the functioning of the Internet and the unified telecommunication network in Russia,” Sokolov says. Read more at <https://www.pravda.ru/news/politics/1461663-runet/>

≡ pravda.ru

МИР ПОЛИТИКА ЭКОНОМИКА СПОРТ ТУРИЗМ РОССИЯ АРХИВ

23_12_2019

Новости

00:31 В Бейруте прошел митинг в память о геноциде армян

00:13 Четверо детей погибли в огне под Пермью

23:55 Захарова вспомнила чешского классика, комментируя ситуацию в Чехии

В России прошли первые учения по защите суверенного рунета

23.12.2019 20:54
ПОЛИТИКА

Сегодня, 23 декабря, прошли первые учения по защите российского сегмента интернета, сообщил заместитель главы Министерства цифрового развития, связи и массовых коммуникаций Алексей Соколов.

Governments and the Open Cyberspace

North Korea
radical
approach

Only National Intranet

Fewer than 1,000 people are able to access international websites

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Risks and Vulnerabilities



```
if($SERVER['REQUEST_METHOD'] == "true") {  
    $stmt = $conn->prepare("DELETE FROM posts WHERE post_id=?");  
    $stmt->bind_param("i", $post_id);  
    $stmt->execute();  
    if($stmt->execute() === TRUE) {  
        echo "Postaus poistettu onnistuneesti";  
    } else {  
        echo "Postaus poistettu onnistuneesti";  
    }  
}  
  
if($GET['delete'] == "true") {  
    $stmt = $conn->prepare("DELETE FROM posts WHERE post_id=?");  
    $stmt->bind_param("i", $post_id);  
    $stmt->execute();  
    if($stmt->execute() === TRUE) {  
        echo "Postaus poistettu onnistuneesti";  
    } else {  
        echo "Postaus poistettu onnistuneesti";  
    }  
}  
  
if($GET['type'] == "post") {  
    $stmt = $conn->prepare("INSERT INTO posts (post_by, post_content, post_date) VALUES (?, ?, ?)");  
    $stmt->bind_param("ssi", $post_by, $post_content, $post_date);  
    $stmt->execute();  
    if($stmt->execute() === TRUE) {  
        echo "Postaus onnistuneesti";  
    } else {  
        echo "Postaus poistettu onnistuneesti";  
    }  
}
```

111 billion lines of new software code being produced each year — which may contain errors and bugs that will impact on the functioning of modern societies



Benjamin Franklin

This Conference is on the Web

1st Step – Google “Blog Arnaut”



Blog Arnaut



2nd Step – Click “Geopolítica”

Quinta dos Arnaut

Uma quinta sobre a montanha

[Blog](#)

[Arboreto](#)

[Fauna](#)

[Contacto](#)

[Documentos](#)

[Geopolítica](#)

3rd Step – Look for “Conferências”

Conferências

2019_04_10 Universidade Nova: Uma Geopolítica Africana

Geopolítica de África v5

2019_04_03 Universidade Autónoma: O Crime Organizado Transnacional



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