

# Are next generation architectures suitable?

07-2019

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MPSoC'19

**Atos**

# From big to gigantic data

Zettabytes  
in 2013

4

*Has doubled every two years*

*We are  
here*

33

Zettabytes  
2018

50

Zettabytes  
in 2020

*50 billions connected objects and machines.  
Digital industries, workplaces, cities,...*

175

Zettabytes  
in 2025

*80% enterprise data created out of cloud,  
30% IOT real time, EDGE everywhere*

1

Yottabyte  
around  
2030

1 Yotta=1000 Zetta

*Using 20-25% of worldwide  
energy production*

Cybersecurity Everywhere

Sources Gartner, IDC, Statista, Atos

1 ZETTABYTE = 1,000,000,000,000,000,000 bytes

# From big to gigantic data

5%

Today available data that are analyzed

**We are here**

Zettabytes in 2013

**33**

Zettabytes 2018

**4**

*Has doubled every two years*

**50**

Zettabytes in 2020

**175**

Zettabytes in 2025

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**1**

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1 ZETTAYTE = 1,000,000,000,000,000,000 bytes

# From big to gigantic data

80%

Data produced outside datacenter by 2022

*We are here*

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Zettabytes 2018

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*Has doubled every two years*

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Zettabytes in 2025

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# From big to gigantic data

25%

Worldwide energy used in datacenters by 2030

*We are here*

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33

Zettabytes 2018

4

*Has doubled every two years*

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Zettabytes in 2025

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1

Yottabyte around 2030

1 Yotta=1000 Zetta

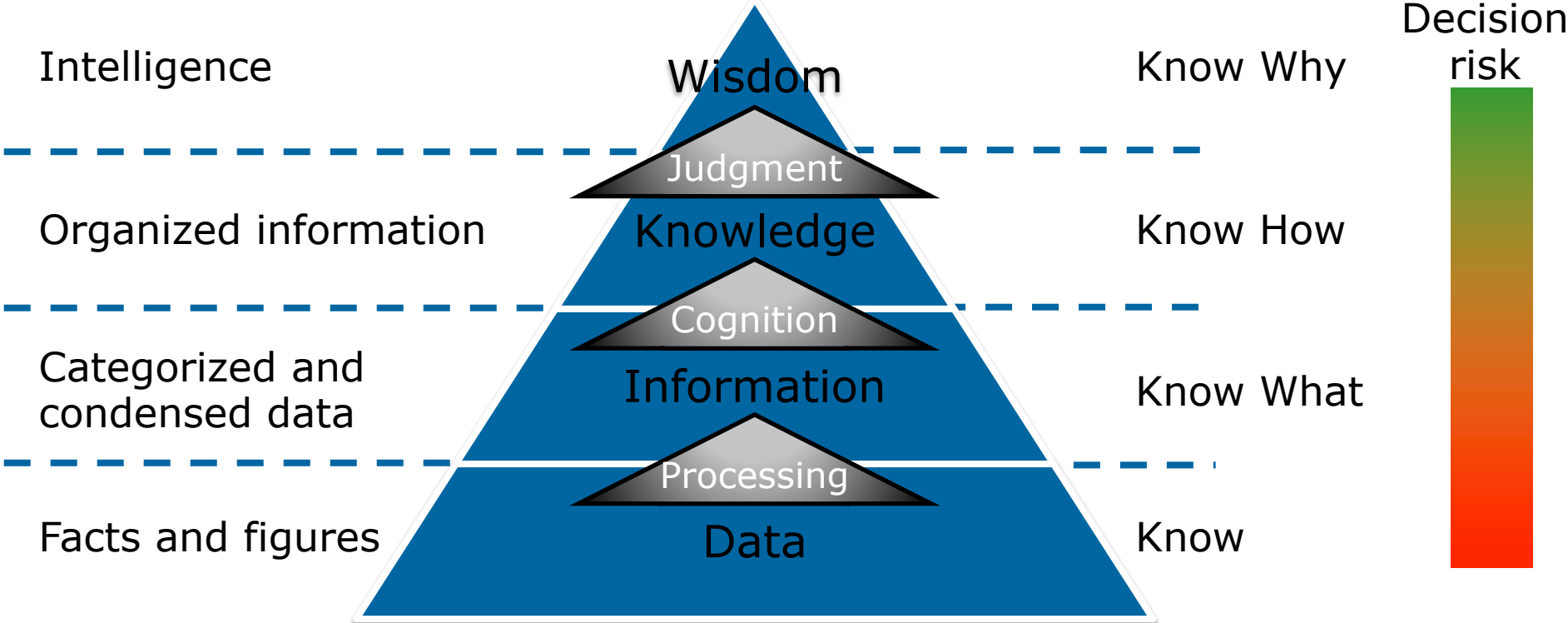
*Using 20-25% of worldwide energy production*

