# Stefan Egger

Information designer, researcher, speaker

**E.g. 3 international EU funded research projects (3 years each):**

- SOMS/IN-SAFETY
- SAFEWAY2SCHOOL
- IC-IC Interconnectivity through Infoconnectivity

**IIID event co-organizer**

- “Vision Plus” symposia
- Expert fora “Traffic and Transport”

# Stefan Egger

Information designer, researcher, speaker

- Automobile sector – process optimization
- Public Space / public transport – wayshowing and situated information provision
- Road safety – enhanced signalization

# IIID

## International Institute for Information Design

- Developing Information Design
- Since 1986
- Not-for-profit
- World wide members organisation

- Research
- Communication
- Education

## Expert networks

- Education
- Finance
- Healthcare
- Inclusive Design
- Traffic and Transport
- Tourism

# Information Design

IIID motto “Design of information to empower people to attain goals”

Function first, employing multiple media, is inter-disciplinary

Enable decision making to carry out actions to meet set goals

# Information Design and a New Language for Enhanced Informed Decision-Making

Stefan Egger, IIIDre

# Introduction

Better data visualizations = better decisions?

Visualization hints

EU research project proposal

# Definitions

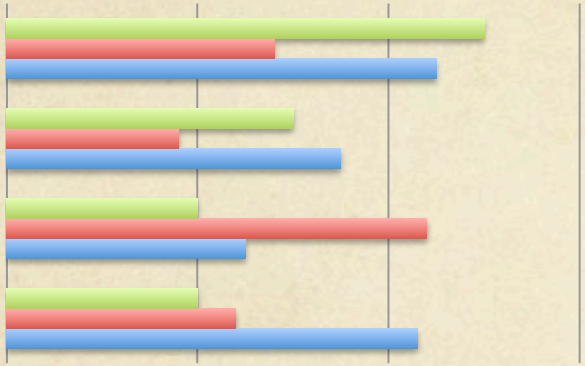
"**KNOWLEDGE**"
Plato: "(well) justified belief"

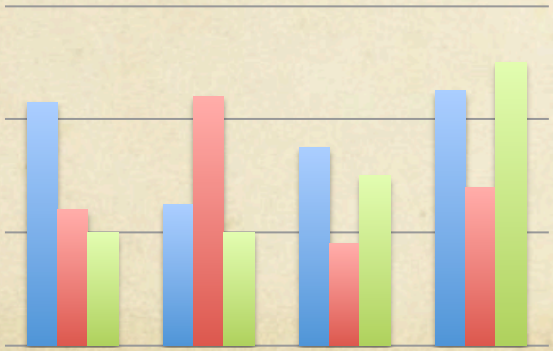
(anything) "… acquired by perceiving, discovering and learning"

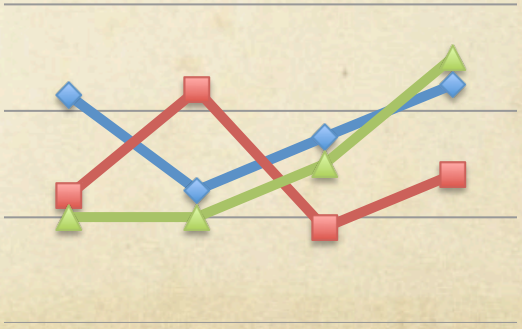
VISUALS are tools to acquire knowledge needed to make decisions

# Definitions

Data visualizations = Charts and graphs = "**VISUALS**"

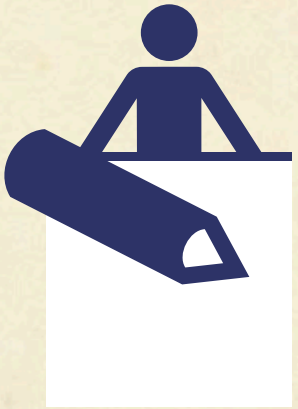






# Definitions

Making VISUALS, the
**“MAKER”**



# Definitions

Using VISUALS to understand and decide, the "**DECIDER**"



