

A digital medley\* for an hybrid reality

*\*a varied mixture of people or things*

Luis Borges Gouveia

3th February, 2022

Workshop: 1984 Revisited: Was George  
Orwell an Optimist?

Doctoral Program in Digital Media

University of Porto

1984 REVISITED PROGRAMME TEAM

1984

REVISITED

1984

WAS ORWELL

# A digital medley\* for an hybrid reality

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Luis Borges Gouveia

Keynote talk, 3th February, 2022

Workshop: 1984 Revisited: Was George Orwell an Optimist?

Doctoral Program in Digital Media – University of Porto

- The World is on **change**
- No one can envision the **impact** of the combined number of technologies that enter now their **maturity** (being AI one of them)
- Current **institutions** are no longer able to cope with such transformations as is and net to be (in an adapt or die sequence)
- How to consider the individual, the group, the community and the society towards such impacts within a sustainable **society**
- There are **choices** to be made and **values** to be prioritized

Peter F. Drucker

(1909 – 2005)

***“Know thy time”***

Conhece o teu tempo

*(in Drucker, P. com Maciariello, J. (2005) Diário de Drucker, Editora Actual)*



From a world of **opportunities**

*chance · contingency · fortuity · freedom*

To a world of **challenges**

*objection · protest · test · threat · claiming ·  
confrontation · dare · defiance*

Possibilities, context  
building & serendipity

# From a world of **opportunities**

*chance · contingency · fortuity · freedom*

More possibilities,  
increase complexity  
& conflict

# To a world of **challenges**

*objection · protest · test · threat · claiming ·  
confrontation · dare · defiance*

# From a world of opportunities

## Back to 2006

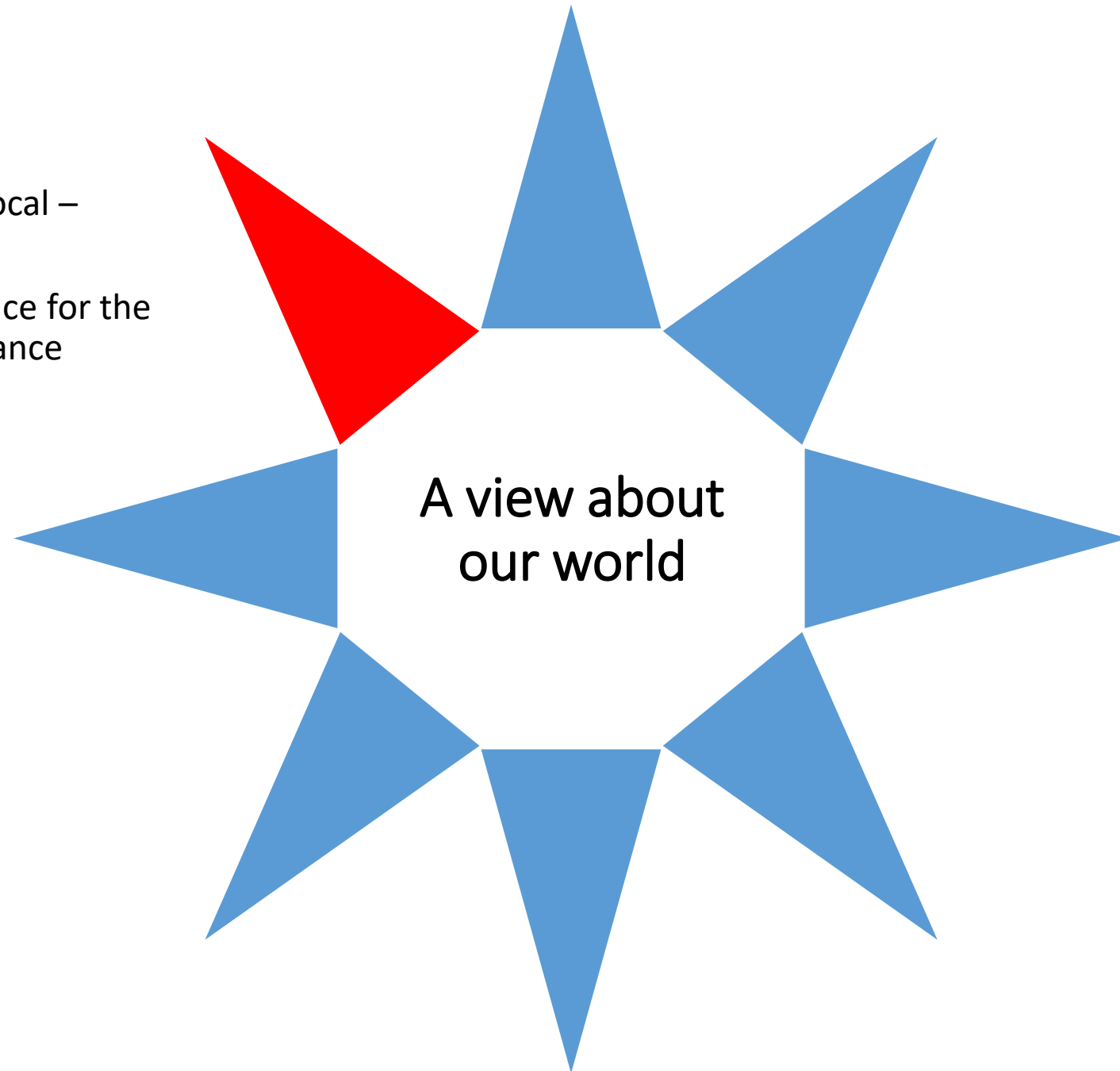
Gouveia, L. (2006). Gestão da Informação: oportunidade ou necessidade. Apresentação no IESF. Vila Nova de Gaia, 12 de Abril.

[http://homepage.ufp.pt/lmbg/com/iesf\\_gi120406.pdf](http://homepage.ufp.pt/lmbg/com/iesf_gi120406.pdf)

## *globalization*

Think global, act local –  
glocal

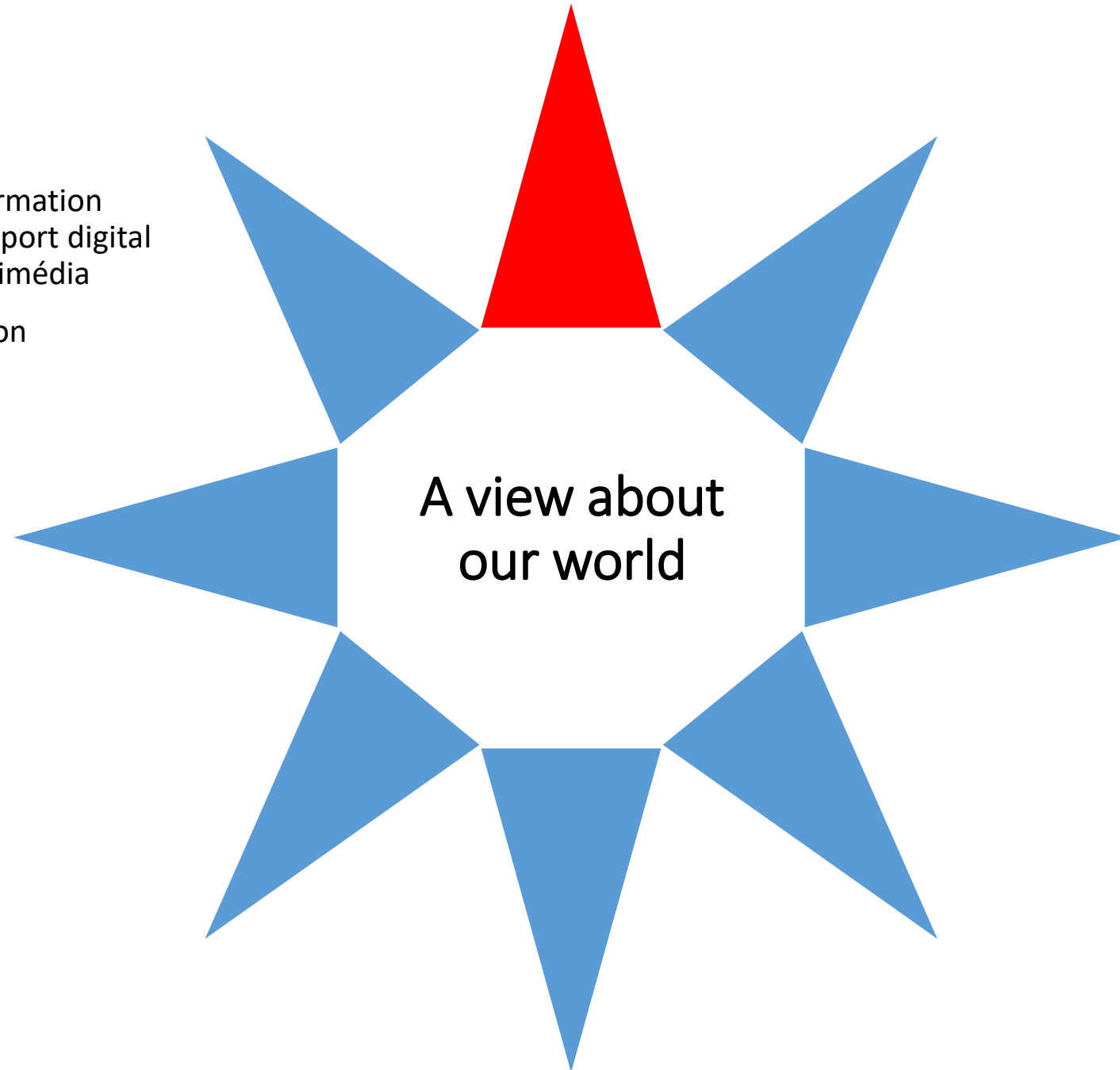
The lost of relevance for the  
geographic distance