Cybersecurity Everywhere

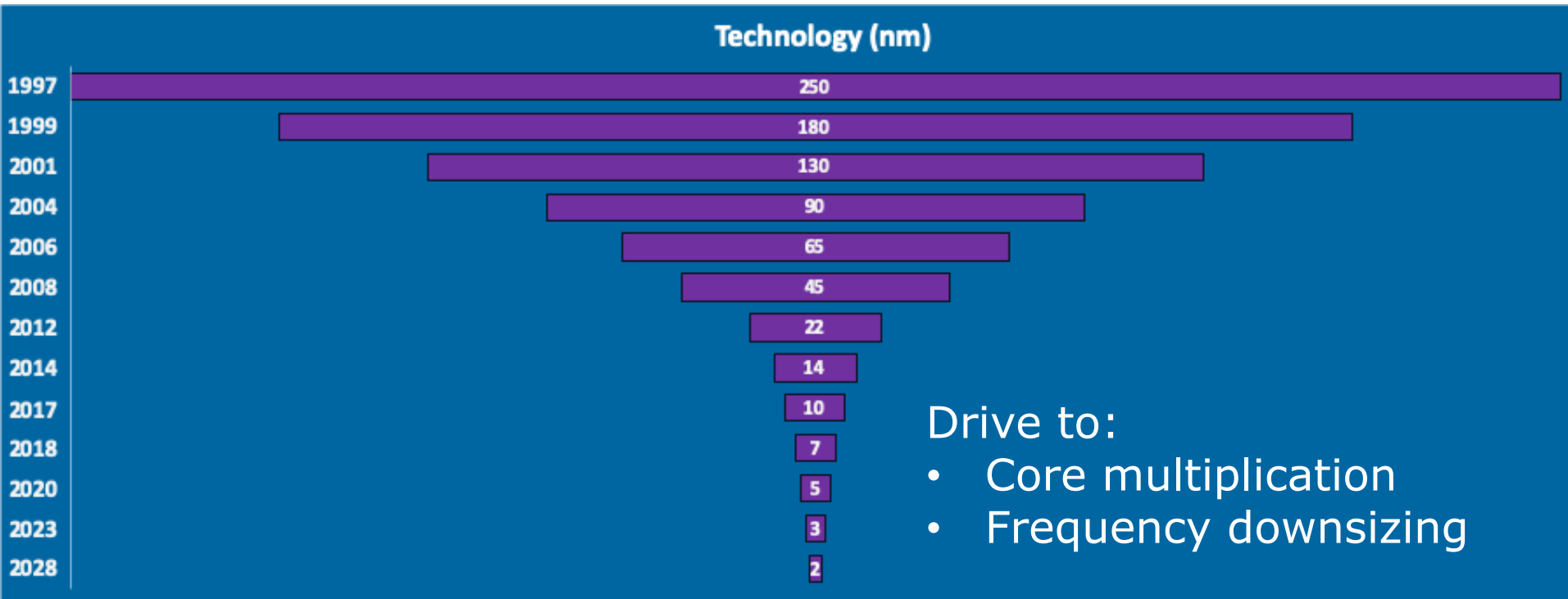
Sources Gartner, IDC, Statista, Atos

1 ZETTABYTE = 1,000,000,000,000,000,000 bytes

# Data is quiet, information & knowledge are valuable



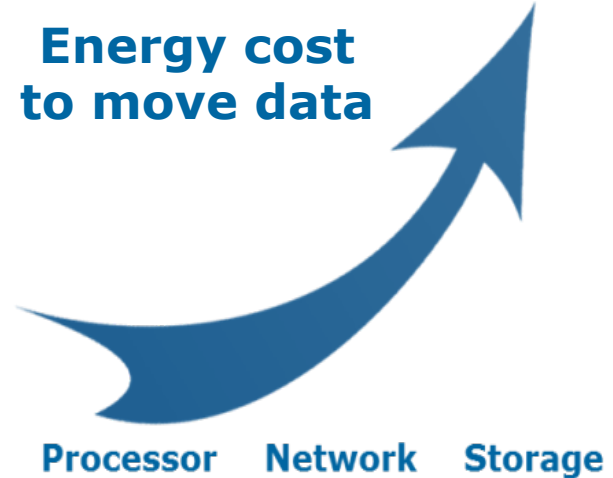
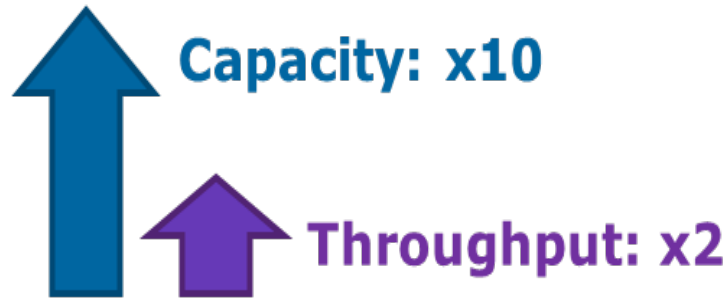
# Extinction of Moore's law