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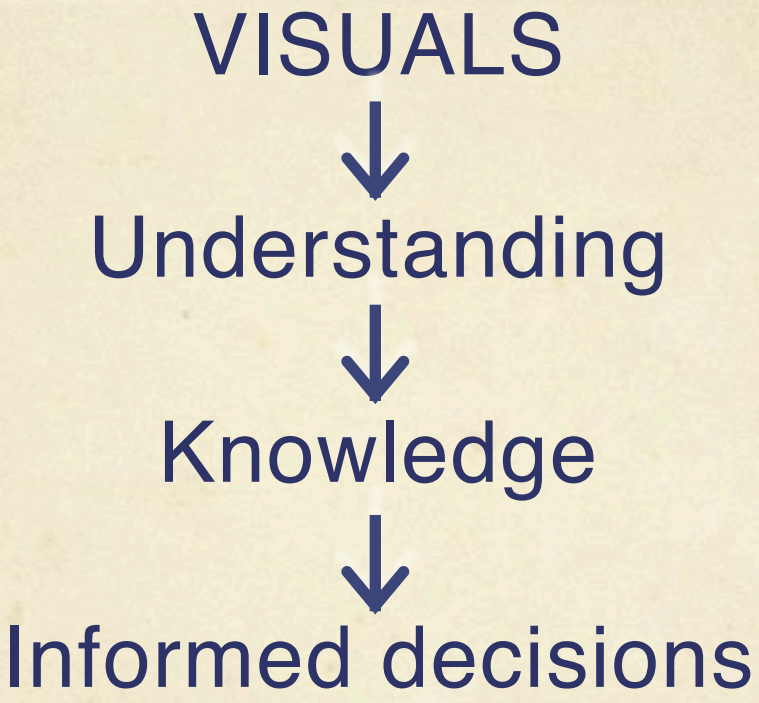
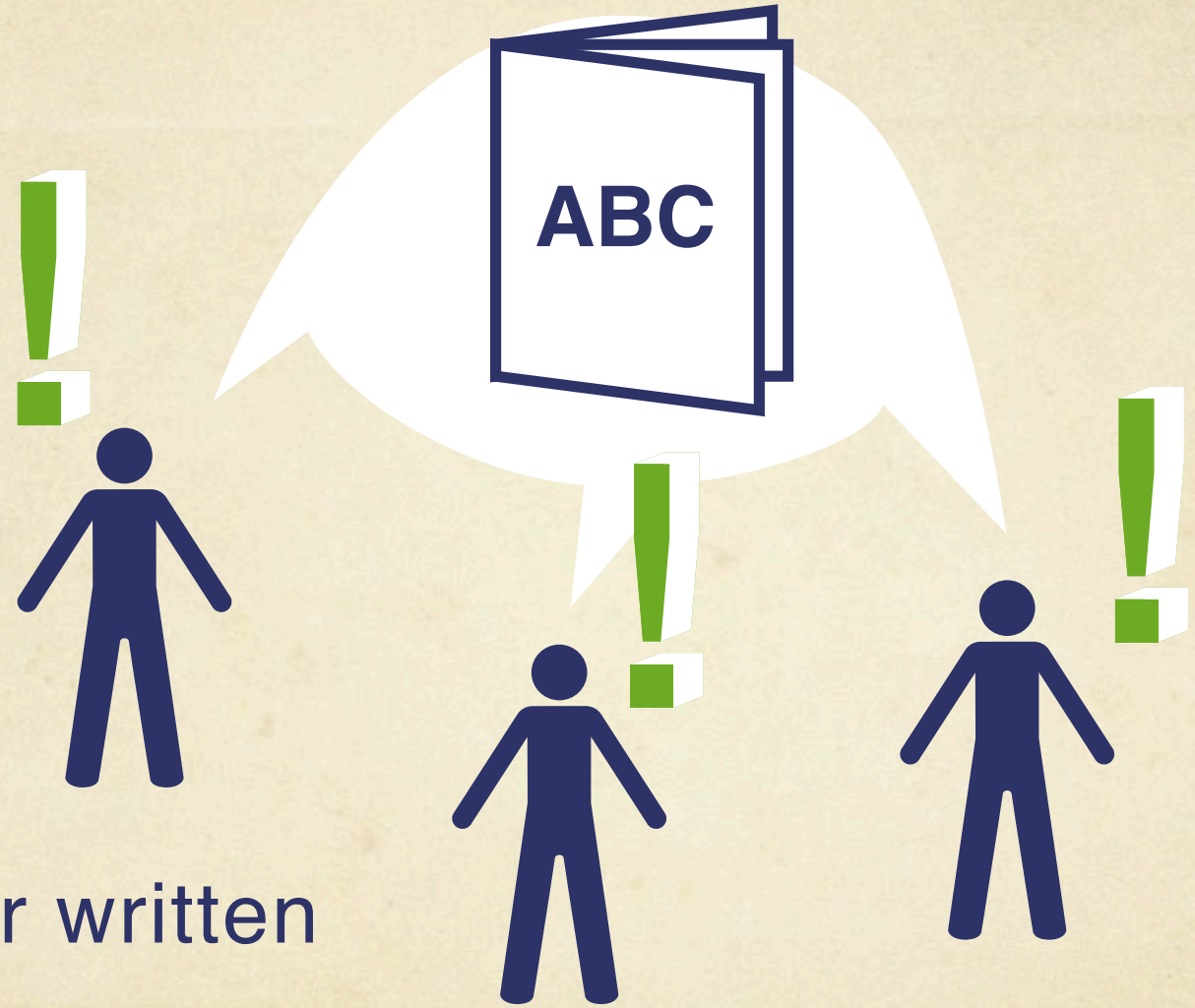
# Focus of the talk



