

# Visual Communication

and how to succeed in academic publishing

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# Pixels and resolution

# Pixels per inch (ppi)

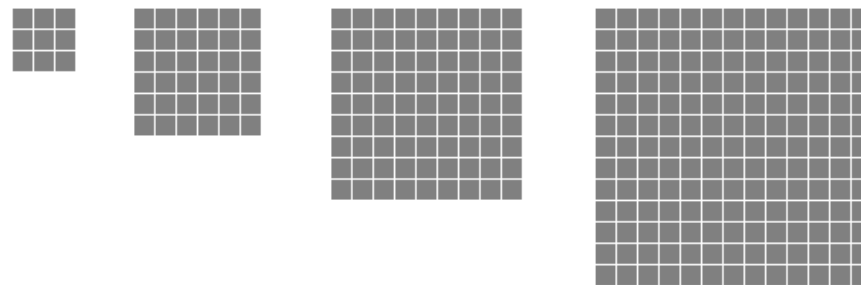
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- ✔ Represents a density of pixels
- ✔ ppi controls the physical size of your print

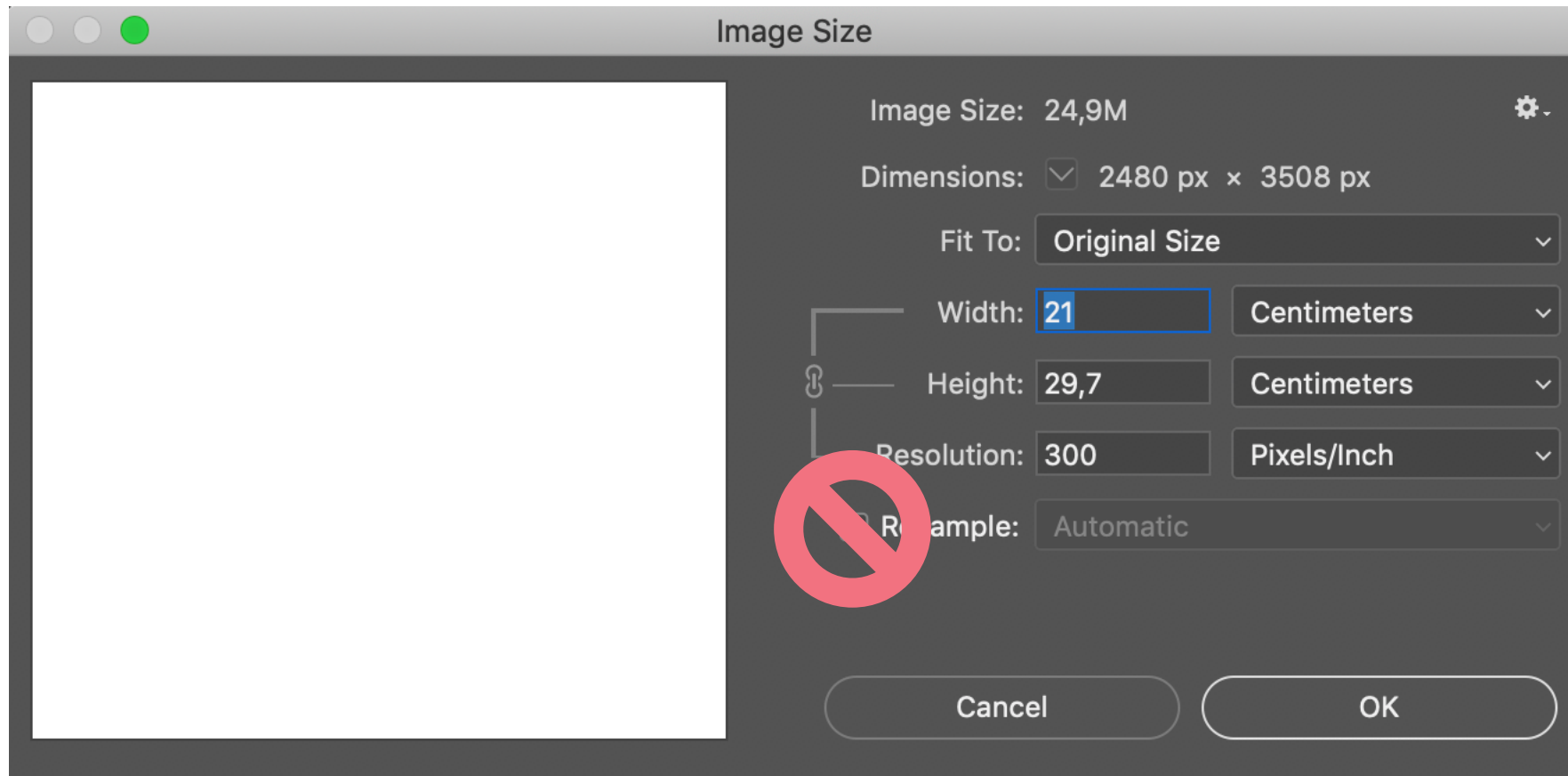
## Resizing (ppi down)