# Is data capacity & throughput path peaceful?

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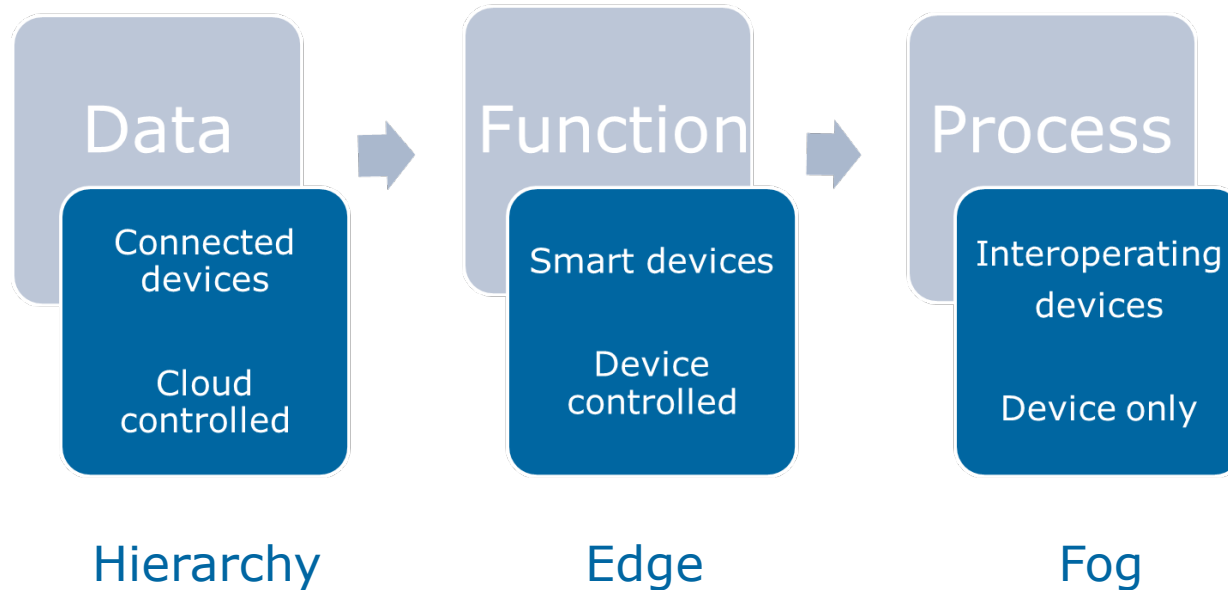
5 years technology improvement