# VISUALS – (Not yet) a language

Language relies on a common standard

# VISUALS – (Not yet) a language




Spoken or written language



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# VISUALS – (Not yet) a language

## Common standard for public information symbols

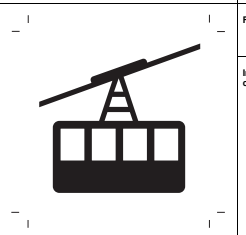
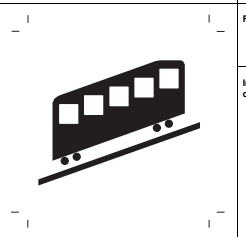
ISO/DIS 7001

| Reference No. Meaning | Graphical symbol | Symbol function and image content | |
|---|---|---|---|
| PI PF 005 Toilets – female |  | Function | To indicate the location of a public toilet for females |
| | | Image content | Frontal view of standing female human figure |
| PI PF 006 Full accessibility/ Toilets – accessible |  | Function | To indicate routes and facilities with full accessibility (including the location of an accessible toilet) |
| | | Image content | Side view of human figure in wheelchair |

ISO/DIS 7001

| Reference No. Meaning | Graphical symbol | Symbol function and image content | |
|---|---|---|---|
| PI PF 021 Stairs |  | Function | To indicate location of stairs |
| | | Image content | Side view of two human figures on stairs, one going up and one going down<br>NOTE Where the stairs are uni-directional, the figure walking up or the figure walking down should be omitted, as appropriate |
| PI PF 022 Slope or ramped access |  | Function | To indicate location of access facilities via a slope or ramp |
| | | Image content | Side view of walking human figure and human figure in wheelchair going up slope |

ISO/DIS 7001

| Reference No. Meaning | Graphical symbol | Symbol function and image content | |
|---|---|---|---|
| PI TF 011 Cable car |  | Function | To indicate the location of cable cars |
| | | Image content | Side view of cable car suspended from inclined cables |
| PI TF 012 Funicular or cable railway |  | Function | To indicate the location of a funicular or cable railway |
| | | Image content | Side view of funicular railway car on inclined railway line |

ISO/DIS 7001

| Reference No. Meaning | Graphical symbol | Symbol function and image content | |
|---|---|---|---|
| PI TF 019 Immigration or passport control/ inspection |  | Function | To indicate location of immigration or passport control point |
| | | Image content | Human figure with peaked cap reading passport |
| PI TF 020 Baggage reclaim |  | Function | To indicate location of baggage reclaim point |
| | | Image content | Side view of human figure lifting bag from conveyor belt |


## Source: ISO 7001 (excerpt)



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# VISUALS – (Not yet) a language


Public information symbols



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# VISUALS – (Not yet) a language

A common standard for VISUALS covers:

