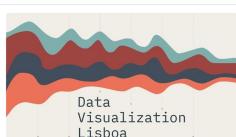


The four faces of Information Visualization

A conceptual framework
for a postgraduate program

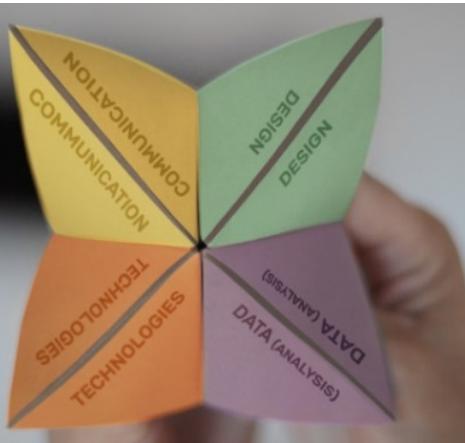
M. C. Botelho, E. Vilar, E. Cardoso, A. Alexandrino da Silva,
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Agenda



1. Multidisciplinary approach to InfoVis leading to a conceptual framework
2. Postgraduate program
3. Conclusions

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Why InfoVis?
As a privileged medium of mass visual communication



Data volume and complexity grows exponentially
Need for new instruments to extract meaning and value
Scientific acknowledgement of cognitive potential of visual perception
Sophistication of edition and design tools

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Motivation for a new program

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Strengthen collaborations between researchers from different areas and schools

Common goal: represent and communicate through visual narratives

Data Visualization Information Design Data Journalism Visual Analytics

Statistics Design Communication & Journalism Technologies

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Conceptual framework for InfoVis

The diagram illustrates the conceptual framework for InfoVis, featuring four interconnected constructs arranged in a circle:

- Communication** (top-left quadrant)
- Design** (top-right quadrant)
- Technologies** (bottom-left quadrant)
- Data (Analysis) Visualization** (bottom-right quadrant)

A hand holds a physical model of the framework, which is a 3D representation of the same four quadrants.

4 thematic areas / 4 constructs

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Information Design

Encompasses communication design tools and techniques in which the main goal is to inform the user

Maximize efficiency and effectiveness in the way the user processes data and uses information through vision

Main contributions:
Organize and structure data.
Display and communicate information

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Data (analysis) Visualization

Includes procedures for exploring and analysing data, techniques for interpreting results

Statistical graphics and thematic cartography are the main branches of data visualization, both concerned with the portraying categorical and numerical data

Main contributions:
Explore and analyse data.
Discover and reveal information

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Data Journalism

Multidisciplinary field that focus on obtaining, reporting on, curating and publishing data in the public interest

Filter and visualize data, transform into a journalist story (storytelling) with a plain and attractive language

Main contributions:
Filter data. Publish and storytelling of the information

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Visual Analytics

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Science of analytical reasoning facilitated by visual representations of data.

Linked with business intelligence: implies the use of different types of analysis, data and a systematic reasoning in order to make decisions

Addresses current big data challenges in terms of the volume, variety, velocity and veracity of information assets

Main contributions:
Visual representations of complex problems with sophisticated technological resources

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Visual Analytics

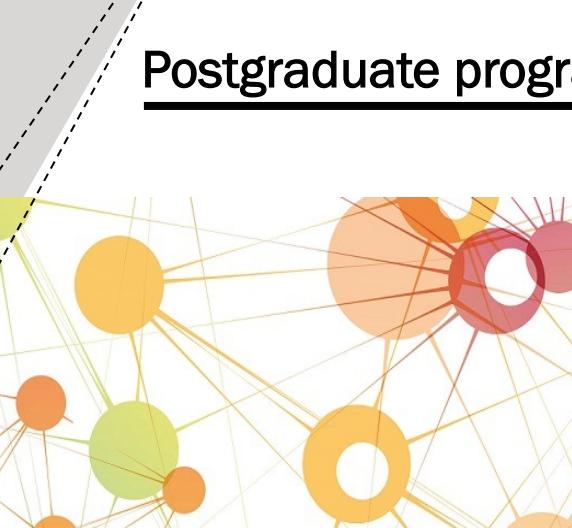
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Effective BI applications need to consider **usability** aspects, as well as the entire **user experience** and best practices of **information encoding**.

VA also uses **storytelling**, describing the data stories related to business events being monitored

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Postgraduate program



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- Information Design
- Data Visualization I and II
- Storytelling
- Information Visualization Tools
- Visual Analytics
- Information Visualization
- Project I and II

8 core courses + 2 optional

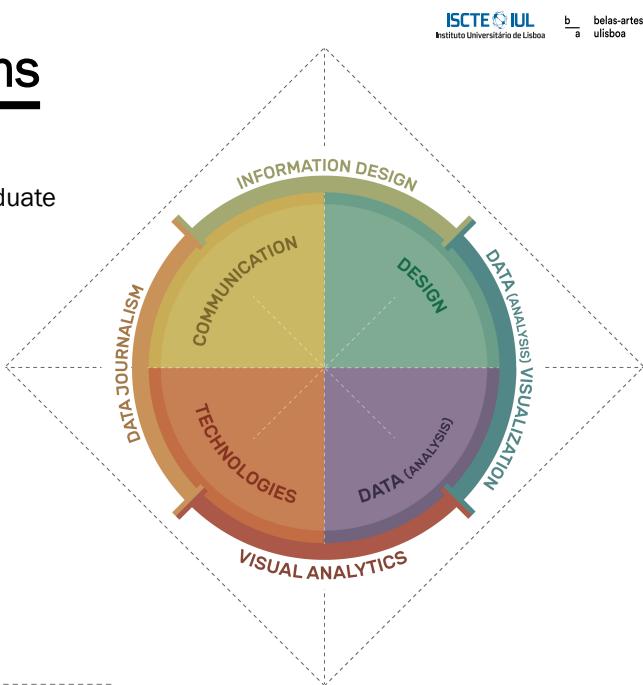
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Conclusions

Design of a postgraduate program based on a conceptual model explaining InfoVis

Based on the interrelationship of **4 thematic areas** and **4 constructs**.



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Conclusions

Even if there are specificities in each area, a **common language** was adopted and **synergies** generated

Use of technology is fundamental in InfoVis

The research will continue and new challenges will certainly arise upon the implementation of the program



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Contact info

Maria Carmo Botelho
Maria.botelho@iscte-iul.pt

Elsa Cardoso
Elsa.cardoso@iscte-iul.pt

Pedro Duarte de Almeida
Pedroalmeida@campus.ul.pt

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