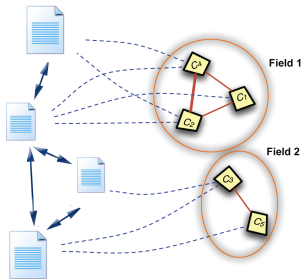


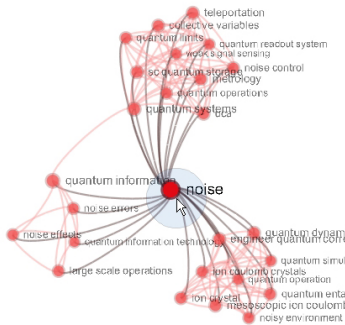
Interactive mapping of project portfolio - Requirements

- **Handle unstructured textual datasets** extract implicit relations (co-occurrence patterns) through text-mining methods (no specific relation required, only some textual content).
- **Interactivity** Tools for real-time interaction with corpora. **Make your own idea** of what is there. Cumulative outcomes.
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- **Easy-to-use & user-friendly** novice can play immediatly, become quickly confirmed user
- **Compatibility with other softwares** and database several import and export formats, open software licence (GPL3)



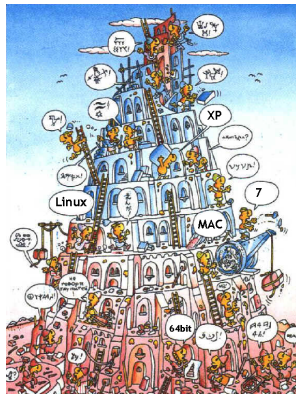
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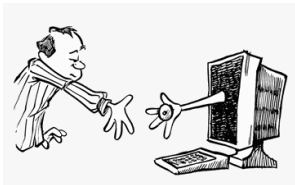
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Mapping philosophy

- Different views of the same complex network rather than THE map,
- Most valuable information about complex networks is obtained by map manipulations and queries,
- At any moment the user should be able to go from the aggregated level (the graphs) to the micro level (the documents/Ngrams selection) and back.

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Maps building blocks

1. The corpora (csv format, etc.) *e.g.* the project portfolio
2. The white list and stop words that defines the thematic perimeter (cumulative expertise with the master white list),
3. Proximity measures between terms and documents

“corp_id”, “doc_id”, “title”, “abstract”

“FET OPEN”, “59”, “TINA”, “TINA is a support action aiming to develop tools for the analysis and visualisation of the relationships between scientific research projects and proposals.”

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status

label

forms

w	<u>bio-sensors</u>	<u>bio-sensors *** bio-sensing</u>
w	<u>biocompatible nanophotonic dev</u>	<u>biocompatible nanophotonic dev</u>
		<u>biocomputational model *** bio-computational model ***</u>
w	<u>biocomputational model</u>	<u>biocomputational models *** bio-computational models</u>
w	<u>biodosimeter</u>	<u>biodosimeter</u>
w	<u>bioelectric signals</u>	<u>bioelectric signals</u>
w	<u>biohazard identification</u>	<u>biohazard identification</u>
w	<u>bio-hybrid</u>	<u>biohybrid *** bio-hybrid *** bio hybrid</u>
w	<u>biohybrid systems</u>	<u>biohybrid systems</u>
w	<u>bioimpedance</u>	<u>bioimpedance</u>
w	<u>bioinformatics</u>	<u>bioinformatics *** bio-informatics</u>
w	<u>bioinspired information processing</u>	<u>bioinspired information processing</u>

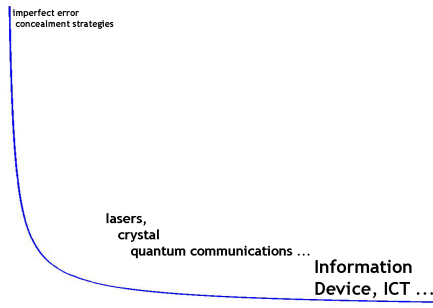
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- $P_1 = \frac{n_{ij}}{\min(n_i, n_j)}$
- $P_2 = \frac{n_{ij}^2}{n_i \cdot n_j}$
- $P_3 = ((\frac{n_{ij}^T}{n_i^T})^\alpha (\frac{n_{ij}^T}{n_j^T})^{1/\alpha})^{\min(\alpha, \frac{1}{\alpha})}$.

