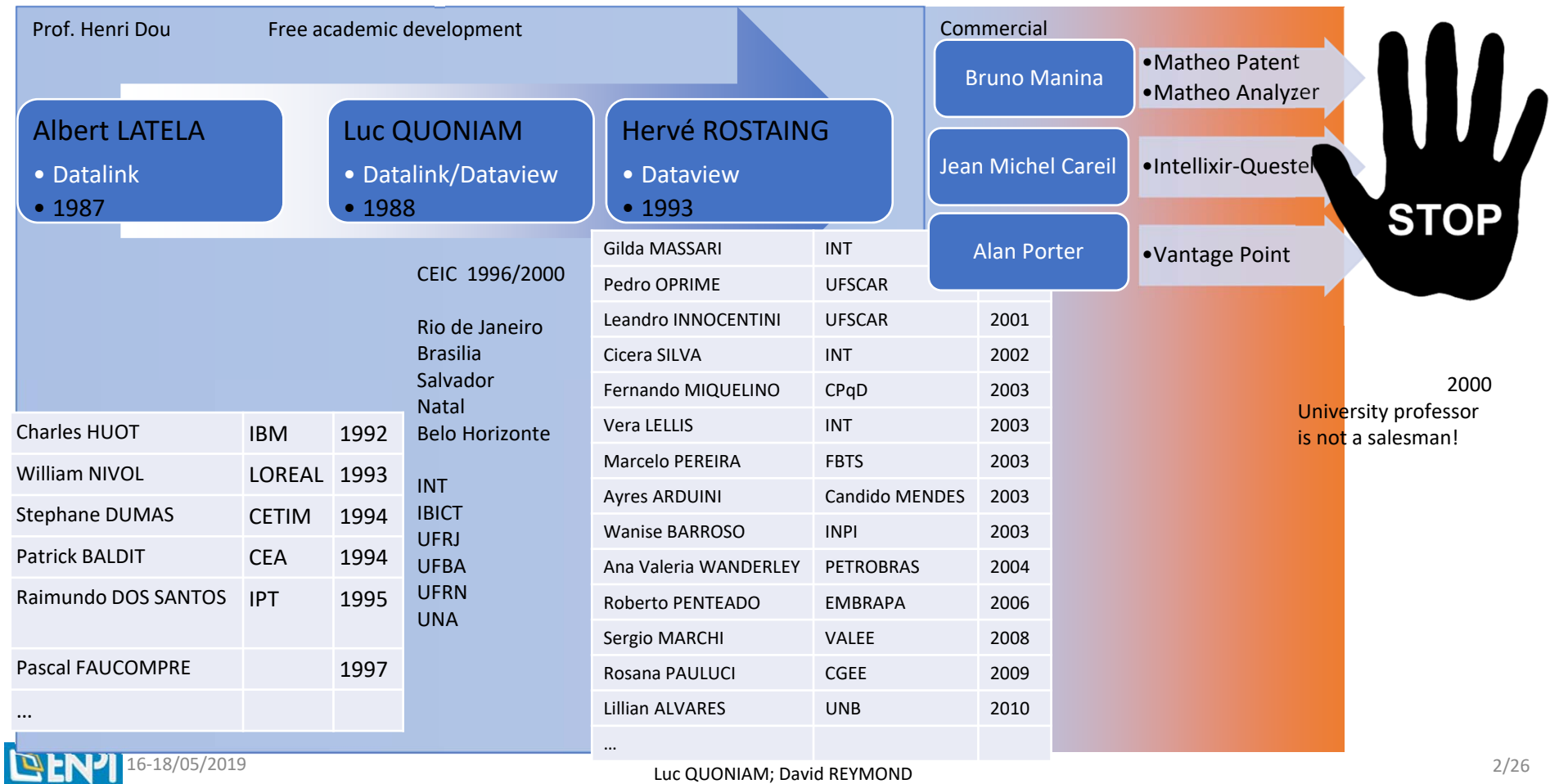


Patentes: um bem comum para inovar

Luc Quoniam, David Reymond



Time line



Patents are useful to society, business, individuals!