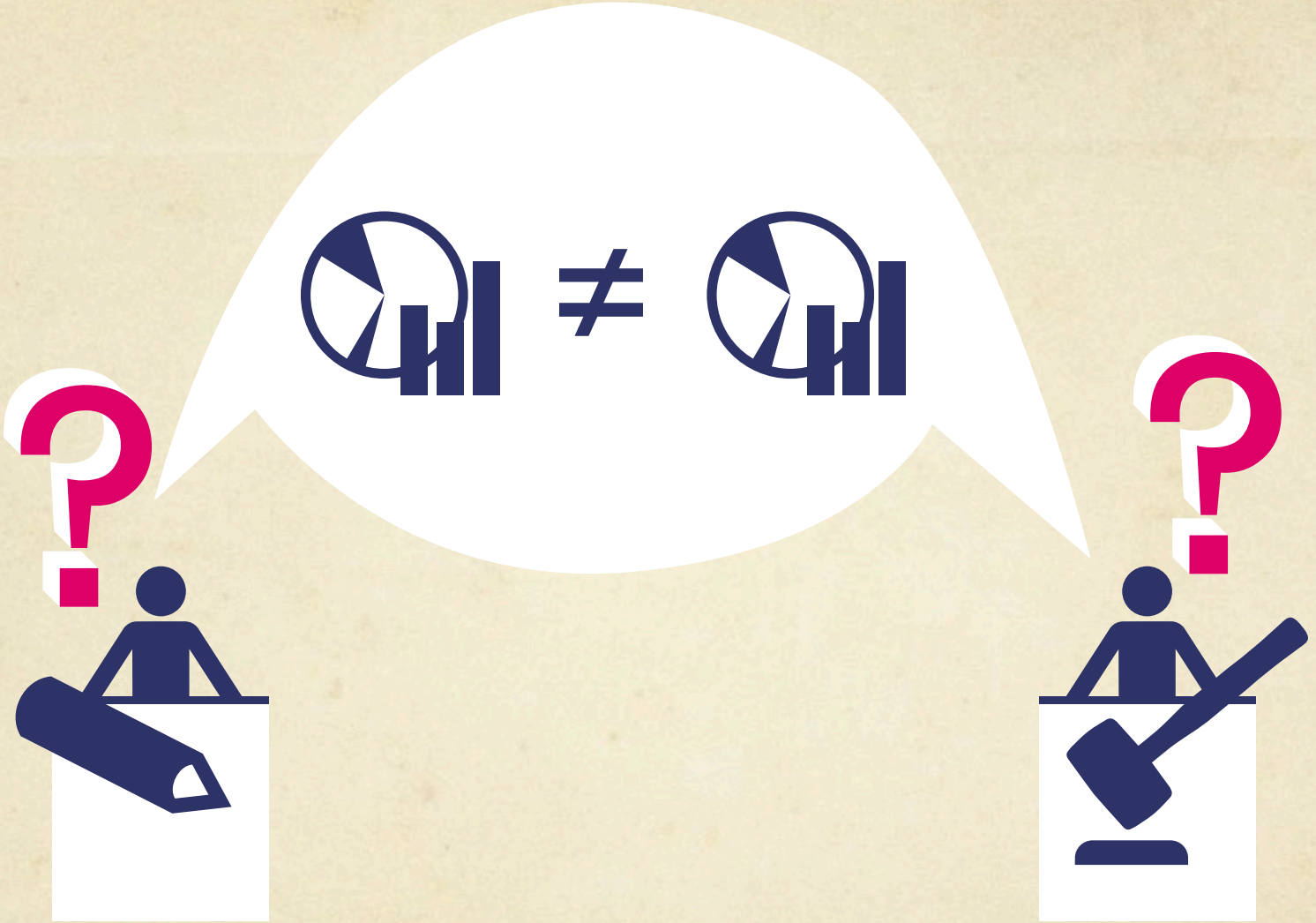
- Text
- Graphical representations

(form, line thickness, shades, colour …)

- Combinations of both
- …

# VISUALS – (Not yet) a language

# Current obstacles



# Current obstacles

Incompatible conventions for VISUALS influencing the MAKER:

- Software
- Corporate manuals
- Department Guidelines

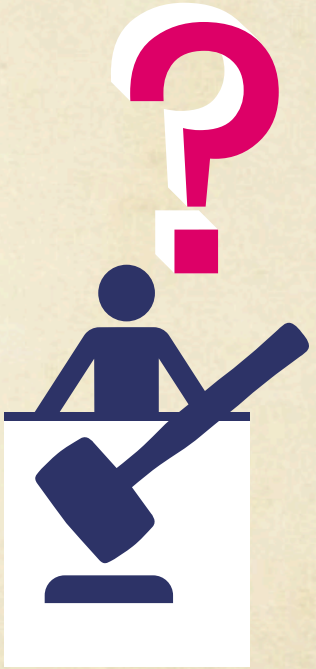
But no widely accepted standard

leading to:

# Current obstacles

Effect on the DECIDER

- Not optimal quality of visualization
- Inadequate forms
- Unknown conventions



Informed decisions???

What to do?