## Up-sampling (ppi constant)



# Never resample - Photoshop



# Start with print size & resolution

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- ✓ Print size: physical size of your image when printed

1 column – 2 columns – poster – graphical abstract

- ✓ Resolution: how many pixels per inch?

300 ppi

# Be aware of unwanted up sampling!

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when you make your figures with presentation software

Target size	PPI	Pixels	File format
1 column ( $\pm 9$ cm)	300	1063	TIFF
2 column ( $\pm 18$ cm)	300	2126	TIFF
HD presentation	n/a	1920	PNG/JPG



# Graphical Abstracts

Why they are important & how to make them

# WHAT is a graphical abstract?

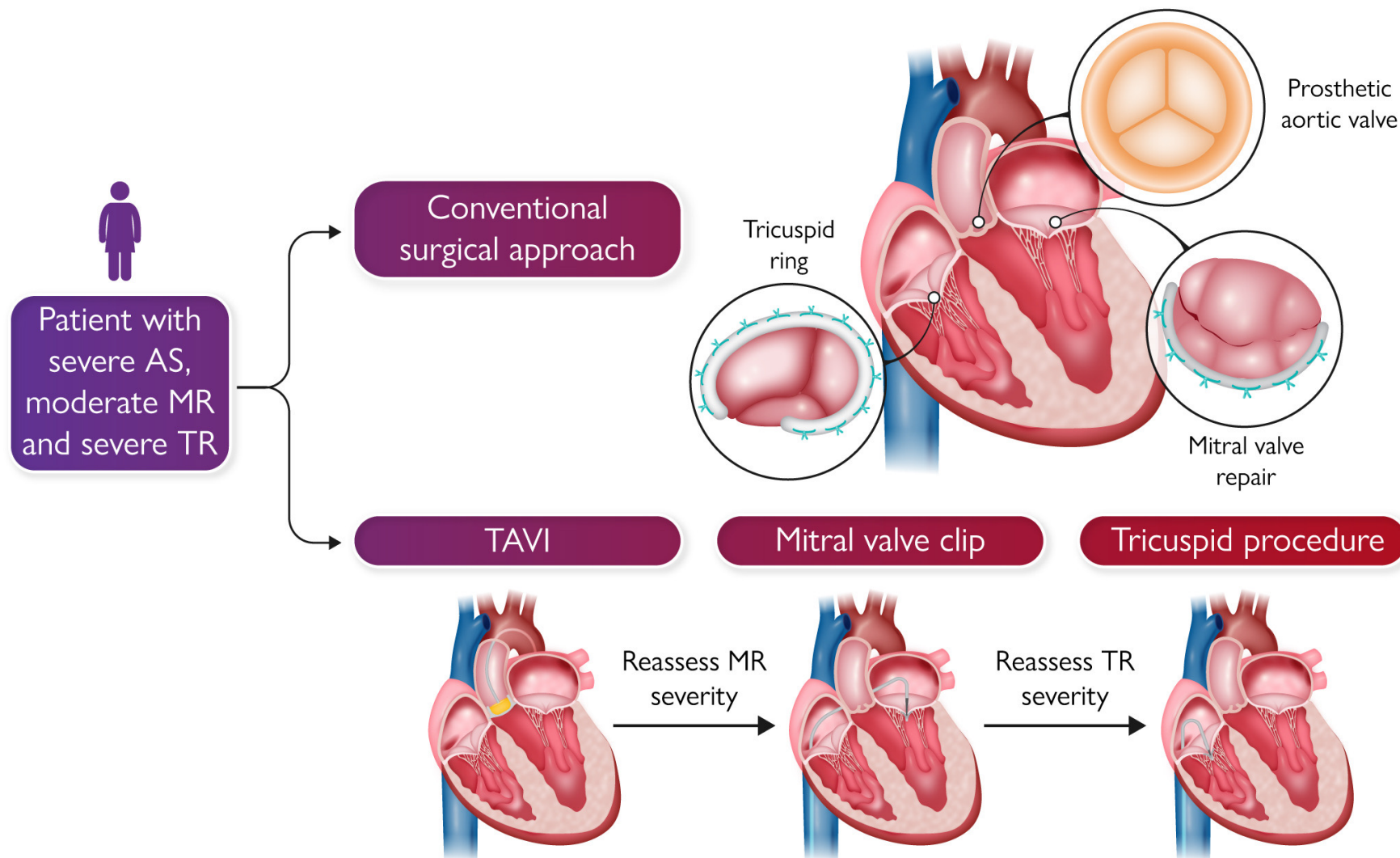
# What is a graphical abstract?