## *digitalization*

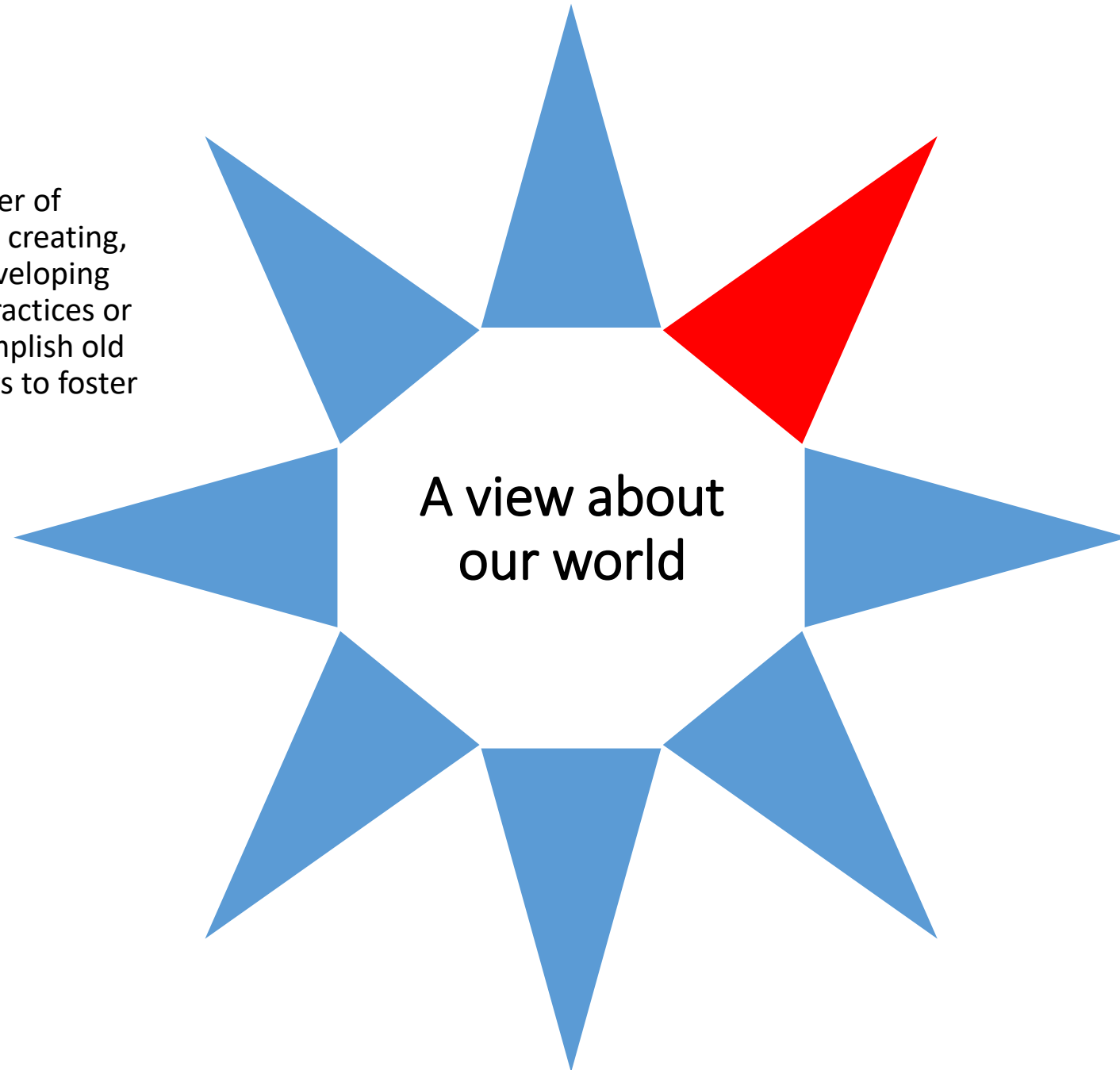
Intensive use of information  
technology to support digital  
information, multimédia

For easing information  
exploitation



## *innovation*

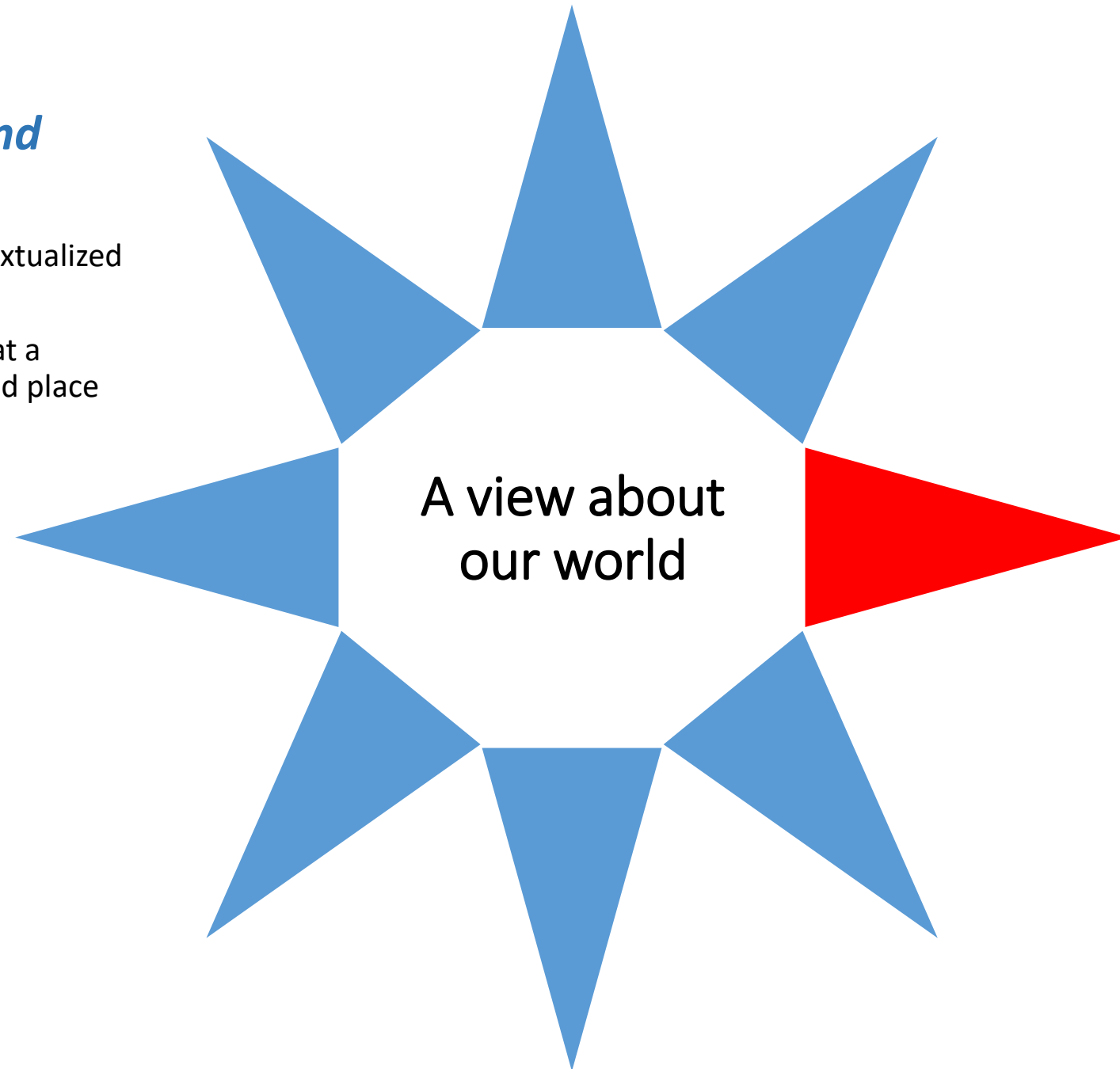
Activator and modifier of human history, by creating, proposing and developing new processes, practices or products to accomplish old things in new ways to foster human activity



***knowledge and  
culture***

Organized and contextualized  
information

A particular society at a  
particular time and place



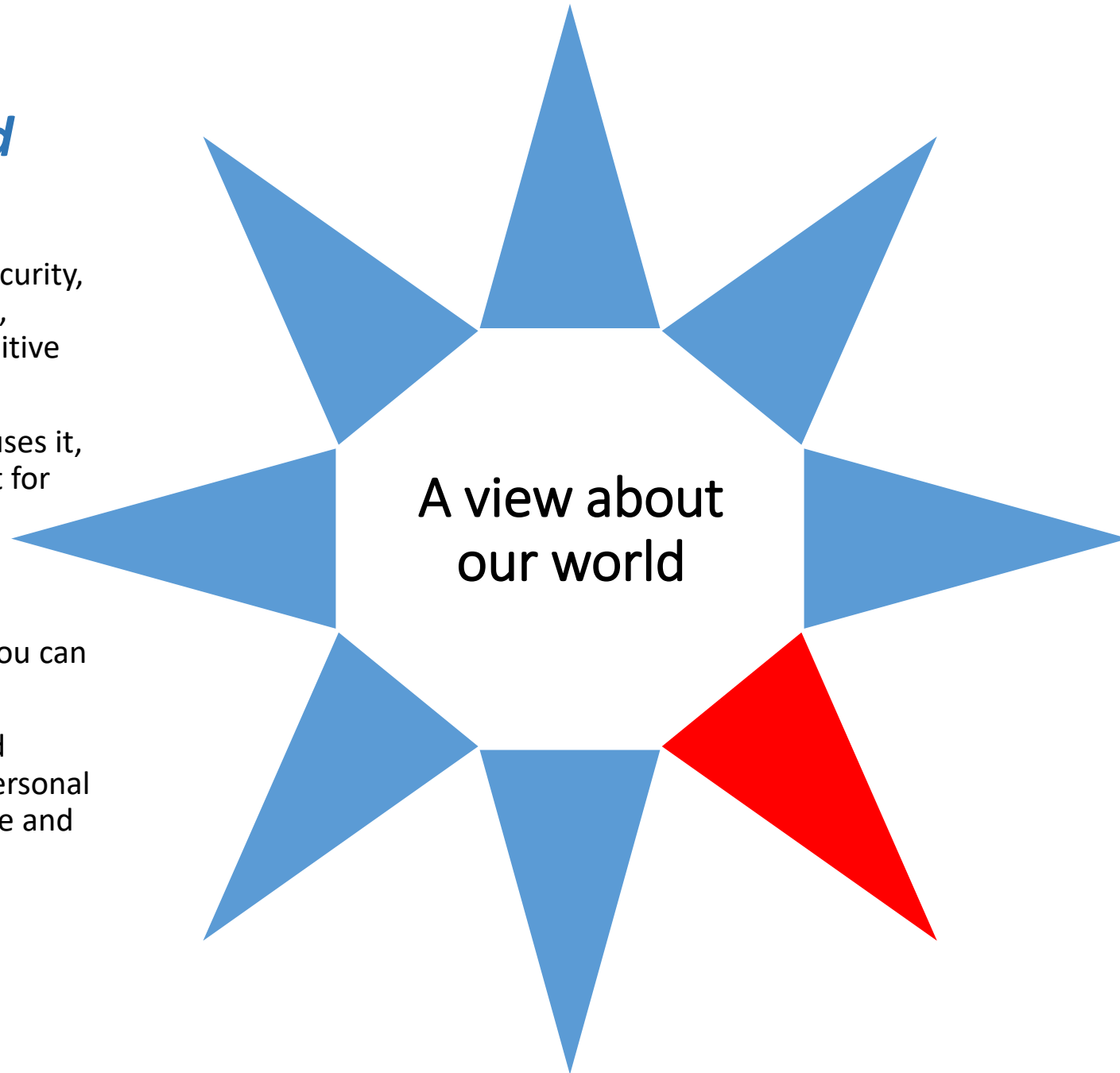
## *security and privacy*

Passive and active security,  
secrecy assurance,  
protection of sensitive  
information