# Advice

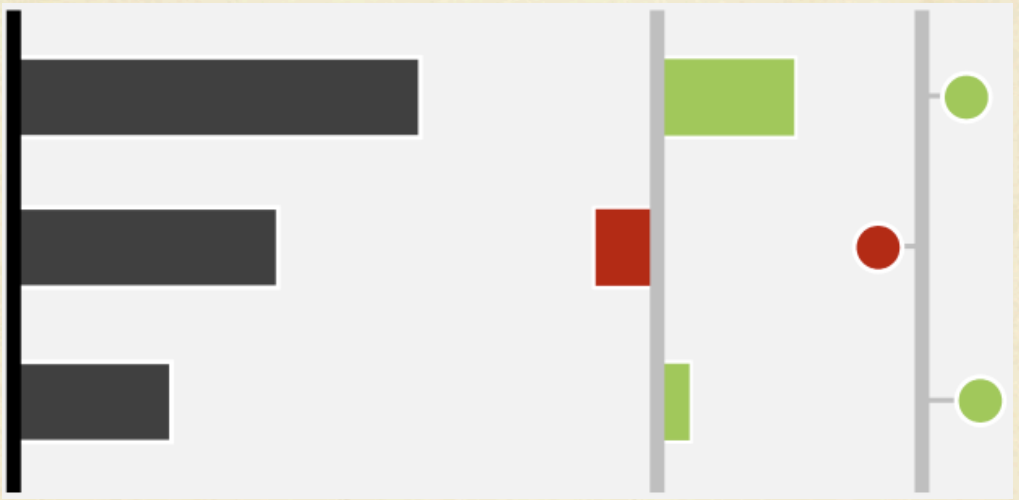
Designing high quality VISUALS requires to know:

- VISUAL's appearance must indicate its function
- VISUAL's details must be discriminable
- Text must be legible
- Sizes of circles are difficult to compare

Laws of Gestalt psychology would be good (law of proximity, similarity…)