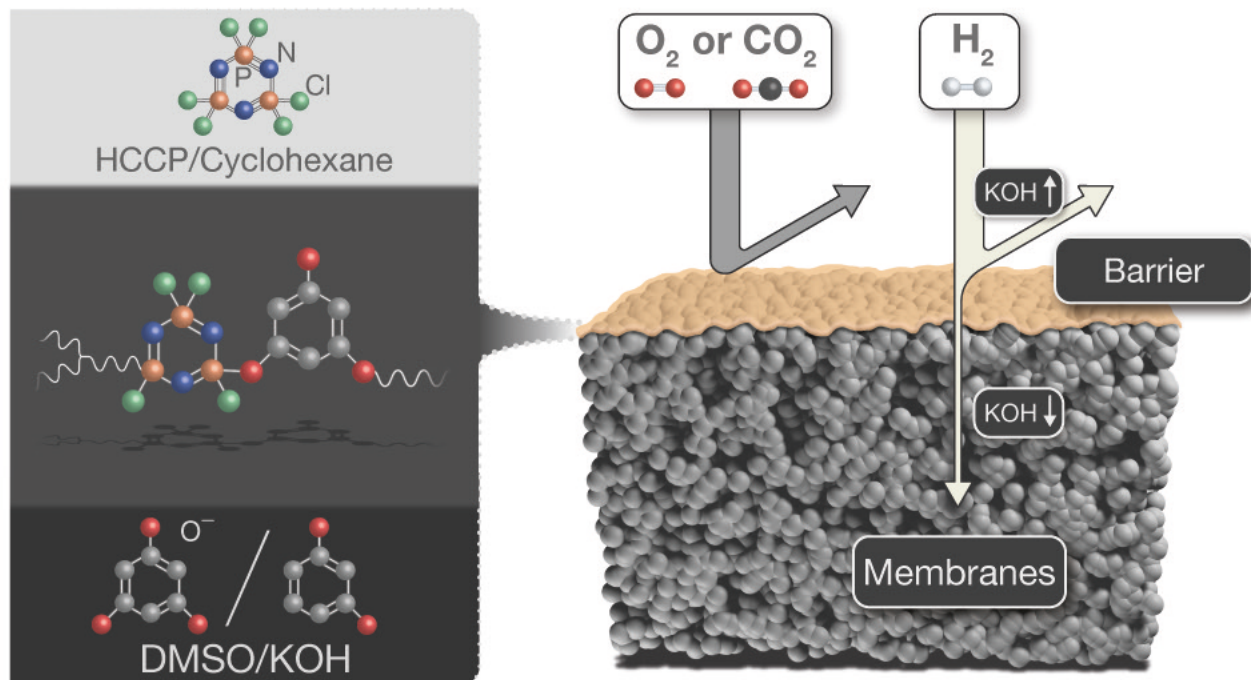
Cell press instructions

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A graphical abstract is **one single-panel image** designed to give readers and immediate understanding of the take-home message of the paper