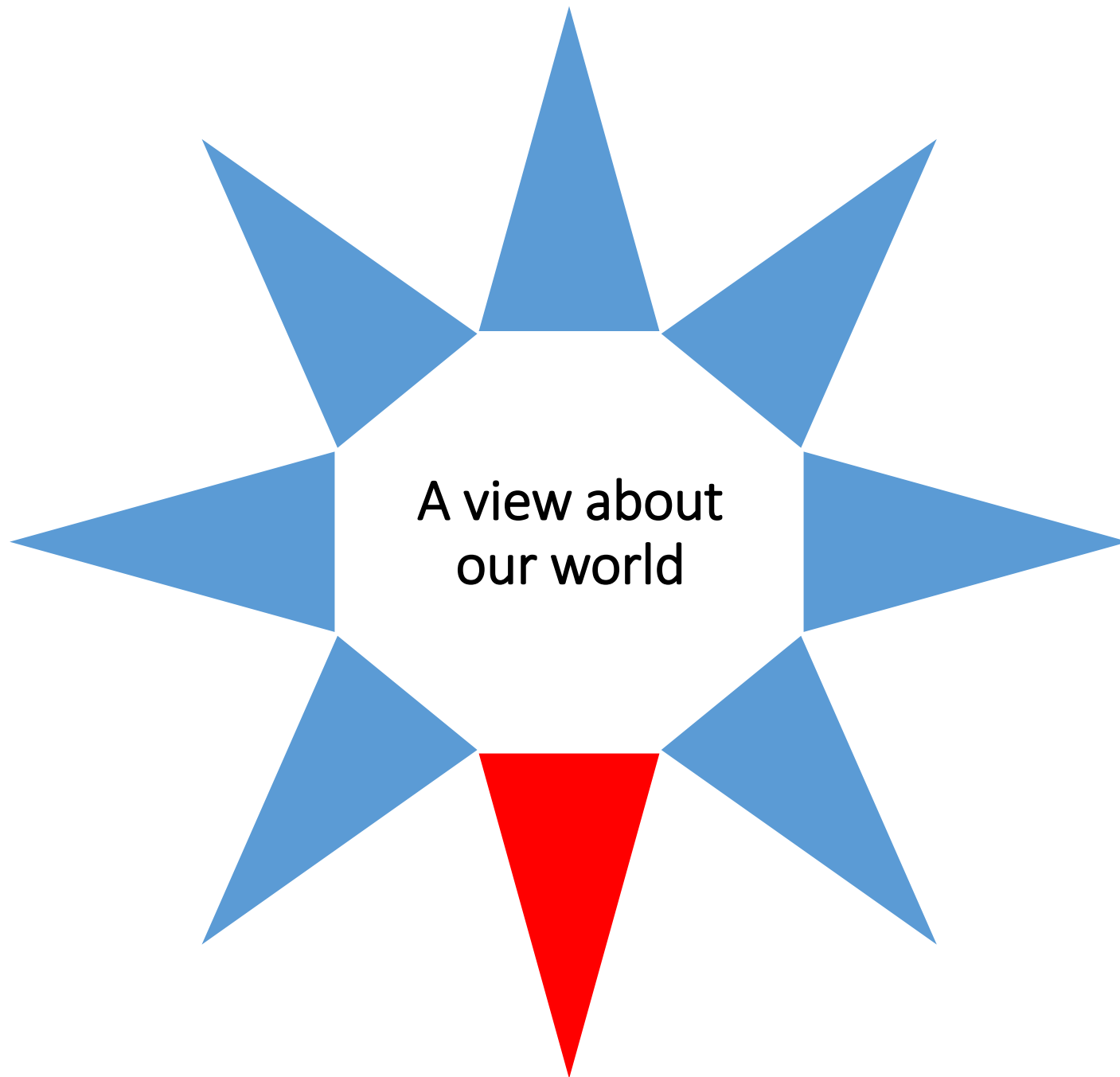
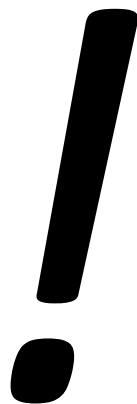
Who uses it, how it uses it,  
and what it uses it for

Who owns it, what you can  
do

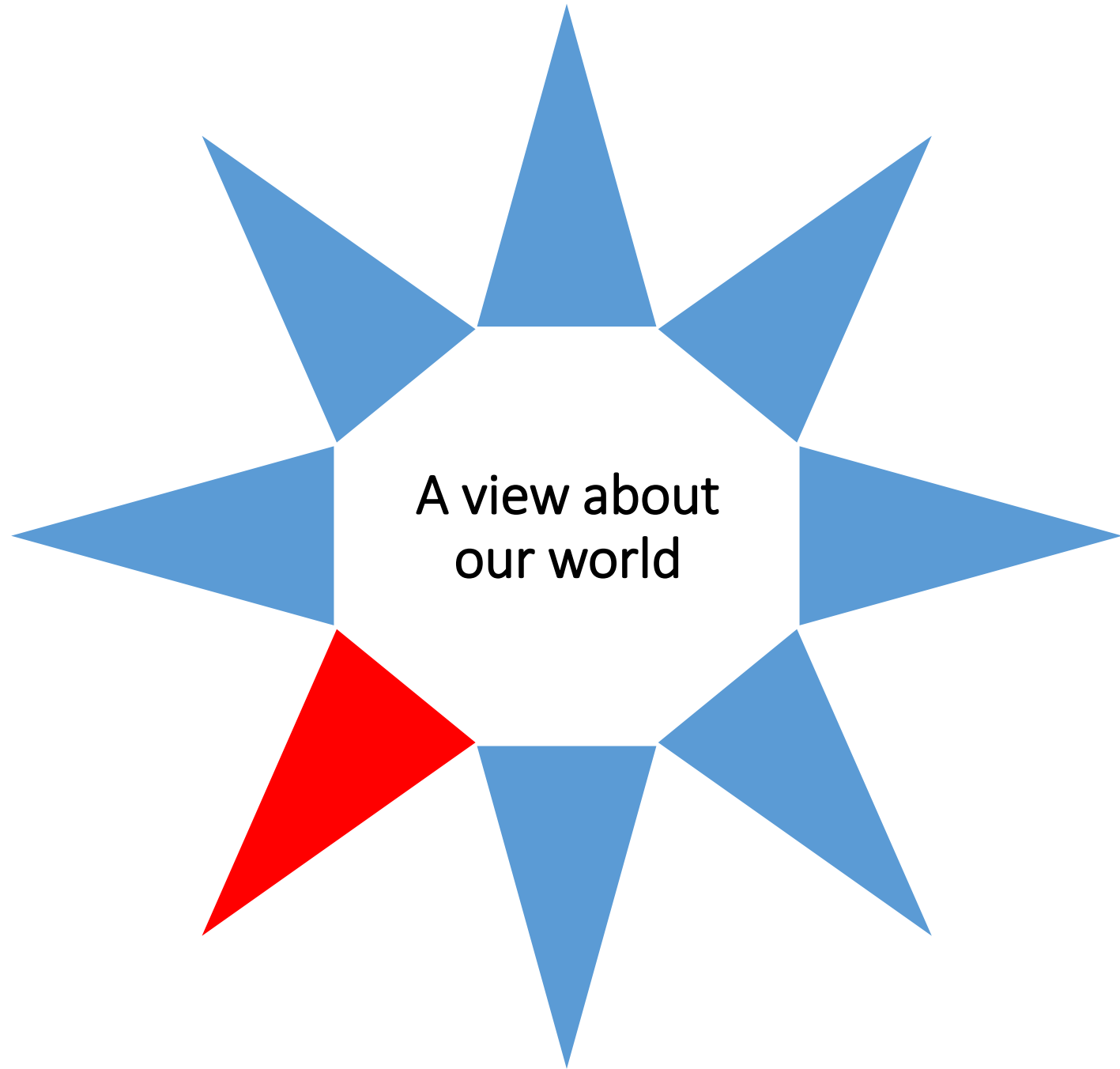
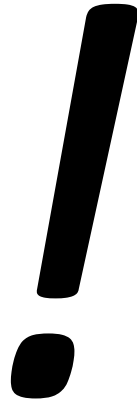
Rights, freedoms and  
guarantees and personal  
information, image and  
video