# Advice

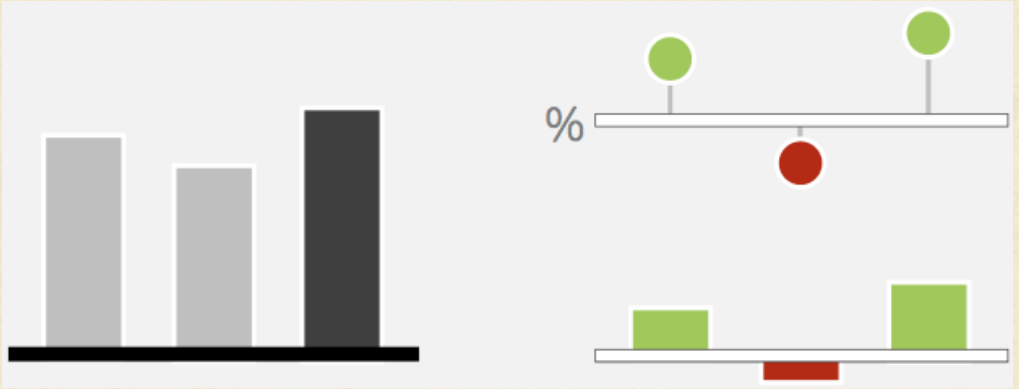
For comparison: Extend horizontally



Source:
Aspektum

# Advice

For development: Extend vertically




Source:
Aspektum



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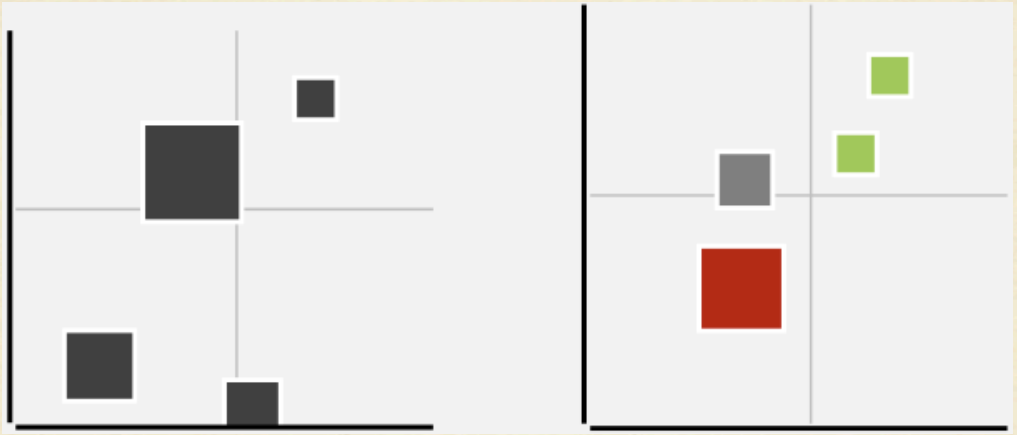
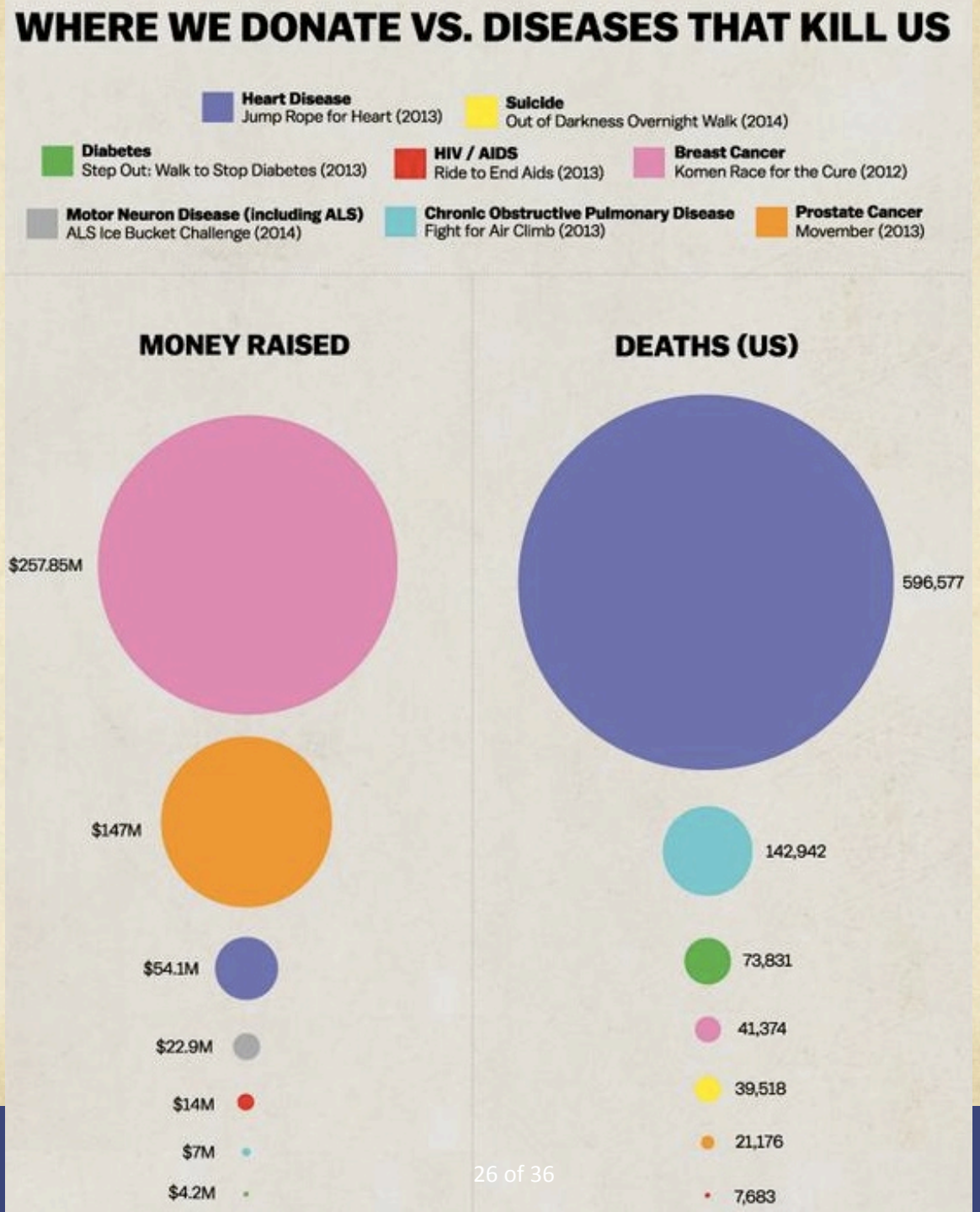
# Advice

For correlation: both axes

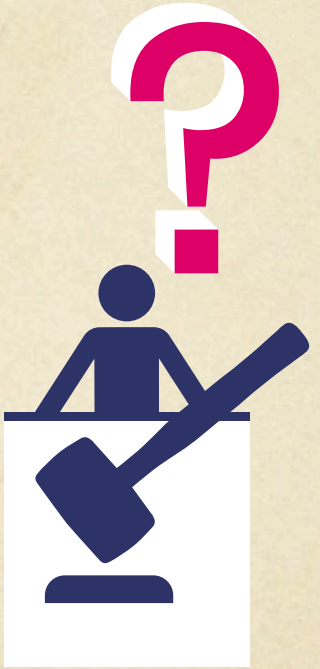


Source:
Aspektum

# Advice




Source:
CDC 2011





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# Advice

Poster and PDF available

Source: Aspektum

# BUSINESS INFORMATION DESIGN

## How to use charts in everyday business communication

Version 0.85

### charts make business visible

But only if you consider some suggestions on using visual objects.