## Barriers and potential solutions to implementation of GRMT for HF

### Barriers

#### Healthcare system



- Fragmented care
- Restrictive formularies
- Limited access to specialty care
- Insufficient healthcare technologies

#### Clinician-level



- Knowledge and awareness gaps
- Outdated protocols and treatment delays
- Therapeutic inertia
- Concerns about safety and tolerability
- Biases

#### Patient-level



- Social determinants of health
- Health literacy
- Insurance/coverage limitations and high out of pocket expenses
- Comorbidities

### Potential solutions

#### Healthcare system



- Learning health systems
- Performance improvement registries
- HF disease management programs, telehealth
- Time to GRMT performance measures

#### Clinician-level



- Simultaneous GRMT initiation protocols
- GRMT team consults and navigators
- In-hospital initiation of GRMT
- Real-time performance feedback
- Digital health tools

#### Patient-level



- Enhanced education and shared decision making
- Co-payment assistance program
- Medications to bedside program
- Patient engagement intervention (EPIC-HF)
- Digital health GRMT adherence tracking

# WHY do you need a graphical abstract?

# Why do you need a graphical abstract

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- ✔ A graphical abstract gives VISIBILITY
  - 🔔 an ad for your paper
  - 🔔 an attention getter
  - 🔔 an entry point
  - 🔔 a way to spark curiosity



# Why do you need a graphical abstract

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- ✔ A graphical abstract creates OPPORTUNITY
  - 🔔 to stand out from the crowd
  - 🔔 to help readers identify relevant papers
  - 🔔 to effectively communicate science
  - 🔔 to contribute to the advancement of science

# HOW to prepare a graphical abstract?

# Content

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# A graphical abstract should

Cell press instructions highlights



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- ✓ have a clear start and end, "reading" from top-to-bottom or left-to-right
- ✓ be **distinct** from any model figures or diagrams included in the paper itself
- ✓ **emphasize the new findings** from the current paper without including excess details from previous literature

# A graphical abstract should

Cell press instructions highlights




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-  avoid the inclusion of features that are more speculative
-  not include data items of any type;  
all the content should be in a graphical form

# A graphical abstract should not

ACS publications instructions highlights

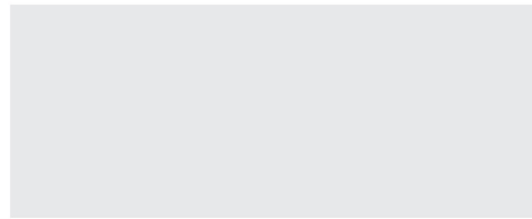
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-  be a graphic that already appears within the text of the manuscript
-  not include postage stamps or currency from any country, or trademarked items
-  include a photograph, drawing, or caricature of any person, living or deceased