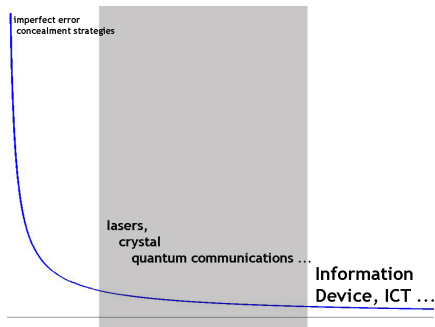
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- Powerlaw distribution is frequent
- Most interesting terms for maps are those with medium range occurrences.
- Each category of terms will bring characteristic patterns to the maps.



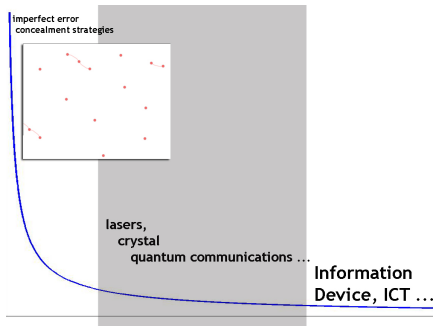
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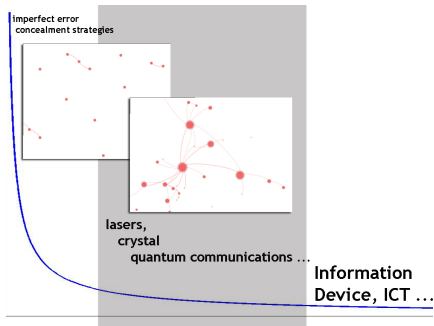
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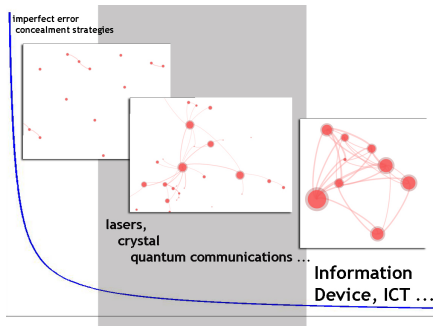
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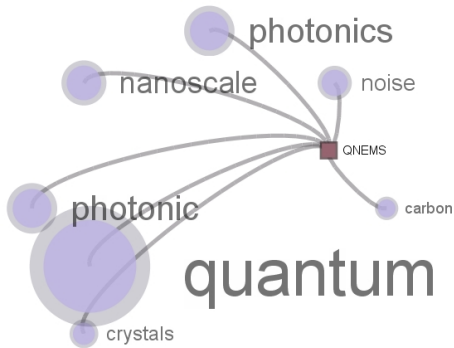
Some basic notions about bipartite graphs

- **Project neighborhood**

A project can have several keywords

- **Term neighborhood**

A term can be mentioned by several projects.



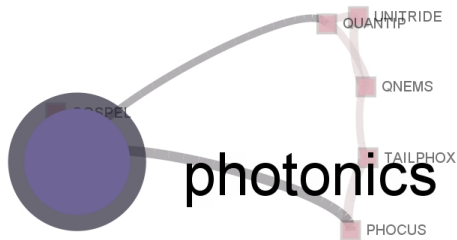
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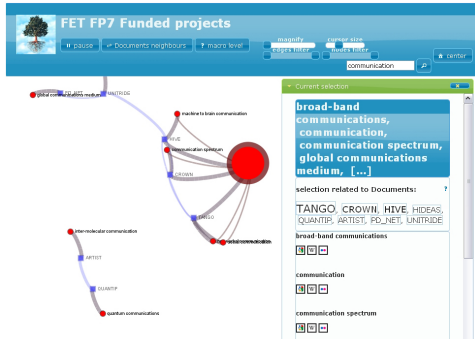
The TINA software suite

- **Tinasoft desktop** is a software for the production, the exploration and annotation of projects maps. It includes text-mining and natural language processing technologies, reconstruction methods of thematic landscape and visualisation tools.



The TINA software suite

- **Tinaweb** is a stand alone interface for the exploration of projects maps created by tinasoft. It can be ran on a personal computer or online.



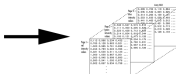
Mapping projects with TINAsofts



1. Indexation



2. Proximity



3. Fields detection



4. Inter-temporal matching



Some basic operators

- **Search** for a string
- Select one or several nodes,
- Switch to the other bipartite component,
- Change level from global view to neighborhood view,
- Adjust filter Unfold the graph removing edges and nodes



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- Find the core/periphery of the project network or the semantic network



- Map the semantic background of a part of the portfolio



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- Find the semantic and project background of an expression



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- **Dynamics** Use phylogenies landscapes as support for queries
- **Distributed computing and data storage** organize the decentralisation to map the whole science in real-time
- **Interface with other tools and databases**

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