They can be summarized by **SUE**:

**Simple**: plain elements support easy perception

**Unified**: consistent elements support cognition

**Explicit**: clear messages and logical structure support understanding

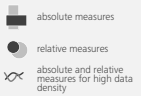
BUSINESS INFORMATION DESIGN offers rules, which should be applied as recommendations.

Use this elementary guide for everyday use of charts in reports, statistics and presentations.



### 10 basic rules

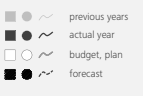
**forms**
use forms to distinguish measure types




**color**
use color only to highlight not to distinguish dimensions


**signs**
use standardized signs, define numbers and nomenclature


**notation**
use specific aesthetic to show specific data types

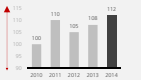



**titles**
use consistent titles for all charts

[line 1] business entity
[line 2] measure, unit
[line 3] data dimensions

Alpha Inc., Europe
Net Sales in mio. EUR
2014, Jan..May

**scaling**
**never** use nonlinear, distorted or manipulated scaling




**density**
use enough data density to provide adequate information.
Higher density can show a different picture.

**structure**
use a logical and visual structure to support understanding


**message and highlighting**
use explicit messages and highlight corresponding data


**know your content**
analyze diligent and develop clear messages

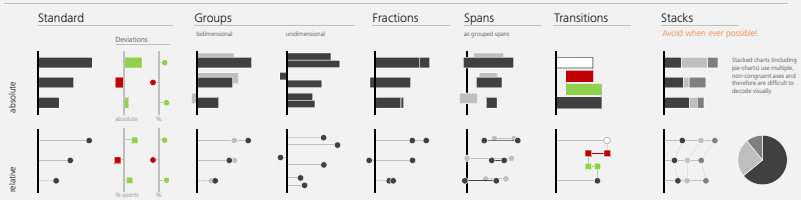
**respect your audience**
know who they are and which questions they have

**do not manipulate**
use charts to show data in a true and fair view

### proportion

Proportions are used for comparing measures. They can be arranged in any logical order.

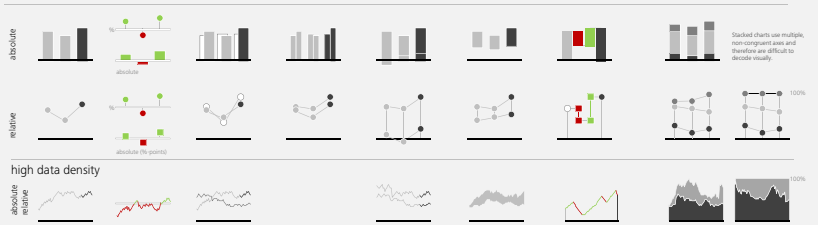
Proportions are shown with vertical axis. This supports the most common ways of ordering and it enables convenient labeling of measures.




### development

Developments are used for displaying changes over time. They are arranged only in a chronological order. This order always is continuous, without disruption or aggregation.

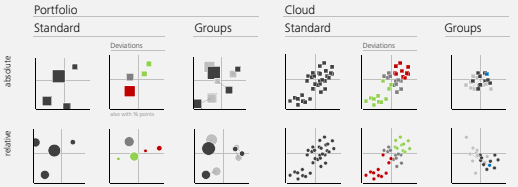
Developments are shown with horizontal axis. Time always is represented from left to right. Labels are standardized and abbreviated.




### correlation

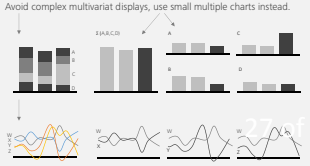
Correlations are used for revealing a relationship between two sets of data. This relationship could but need not be a causiality.

Correlations are shown with vertical and horizontal axes and are arranged in a quantitative order.




### small multiples

Avoid complex multivariat displays, use small multiple charts instead.



### scaling

# Advice

Instead of doing seminars on VISUALS
for only a few, or become a Gestalt psychology
expert, or a designer:

Introducing

# CARPE

## Collaborative Analytic and Reporting Platform Europe

# CARPE

Harmonization of VISUALS on highest possible quality level comprised in an open web service allowing to instantly produce data visualizations.