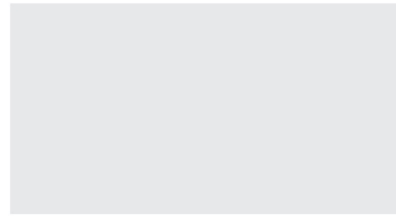
# Technical requirements

(try to) anticipate

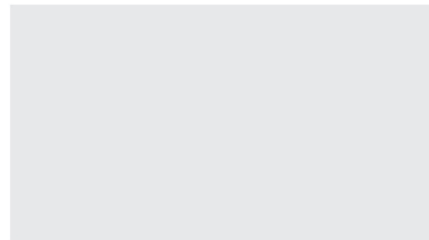




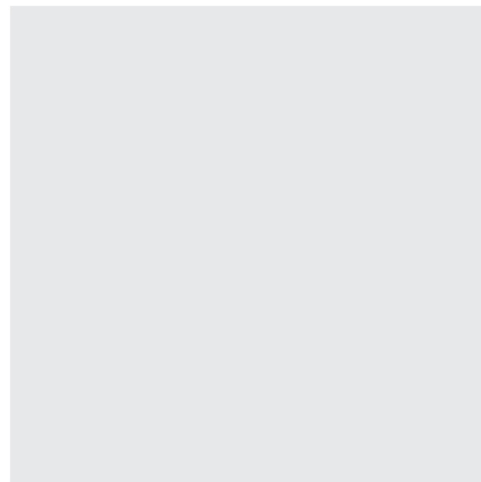
Elsevier  
112,5 mm x 45 mm



ACS publications  
82,5 mm x 44,5 mm



Nature Chemistry  
90 mm x 50 mm



Cell press  
~101,6 mm  
1200 pixels square at 300 dpi

# Workflow to design a graphical abstract

- 1 Decide on the key message for your graphical abstract
- 2 Draft your idea
- 3 Choose the optimal design for the flow of information
- 4 Use icons, graphical elements and arrows
- 5 Apply color effectively
- 6 Annotate properly
- 7 Before you submit: quality check

# Design a figure

Visual storytelling

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# Visual hierarchy

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Make the viewer to read your figure or slide in a specific order



Line



Texture



Shape



Size



Color



Position

Visual storytelling

# Principles of design

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- ✓ Balance
- ✓ Proximity
- ✓ Alignment
- ✓ Repetition
- ✓ Contrast
- ✓ White space

These principles govern the relationships between the elements used and organise the composition



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# Graphical elements

# Iconic Representations

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- ✔ Use of pictorial images to make actions, objects and concepts easier to find, recognize, learn, and remember.
- ✔ They can be used for identification, as an alternative to text or to draw attention to an item.

# Graphical elements

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Iconfinder

Flaticon

Icons8

Noun project



# Advanced graphical elements



Graphic river

Freepik

# Other graphical elements



Labicons

Servier medical art

Biorender

# Arrows

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# Arrows

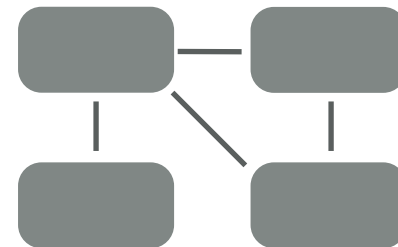
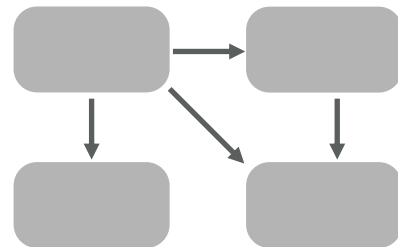
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- ✓ Arrows are one of the most commonly used graphical element in scientific figures.
- ✓ Arrows can be highly efficient instruments of visual communication because they guide us through complex information.
- ✓ Arrows should be used sparingly and clearly.

# Arrows

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- 🔔 Use lines with heads shaped like arrows to indicate sequence or direction
- 🔔 Use lines to emphasize the structure of a system



# Arrows

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- 🔔 Use variations
- 🔔 Avoid open arrowheads
- 🔔 Avoid sweeping wings
- 🔔 Print publication
  - 0.75-2 points, 60% scaled arrowhead
- 🔔 Allow whitespace at the ends of the arrow
- 🔔 Avoid sharp opposing arrow orientation

# Build color confidence

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# How to pick the right colors?

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- ✔ Don't pick a color
- ✔ Use a color scheme based on color rules/theory
  - [Color Adobe](#)
  - [Coolors](#)
- ✔ Limit yourself to the color scheme



# Make your figures color-blind proof

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- ✔ Use color-blind proof color schemes
- ✔ Use other design elements such as shape and size
- ✔ Check your work with simulation tools (color oracle)

# Typeface

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# Our recommendation

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- ✓ Standard sans-serif fonts
- ✓ Font size Minimal 6-8 pts, optimal 10-12 pts
- ✓ Be consistent
- ✓ Print out the graphic: is the text readable, do the graphics and lines look crisp and easy to see?

# Our recommendation

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- ✔ Captions & annotations are not optional
- ✔ Avoid legends (if possible)
- ✔ Incorporate labels & callouts seamlessly

**Open source**

**GIMP**

**Inkscape**

**Unique payment**

**Affinity photo**

**Affinity designer**

**Subscription**

**Adobe Photoshop**

**Adobe Illustrator**