*environment*



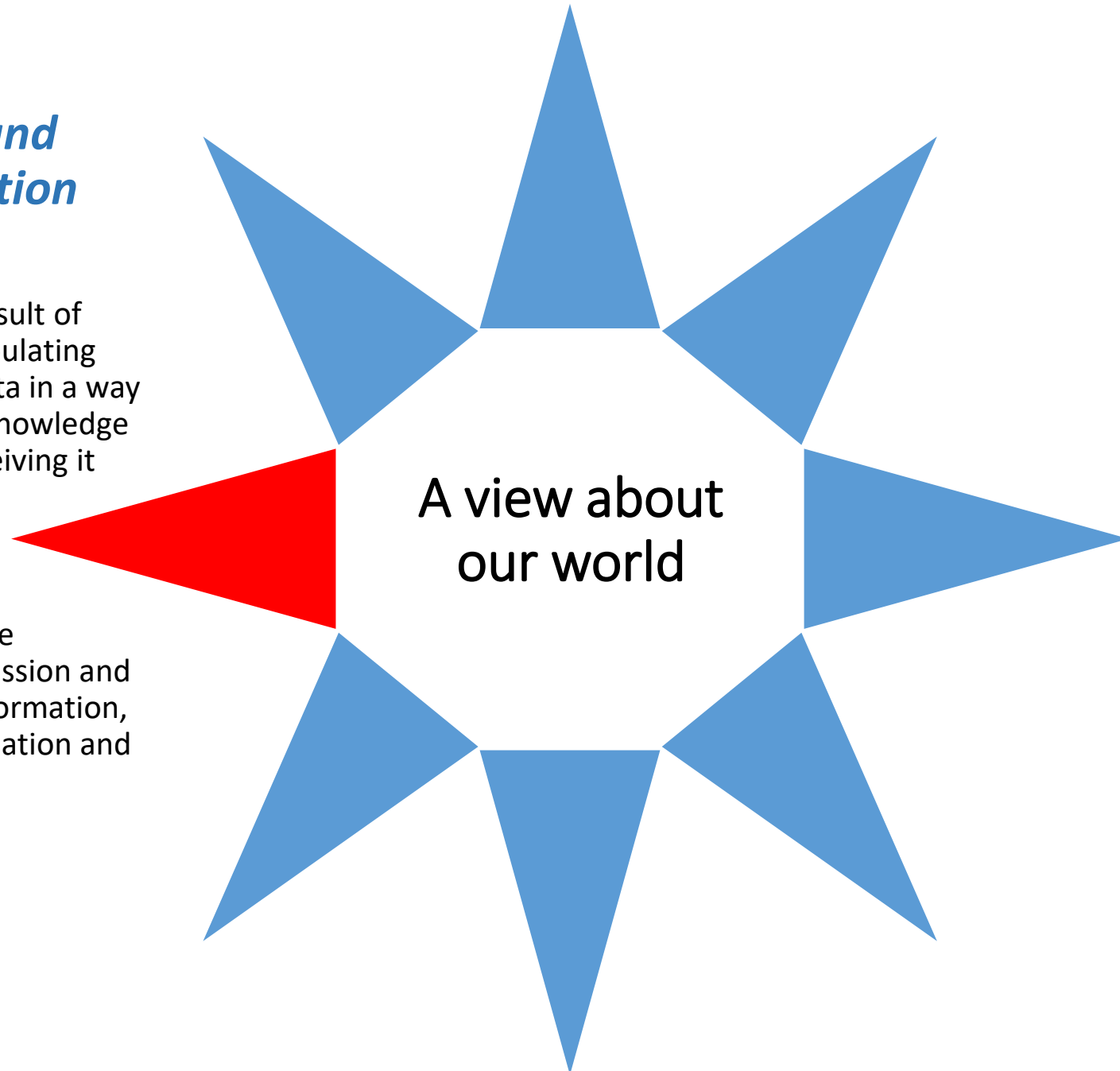
*energy*

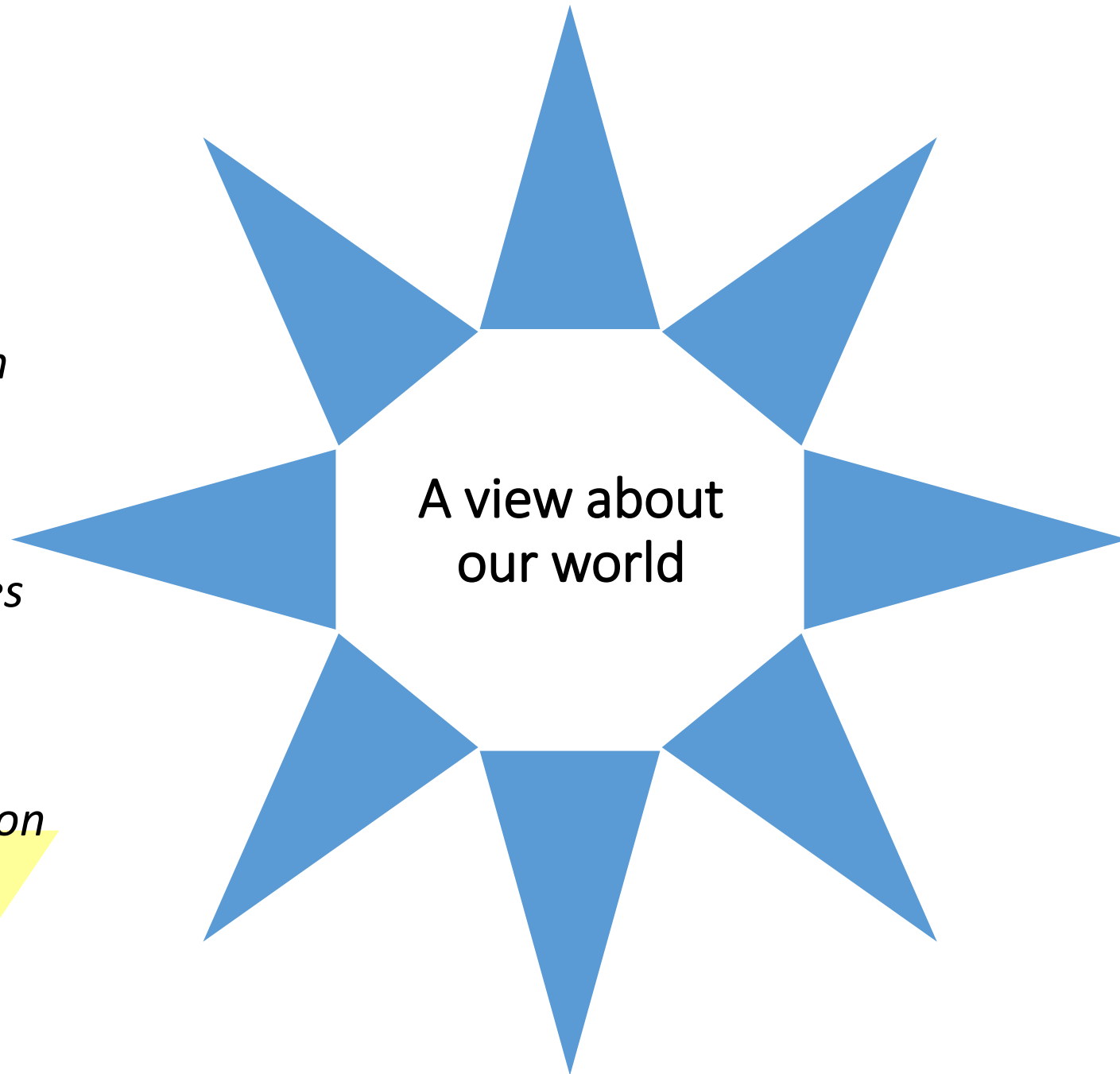
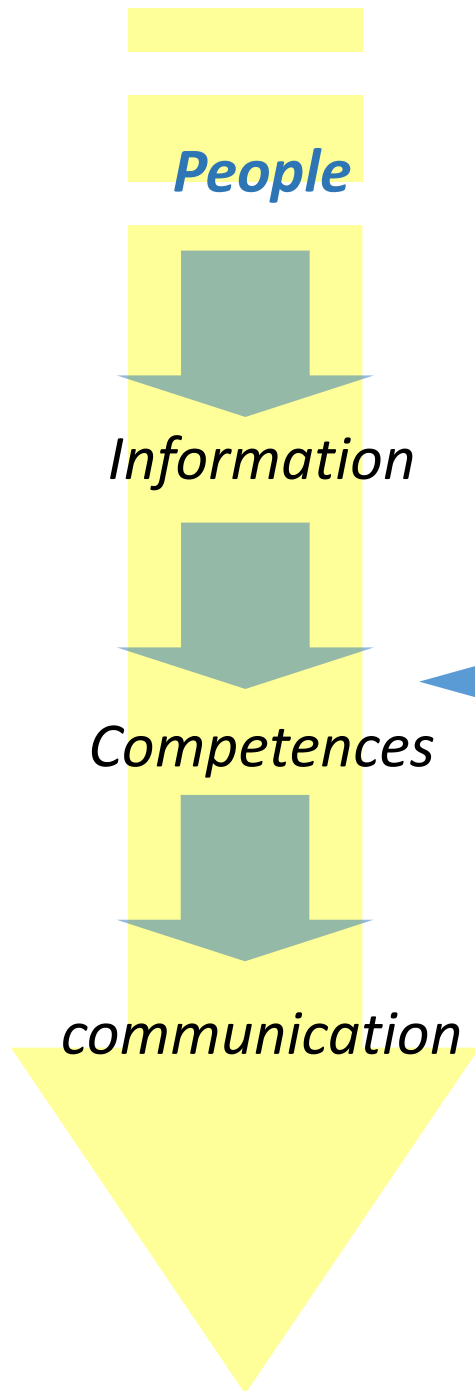


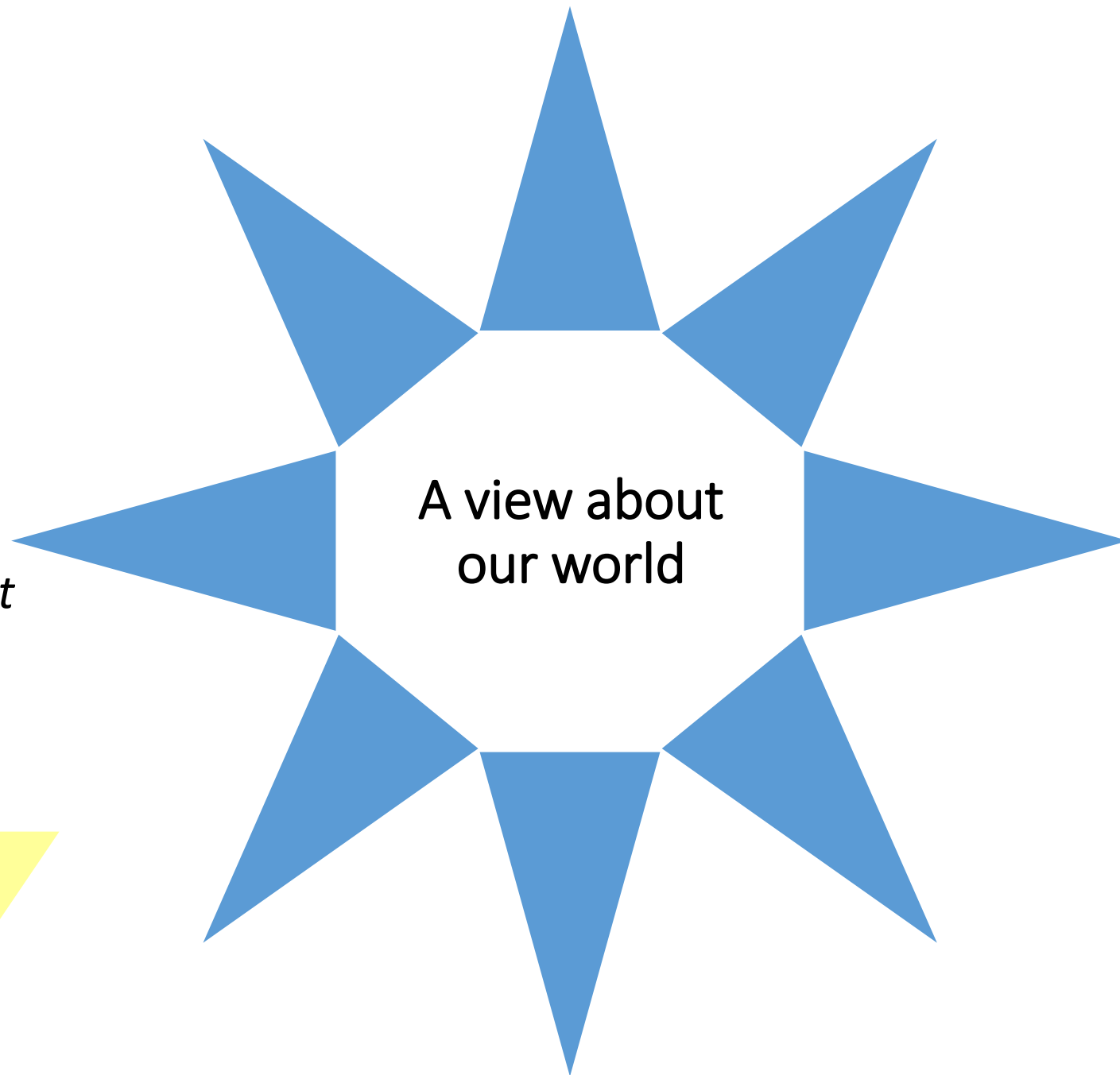
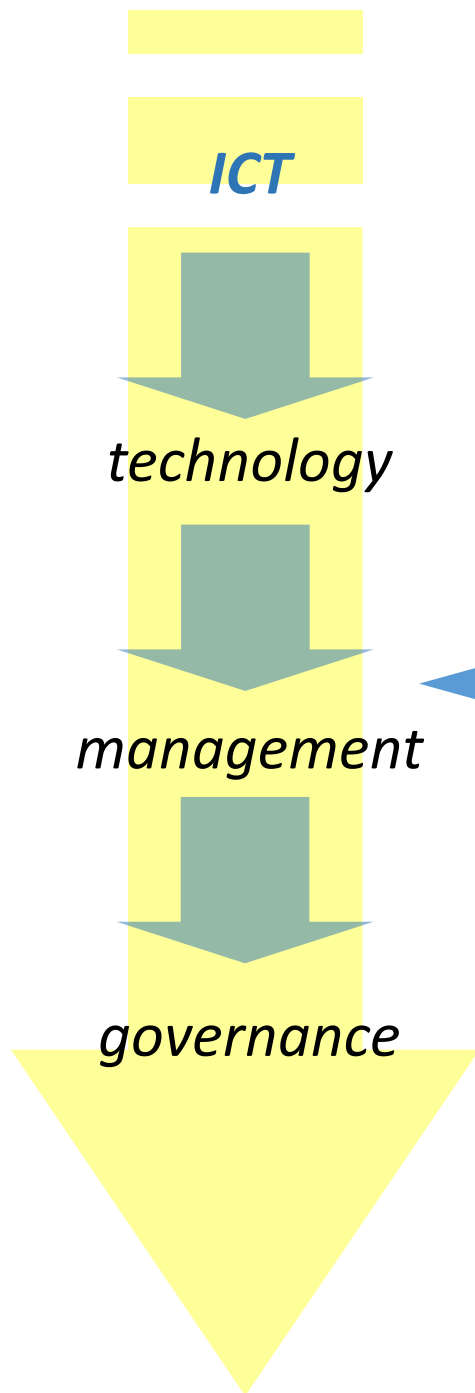
## *information and communication*