1. Pervaded every aspect of human life:

- electric lighting (patents held by Edison and Swan)
- plastic (patents held by Baekeland)
- ballpoint pens (patents held by Biro)
- microprocessors (patents held by Intel)

2. Patents provide incentives to and protection for individuals

- offering them recognition for their creativity and the possibility of material reward for their inventions
- the obligatory publication of patents and patent applications facilitates the mutually-beneficial spread of new knowledge and accelerates innovation activities by, for example, avoiding the necessity to “re-invent the wheel”.

3. Once knowledge is publicly available, it can be used simultaneously by an unlimited number of persons

- Dilemma for the commercialization of technical knowledge
- In the absence of protection of such knowledge, “free-riders” could easily use technical knowledge embedded in inventions without any recognition of the creativity of the inventor or contribution to the investments made by the inventor
- As a consequence, inventors would naturally be discouraged to bring new inventions to the market, and tend to keep their commercially valuable inventions secret
- A patent system intends to correct such under-provision of innovative activities by providing innovators with limited exclusive rights, thereby giving the innovators the possibility to receive appropriate returns on their innovative activities

4. the public disclosure of the technical knowledge in the patent, and the exclusive right granted by the patent, provide incentives for competitors to search for alternative solutions and to “invent around” the first invention

These incentives and the dissemination of knowledge about new inventions encourage further innovation, which assures that the quality of human life and the well-being of society is continuously enhanced

Some key conditions to obtain patent protection!



1. The invention must show an element of novelty

Some new characteristic not known in the existing knowledge in its technical field (“prior art”)

2. The invention must involve an “inventive step” or “non-obvious”,

Not be obviously deduced by a person having ordinary skill in the relevant technical field

3. The invention must be capable of industrial application

Capable of being used for an industrial or business purpose beyond a mere theoretical phenomenon, or be useful

4. Its subject matter must be accepted as “patentable” under law

In many countries, scientific theories, aesthetic creations, mathematical methods, plant or animal varieties, discoveries of natural substances, commercial methods, methods for medical treatment (as opposed to medical products) or computer programs are generally not patentable

5. Invention must be disclosed in a manner sufficiently clear and complete to enable it to be replicated by a person with an ordinary level of skill in the relevant technical field

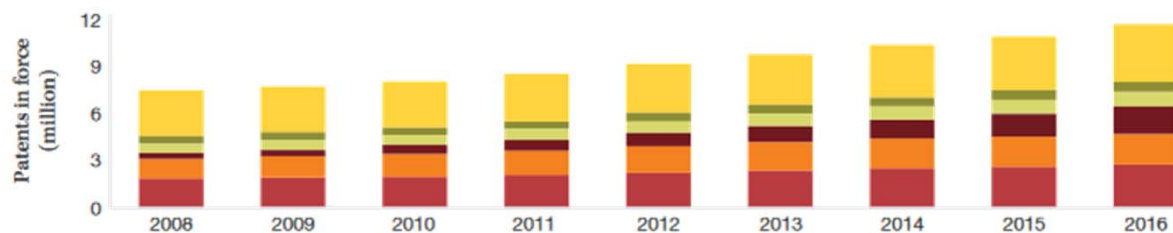
Espacenet

- Free access to over 110 million patent documents
- Published patent applications from over 90 patent-granting authorities
- Open Patent Services (OPS): web service for the EPO's data via XML interface