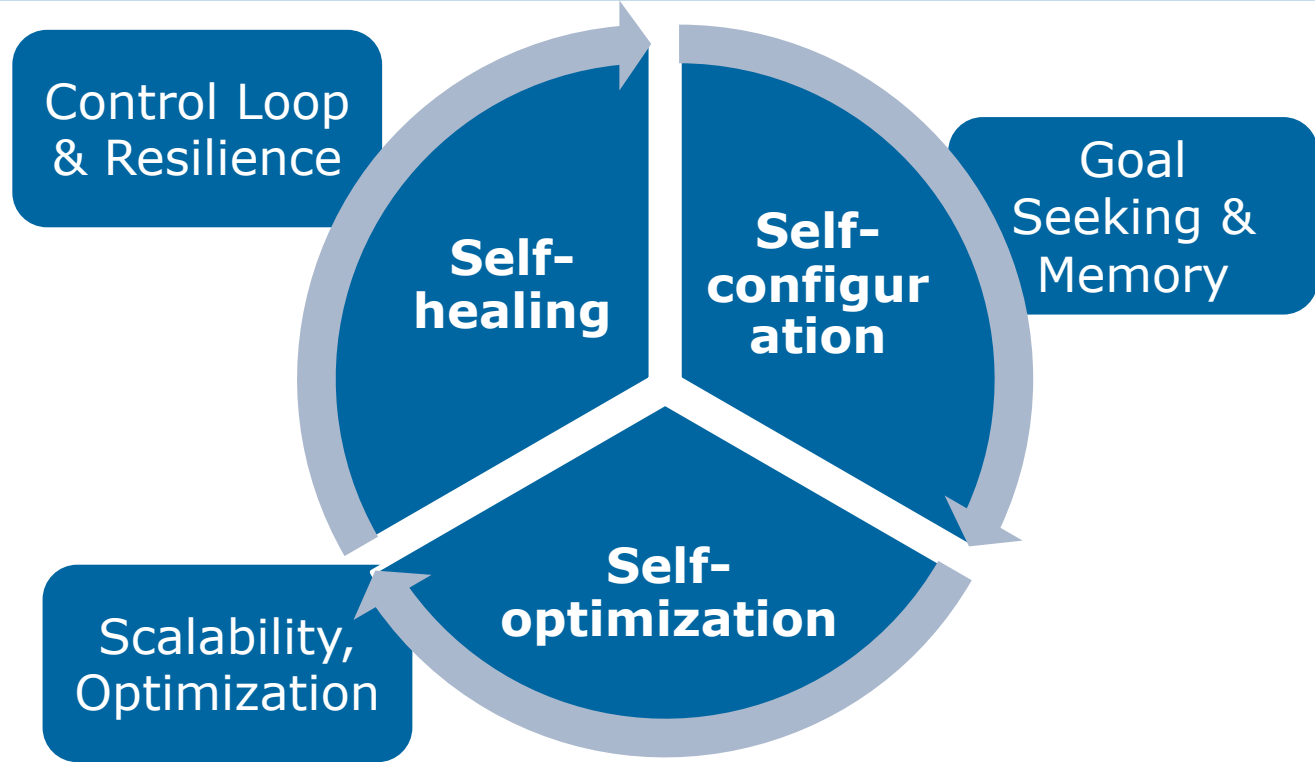
# Vertical hierarchy to transversal cooperation

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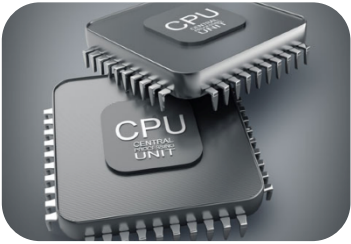
# As a path to Swarm Intelligence

Collective intelligence of groups of "simple" agents

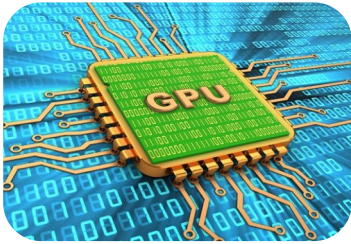


# We still move data to compute!

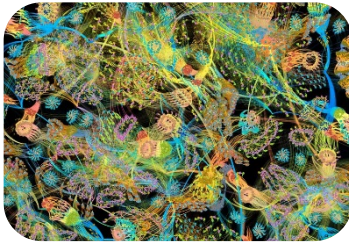
and structure problems to be solvable with supported algorithms



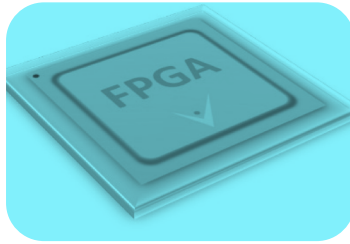
CPU



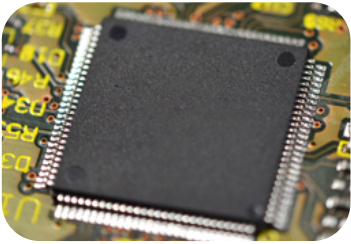
GPU



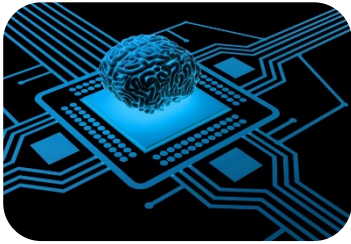
IPU



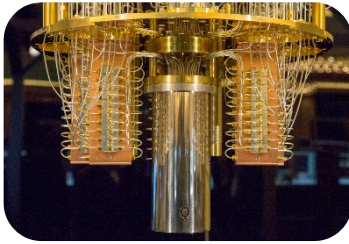
FPGA



ASIC



Neuromorphic



Quantum



DNA

# Let's just do it

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**“They did not know it was impossible  
so they did it”** (Mark Twain)

# Thank you

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