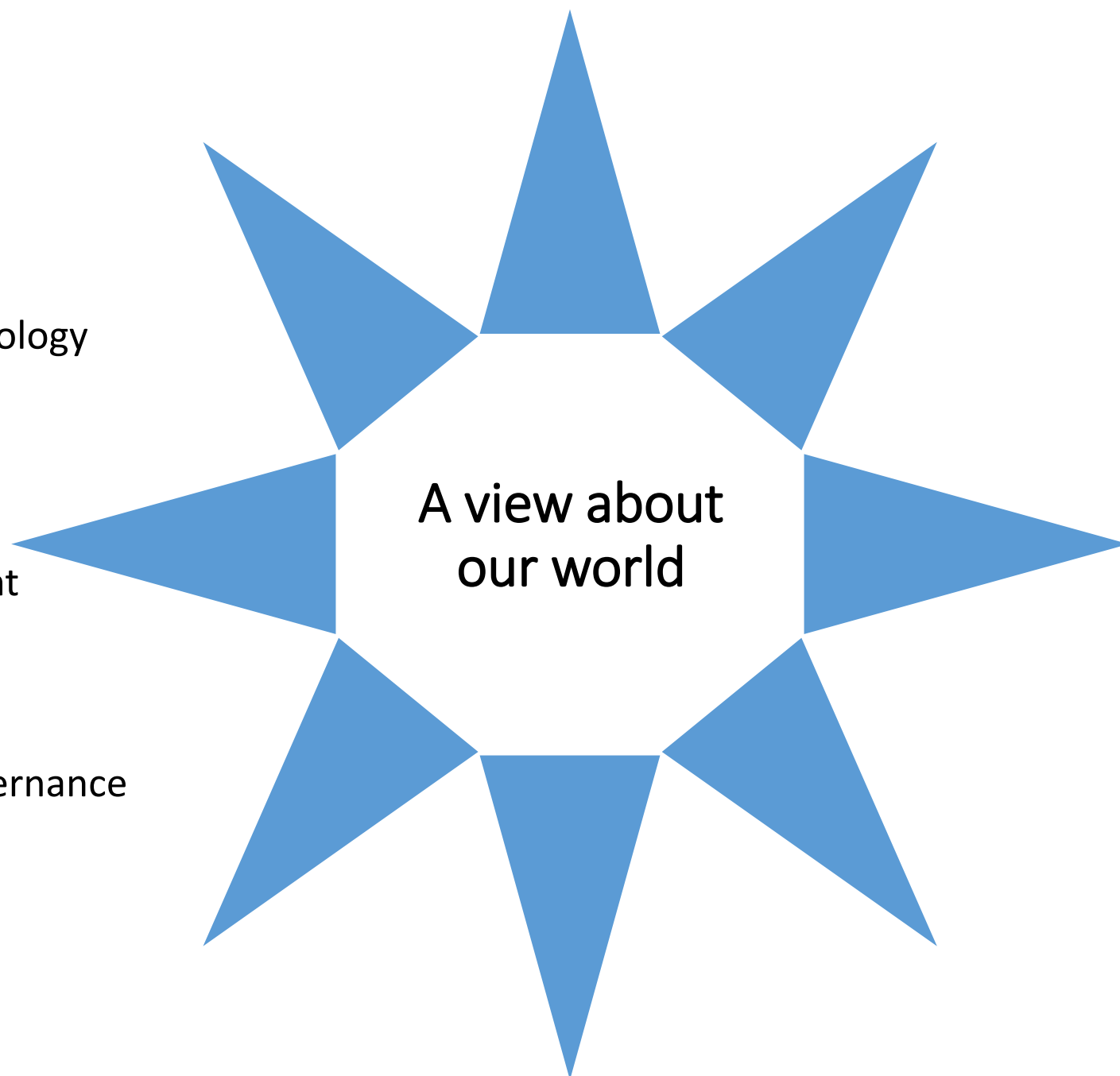
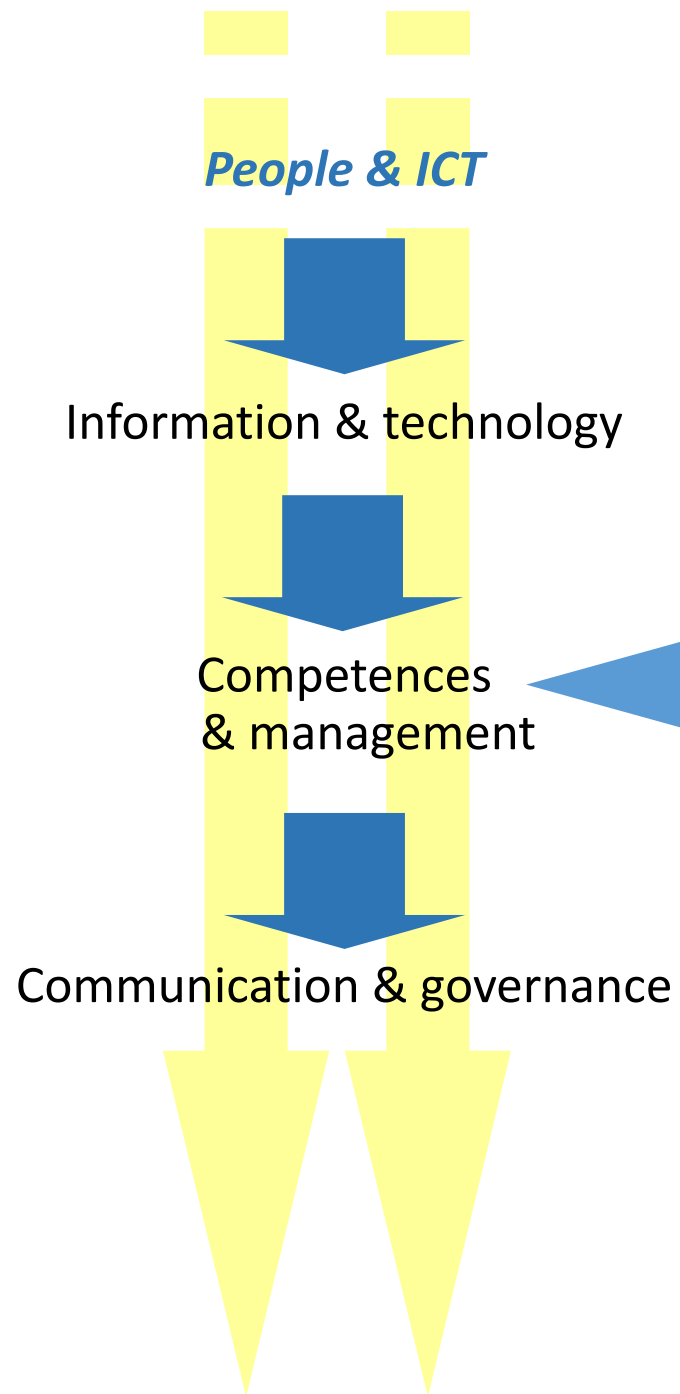
Information is the result of processing, manipulating and organizing data in a way that adds to the knowledge of the person receiving it

Communication is the exchange, transmission and conveyance of information, the flow of information and ideas









# To a world of challenges

## *Currently*

Gouveia, L. (2021). A vez da educação híbrida: o digital no equilíbrio do presencial e remoto. MAERA – 7 anos de existência, Webinar sobre Educação. 9 de Dezembro.