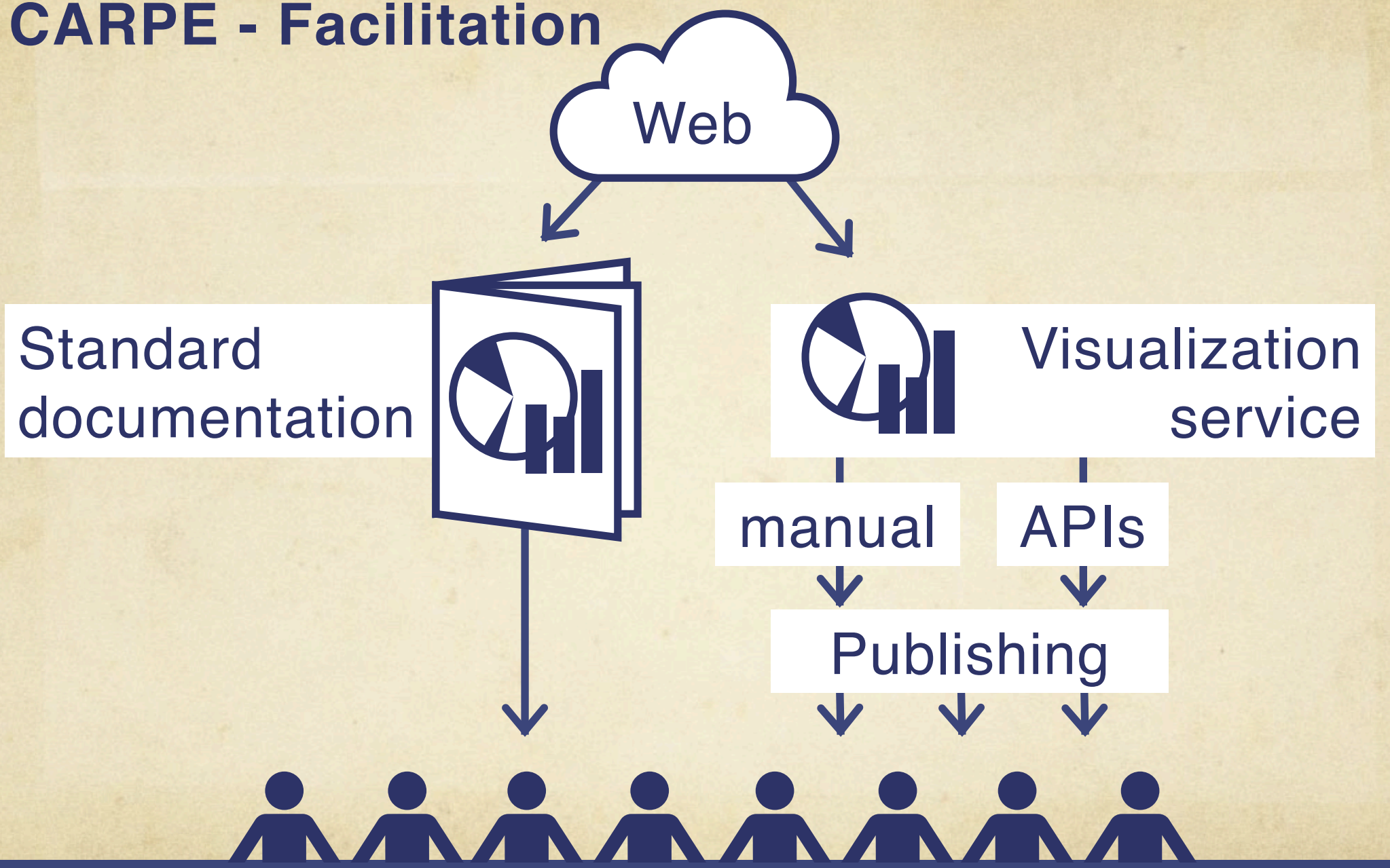
As a “living” standard for direct use, accessible for all, uptake will be widespread, making it a language to improve understanding and decision making.

# CARPE – Language of VISUALS

# CARPE - Expectations

- Improved VISUALS quality
- Improved understanding
- Better collaboration
- Enhanced informed decision making

# CARPE - Facilitation



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# CARPE – Expected impact

## On societal and political communication: E.g. EU to EU citizen & vice versa

- Closing information gaps
- challenging misinterpretation
- fostering understanding

By all involved in the chain of communication "speaking" one VISUALS language: European Parliament / Commission – member states governments and bureaucracy – press – citizen

# CARPE – Expected impact

**On business communication:**
**E.g. Tourism sector**

- Creation of more accurate VISUALS
- Improved collaboration
- Better informed partners inside and outside the industry

# CARPE – Impact summary

CARPE aims at improving the capability of parties and individuals to improve the ability of decision making and understanding of (statistical) data through high quality VISUALS, standardized and ready for use.

# CARPE Proposal


Invitation to interested parties to become involved

stefan.egger@iiid.net

**Let's speak VISUALS!**