<https://bdigital.ufp.pt/handle/10284/10512>

# Two forces that are/will shaping our action

## Energy transition

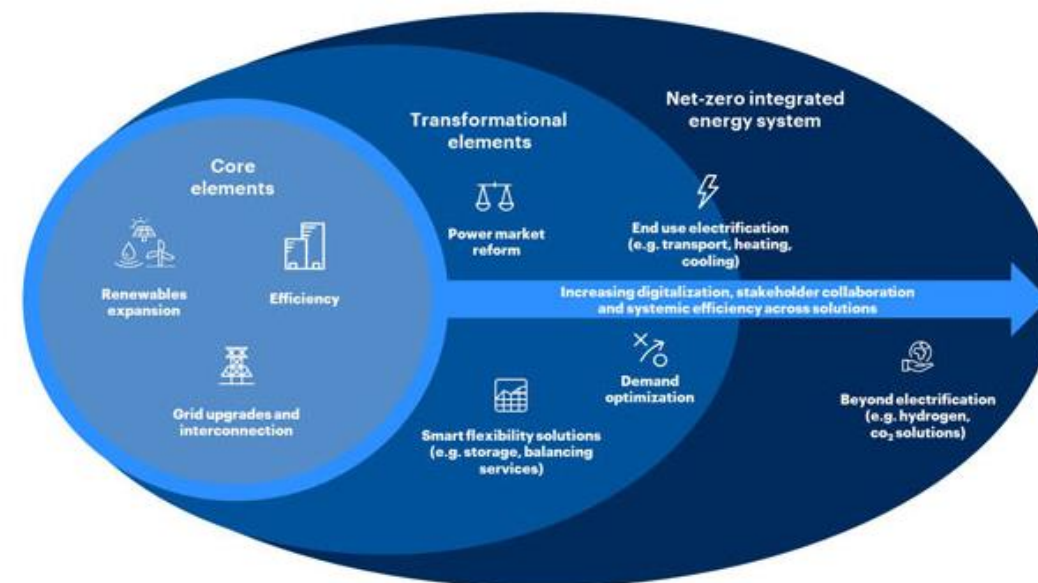
A Question of Survival

*“how to change and adapt to the climate and its challenges?”*

## Digital transformation

A hope for the human being

*“how can we organize ourselves in order to recover our human dimension?”*



# Digital Culture



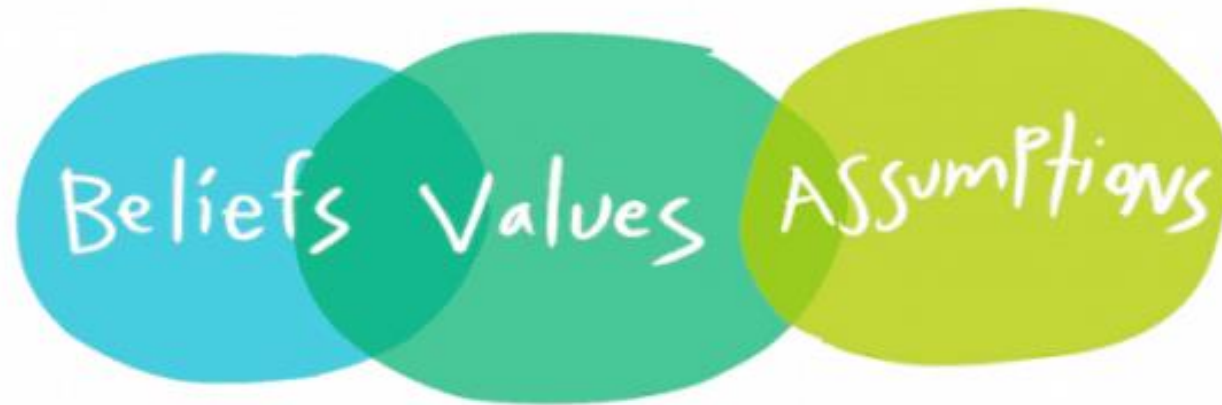
*Araújo, P. e Gouveia, L. (2020). Cultura Digital, definição e dimensões constitutivas: uma proposta para mapear e diagnosticar as condições de uso do digital nas organizações. In Souza Junior, A. et al. (2020). Diálogos sobre Tecnologia e Direito. Rio de Janeiro: Pembroke Collins. pp 359-378. ISBN 978-65-87489-24-7.*

- **Digital**: related to computers and networks, represents the ability to represent and interoperate data, information and knowledge in order to facilitate their processing, storage and communication
- **Culture**: customs, social behavior of a group of people or society. It may include art and other manifestations of human collective ability and intellect
- **Digital Culture**: the creation of habits and practices of digital exploration in the representation of data, information and knowledge and also in the way we interact in society
  - Provides an **invasive and global culture**

# CULTURE



easier to change



harder to change



<https://www.whaii.com/blog/your-corporate-culture-will-define-the-future-of-your-company/>

# Digital Transformation



Gouveia, L. (2017). *Transformação Digital: Desafios e Implicações na Perspectiva da Informação*. In Moreira, F.; Oliveira, M.; Gonçalves, R. e Costa, C. (2017). *Transformação Digital: oportunidades e ameaças para uma competitividade mais inteligente*. 1ª edição, dezembro. Capítulo 2, pp 5-28. Faro: Silabas e Desafios. ISBN: 978-989-8842-28-2.

- Changes associated with the application of digital technology in all aspects of **human activity**
- Digital transformation can be considered the third phase of **digital adoption**:
  - Digital Skills
  - Digital literacy
  - Digital transformation
- The **use and exploitation of the digital** enables new kinds of innovation and creativity that leverage traditional methods of human activity
  - The **workforce** shifts from analog to digital
- Requires a **new approach** by the organization (and those responsible for the information)
  - From the survival mode state, to a state of **value production**

# Digital transformation – steps

- **Digitation**  
(turn the analogue, digital)
- **Digitalization**  
(create digital)
- **Digital Transformation**  
(new practices and behaviours)
- The **competencies** associated with the use and exploration of the digital:
  - knowing **what to do** with the digital (incorporating it into the material)
  - **when** to do it and what questions to ask
  - and **what** information is critical for this

# Competences



Araújo, P. e Gouveia, L. (2021). Metodologia CHA: Uma proposta para o desenvolvimento de competências por meio da robótica na educação. In Capítulo 1, pp 9-22. Araújo, P.; Araújo, D. e Gouveia, L. (orgs). (2021). Reflexões sobre a Educação no Século XXI. Da tecnologia à inclusão. Conhecimento Editora.

- The triad of KSA: **Knowledge** – **Skills** – **Attitudes**

Knowledge	Skill	Attitude
<b><u>know</u></b>	<b>Know <u>how</u></b>	<b><u>Want to do</u></b>
Specific technical knowledge, education, experience, and other expertise	Practical experience and mastery of technical knowledge through its concrete application and skill in performing it	Personal characteristics that lead one to practice or not, what one knows and knows

# Hybrid

*an emerging trend or making the new from the old*

 **hybrid**  
/ˈhaɪbrɪd/

Ver definições em:

All Biology Linguistics Motoring Horticulture

*noun*

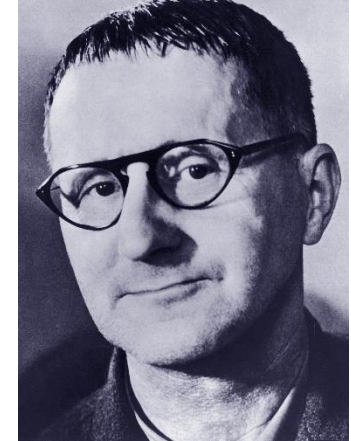
1. **BIOLOGY**  
the offspring of two plants or animals of different species or varieties, such as a mule.  
"the bird was a hybrid of a goose and a swan"

**Sinónimos:** cross cross-breed mixed-breed mixture blend meld

2. a thing made by combining two different elements.  
"jungle is a hybrid of reggae and house music"

*adjective*

of mixed character; composed of different elements.  
"hybrid diesel-electric buses"



***“You take nothing from nothing, the new comes from the old, but it is no less new for that”***

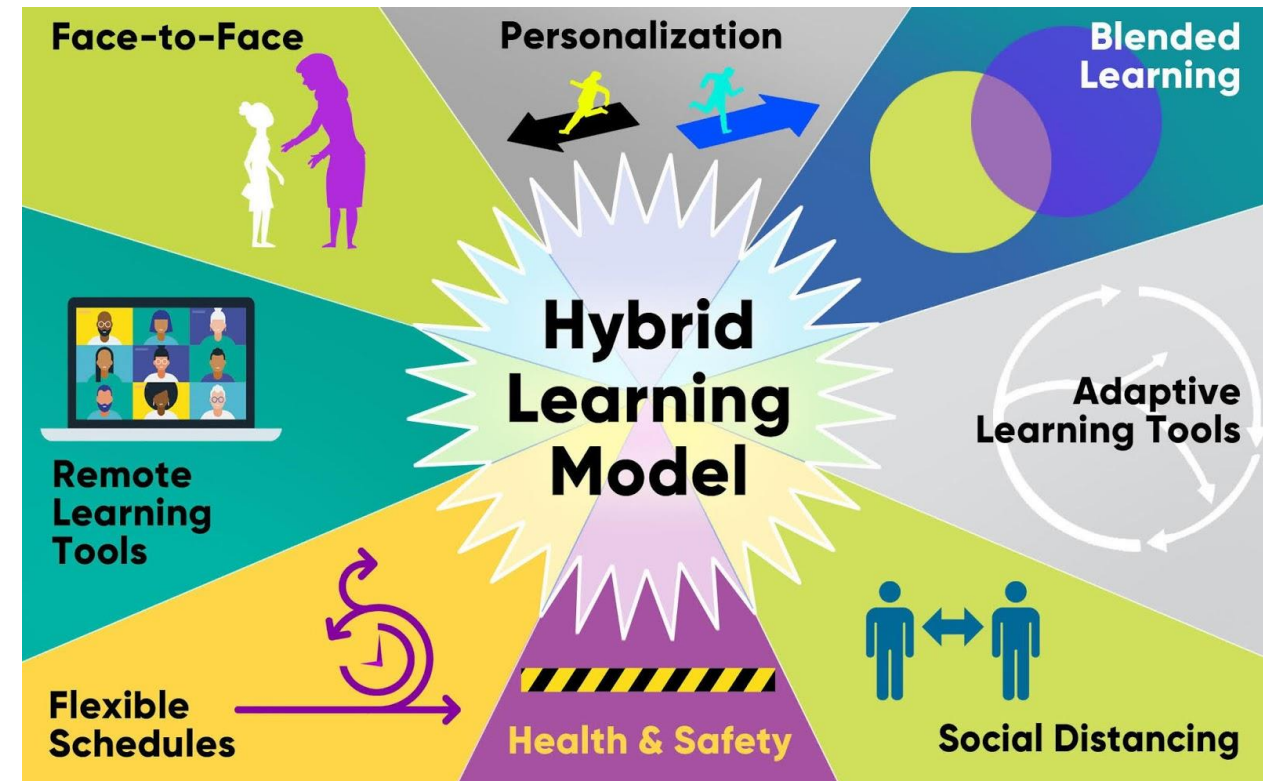
**Bertolt Brecht (1898, 1956)  
about the theme of novelty**

# One example Hybrid Education

- In **modality**:
  - Presential and remote, considering their coexistence and overlapping
- In **practices**
  - More **collaborative** and **participatory**, providing a more effective use of the attention and time of all participants
- In **teaching strategies** (active methodologies)
  - Problem based learning, Project based learning
  - Competences & skills based learning, peer learning
  - Inverted classroom, among others
- In the **service** to those who learn and those who teach
  - **personalization, gamification, and learning paths**
  - **content curation** de conteúdos, of data, information and processes
  - **datification** fair and focused in the user (implies privacy compliance and the aid in the creation of safe contexts, for individual activity) – against the idea of the product is the user
  - **automation** of practice in processes related with the teaching and learning



Rocha, D.; Gouveia, L. e Peres, P. (2021). *Práticas pedagógicas inovadoras: novos desafios. Capítulo 2. In Rocha, D. et al. (org.). Aprendizagem digital: curadoria, metodologias e ferramentas para o novo contexto educacional. Porto Alegre: Penso, 2021. ISBN: 9786581334147*



<http://esheninger.blogspot.com/2020/06/moving-to-hybrid-learning-model.html>

Some ideas

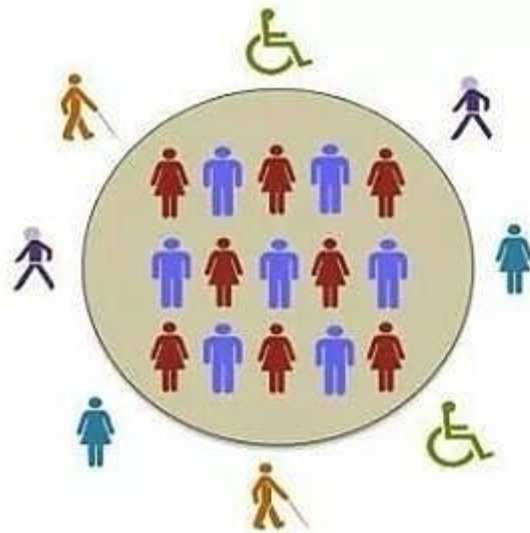
# Peter Diamandis, on future-proof your business

<https://www.diamandis.com/>

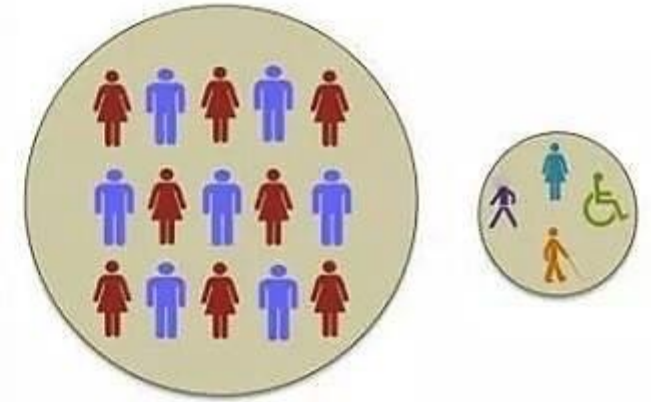
- *“The convergence of **exponential technologies**... computation, AI, robotics, biotech, networks, sensors, 3D printing, AR/VR and blockchain... These technologies are **stacking and recombining** – ultimately transforming markets and business models.”*
- *“The problem with such significant change is that most people fear the future, instead of being excited by it.”*
- *They fear what they **don't understand and can't predict**. And fear is a terrible mindset for taking advantage of the opportunities ahead.”*
- The only solution to this fear is **knowledge and community**... to face the unknow (the role for more research and innovation)

**Inclusion**  
requires the  
involvement of  
all a **community**

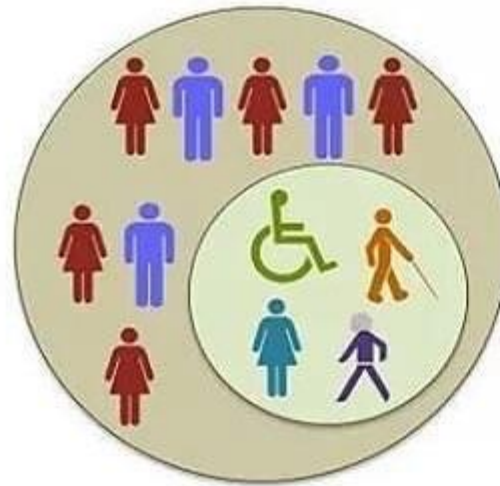
*“It takes a village  
to raise a child”*  
Old African proverb



Exclusion



Segregation



Integration



Inclusion

# Possible ways forward...

- Reinventing our notions of **time and space**
- Reinventing the function of **processing information**
- Dealing with the challenges of **information**
- What is **fair** and what to protect and how (e.g. person or people?)

***Doing this in a network!***  
***(diversity is key)***



# Information places: an hard line to people

## The case for interpretation & understanding

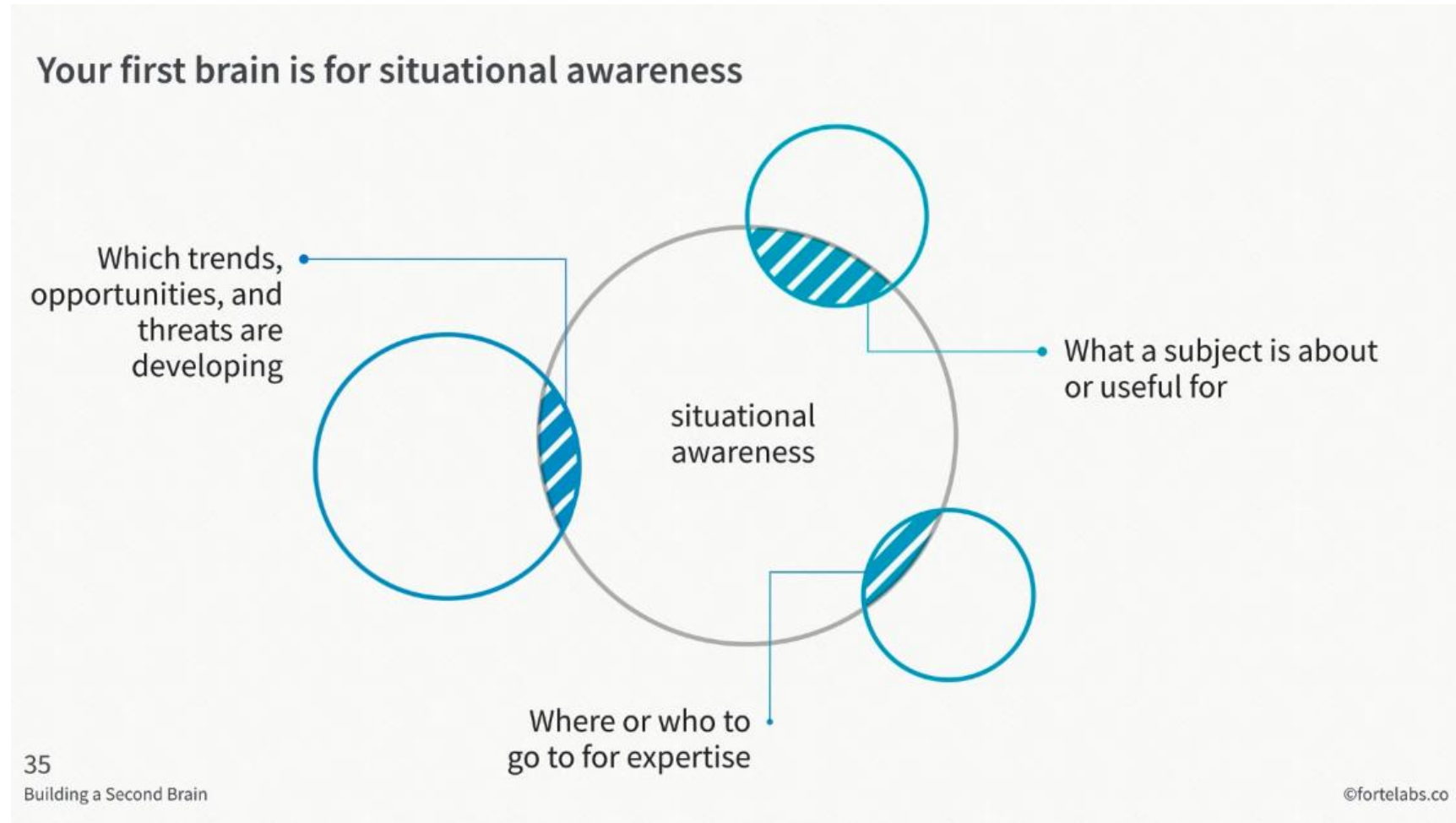
- People still needed to deal with **information complexity**?  
What turns **interpretation** different from opinion is to rely on supporting evidence
  - The impact of technology in people jobs where discussed in Frey, Osborne(2013) where they claim 49% of current jobs cease to be sustainable:  
***“...the ability to convey not just information but a particular interpretation of information is what turns human intervention required...”***
- Information overload and **understanding** is key to explain why current information systems, information management (and supported institutions) **are getting more and more on failure**
  - early thoughts about the use of information and its understanding on Information Anxiety 2 (2001), Richard Saul Wurman

# Tiago Forte on productivity and information

Forte labs <https://fortelabs.co/>

- Support information management by **digital (platforms) mediation**
- Average **information consumption** per day
  - 174 newspaper's worth
  - 11.8 hours
  - 113K+ words
  - Growing +2.6% per year

(UCSan Diego, 2014)



# The case for information management

## How & why digital platforms are key

- Digital platforms are key to support **power relations** with other
- A state **must have its own** digital platforms
- Any type of organization has or wants to have (**IMPOSE**) its digital platforms

## IN ORDER

- To **control** relationships instead of interactions
- To collect and relate **data**
- To **have** its own unique information, available in real time
- To aggregate **value** and foster its network capabilities

Solutions?  
**Digital**  
leadership?

If you not beat them (digital platforms),  
join them...

Create **digital ecosystems** that:

Protect privacy  
(sensible data)

Reduce entropy (filter  
relevant information)

Control and monitor  
activity (regulate the  
action)

**Digital Leadership**

Create their own digital space

Produce value by exploring owned  
digital platforms

# THE AGE OF SURVEILLANCE CAPITALISM

THE FIGHT FOR A  
HUMAN FUTURE  
AT THE NEW  
FRONTIER OF POWER

SHOSHANA  
ZUBOFF

## Surveillance Capitalism (SC)

<https://shoshanazuboff.com/book/>

- Constant recording, analyzing and attempting to modify human behavior for the benefit of technology giants trading in **future behavior markets**
- Knowing what people will do tomorrow or next year is of enormous value to those who want to sell a product or service, or **control certain behavior**
- SC **processes human behavior** by tracking, measuring and analyzing it from the smartphone to the smart home; from surfing the Internet to private messages or emails
- This dominant and relatively new force **intrudes** through cookies and privacy permissions that, in most cases, **must be accepted for a service to work**, including even, security systems

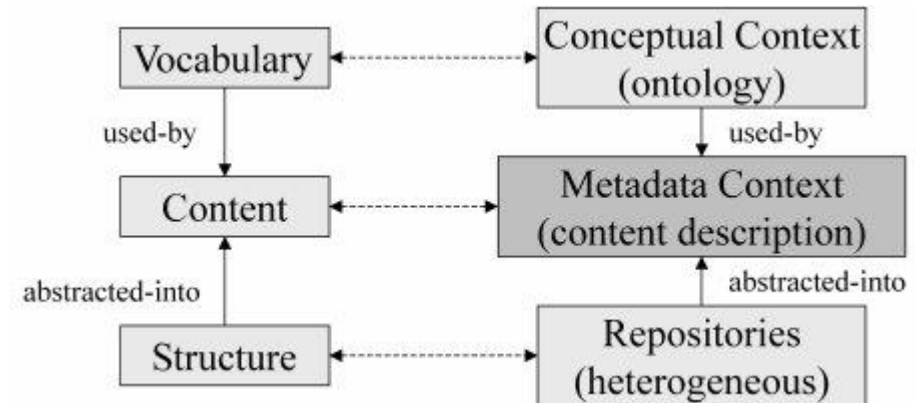
# Cities cortex

we need to turn our cities **living spaces**

- Cities are/represent:
  - 2% **area** covered by cities on our planet
  - 50% of **people live** in cities
  - 75% of **energy** consumption is in cities
  - 80% of **carbon emissions** are produced in cities
- Requiring not just data available (reliable and real time) BUT information
  - Individual **awareness**
  - Shared **values**
  - Balanced & sustainable **activities**

# Interoperability is key

- Considering the traditional:
  - **System** (data presentation)
  - **Syntactic** (data language)
  - **Structural** (data architecture)
  - **Semantic** (data context)
- But also within **higher abstraction levels**
  - Information
  - Knowledge
  - Process
  - Operations
  - Digital platforms
  - Between digital platforms (digital ecosystems)



[https://www.researchgate.net/publication/2562778\\_Practical\\_Context\\_Transformation\\_for\\_Information\\_System\\_Interoperability/figures](https://www.researchgate.net/publication/2562778_Practical_Context_Transformation_for_Information_System_Interoperability/figures)

# Beyond Internet – the Metaverse

The new frontier (*a lot of further research is needed*)

- The idea of **digital ecosystems that can be shared and integrated or interoperable with the analogue reality**
- Metaverse, as a concept, have existed for a long time
  - digital shared universes where we can take on whatever personality we want, or work together on collaborative projects
- **NFTs** resolve the unique and value issue of digital original/copy equality



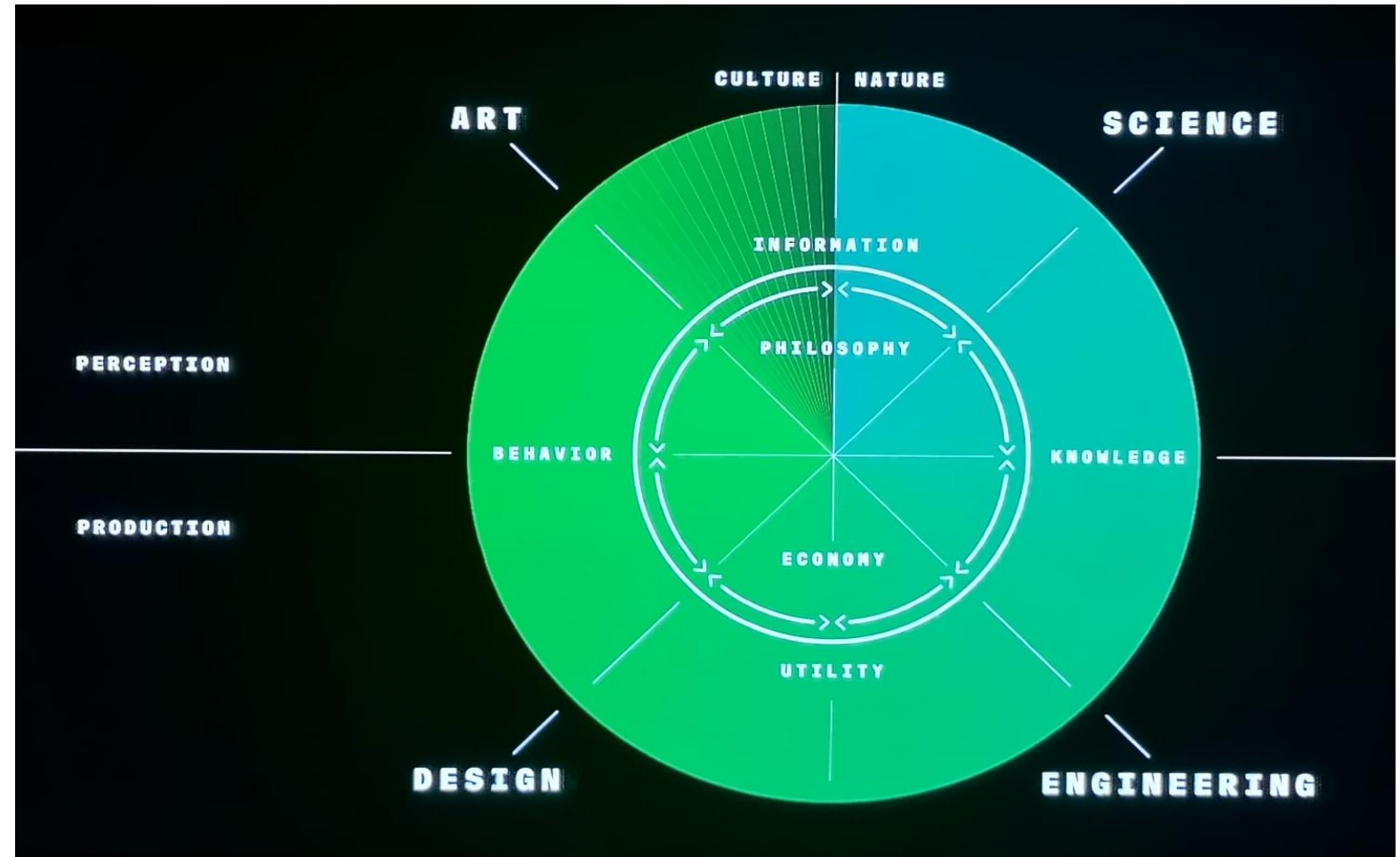
Stephenson's cyberpunk novel *Snow Crash*, where the term first appears to have been used. *The Matrix* movies, the Second Life world, among others are first manifestations

<https://bernardmarr.com/what-is-the-metaverse-an-easy-explanation-for-anyone/>

Neri Oxman, **Material Ecology** (from multi to interdisciplinary)

The digital and analogue world fusion: <https://neri.media.mit.edu/>

- considers computation, fabrication, and the material itself as **inseparable dimensions of design**
- products and buildings are biologically informed and digitally engineered by, with and for, Nature



Our efforts & concluding remarks

# Links to some work

## Available reports on some information related issues

- On **digital education**:
  - Plan for action, based on information management  
<https://bdigital.ufp.pt/handle/10284/3255>
  - Na idea on how to explore human condition within digital platforms  
<https://bdigital.ufp.pt/handle/10284/7219>
  - Use of active methodologies to adapt new settings  
<https://bdigital.ufp.pt/handle/10284/10442>
  - A multidisciplinary approach to traditional problems  
<https://bdigital.ufp.pt/handle/10284/10591>
- On **ciber(war)fare**:
  - Deal with current ciber complexity <https://bdigital.ufp.pt/handle/10284/9678>
  - Deal with current ciber reality <https://bdigital.ufp.pt/handle/10284/10495>

# Infocommunication



Gouveia, L. e Silva, A. (2020). *A Infocomunicação ou a Convergência das Ciências da Informação e da Comunicação para um Objeto Comum*. Revista Páginas a&b. S.3, nº especial (2020) 15-33. ISSN 0873-5670. DOI: 10.21747/21836671/pag2020a2 <https://ojs.letras.up.pt/index.php/paginasaeb/article/view/7814>

- Due to the emergence of information and communication fusion regarding current digital ecosystems, we need an **unified and integrated view** over those two fields/perspectives
- **Neologism** formed by two terms: information + communication. It is justified to advantageously overcome the designation, put into circulation in the sequence of the informationalism or the computer revolution unleashed in the second half of the 20th century, of Information and Communication Technologies.
- **Human beings** are infocommunicational by nature, able to represent themselves and the World through signs and symbols and to share these representations, although there is no symmetrical relationship between informational production and sharing/communication of information produced.
- Infocommunication helps to better define the **object of study of Information and Communication Sciences** and can be defined as the *processual dynamics, analog and digital, of content creation, its organization and communicational sharing*.

*The new  
technology  
are  
people*

**WANTED:**

**ETHICAL**

GOD-FEARING CLEAN & HONEST TRACK RECORD PROVEN INTEGRITY

**EFFECTIVE**

COMPETENT GOOD TRACK RECORD DECISIVE AND PROACTIVE

**EMPOWERING**

PARTICIPATIVE AND ENGAGING INSPIRING SOCIALLY JUST

**GOVERNMENT**

**LEADERS**

(Yes, we believe they exist.)

- **Entrepreneurs** will create more wealth in the next decade than we did in the *past century*
- We'll also experience the **reinvention** of every industry.
- **Understanding** how to navigate this accelerating technological change is essential

Who will those people come from?

- Hope they come from PhD & other people who **master knowledge** and have the competences for it (knowing know and want to do it) with **ethics**
- Thus, **proving the care for a better and fair world**, maybe people centered

# Luis Borges Gouveia



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Habilitation in Industrial Engineering and Management University of Aveiro (UA – Portugal)

PhD in Computer Science from Lancaster University, UK

MSc in Electronic and Computer Engineering from the Faculty of Engineering, University of Porto (FEUP – Portugal)

Main interests:

***[how to explore the digital potential to improve human activity and support information management](#)***

Web homepage: <http://homepage.ufp.pt/lmbg/>