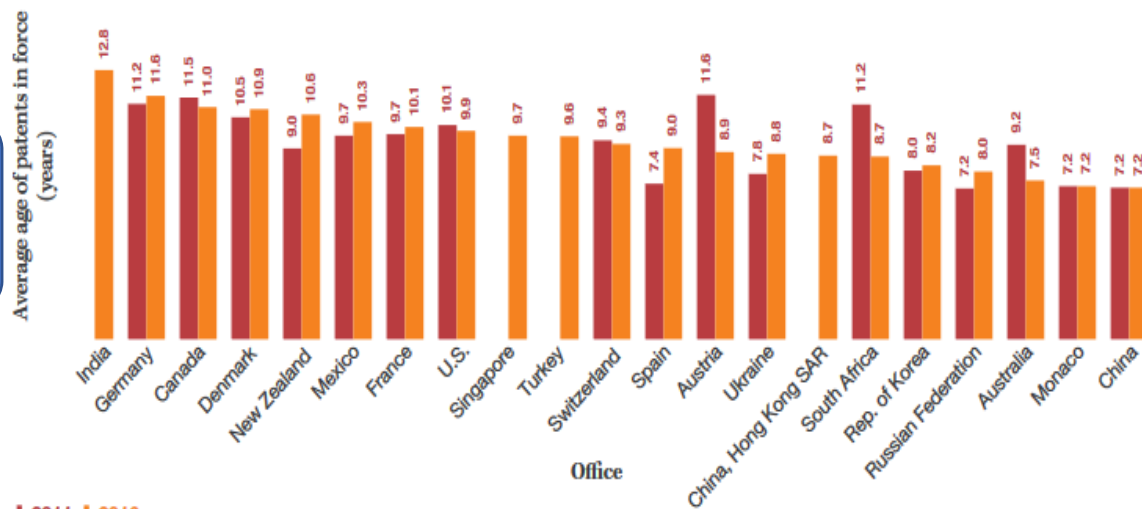
Patents in force?

Trend in patents in force worldwide



Average age of patents in force at selected offices

U.S. JAPAN CHINA REP. OF KOREA GERMANY OTHERS



In force, yes!
In their respective country!

And the others?

Knowledge publicly available,
usable simultaneously by an unlimited number of persons



Knowledge is a common!

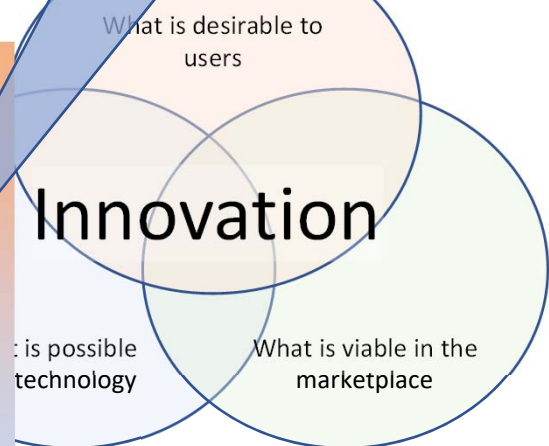
First step for creativity, invention, innovation!
Use it! For frugal innovation!

From innovation to innovative conception, KDD

Innovation: effective introduction of an invention in the marketplace!

Inventiveness						
level	Degree	Percentage solutions	Necessary knowledge	Nbr of tests/ Information volume	Example	Method
I	Apparent solution	32 %	of a person	10	Thermal insulation of an object	« achismo », brainstorming, creativity, Copy-Paste
II	Minor improvement	45 %	of the concerned company	100	Creation of a derivative	
III	Major improvement	18 %	of the concerned industry	1 000	Introduction of a new steel	Innovative-conception Structural KDD
IV	New project	4 %	of all combined Industries	100 000	Use of a new conception process	
V	Discovery	< 1 %	of the whole civilization	1 000 000		KDD Weak-signals serendipity

Jean Dominique Pierret
Galderma 2006
Thinking out of the box



TRIZ Genrich Altshuller (1926-1998)

- "theory of the resolution of invention-related tasks"
- "a problem-solving, analysis and forecasting tool derived from the study of patterns of invention in the global patent literature"



- 1969, Altshuller had reviewed about **40,000 patent abstracts** in order to find out in what way the innovation had taken place
40 principles of invention. The concepts of physical contradictions, SuField analysis (structural substance-field analysis), standard solutions, several laws of technical systems evolution
- 1971 Altshuller the first TRIZ teaching facility, called the Azerbaijan Public Institute for Inventive Creation
- 1995 the Altshuller Institute for TRIZ Studies was established in Boston, USA.

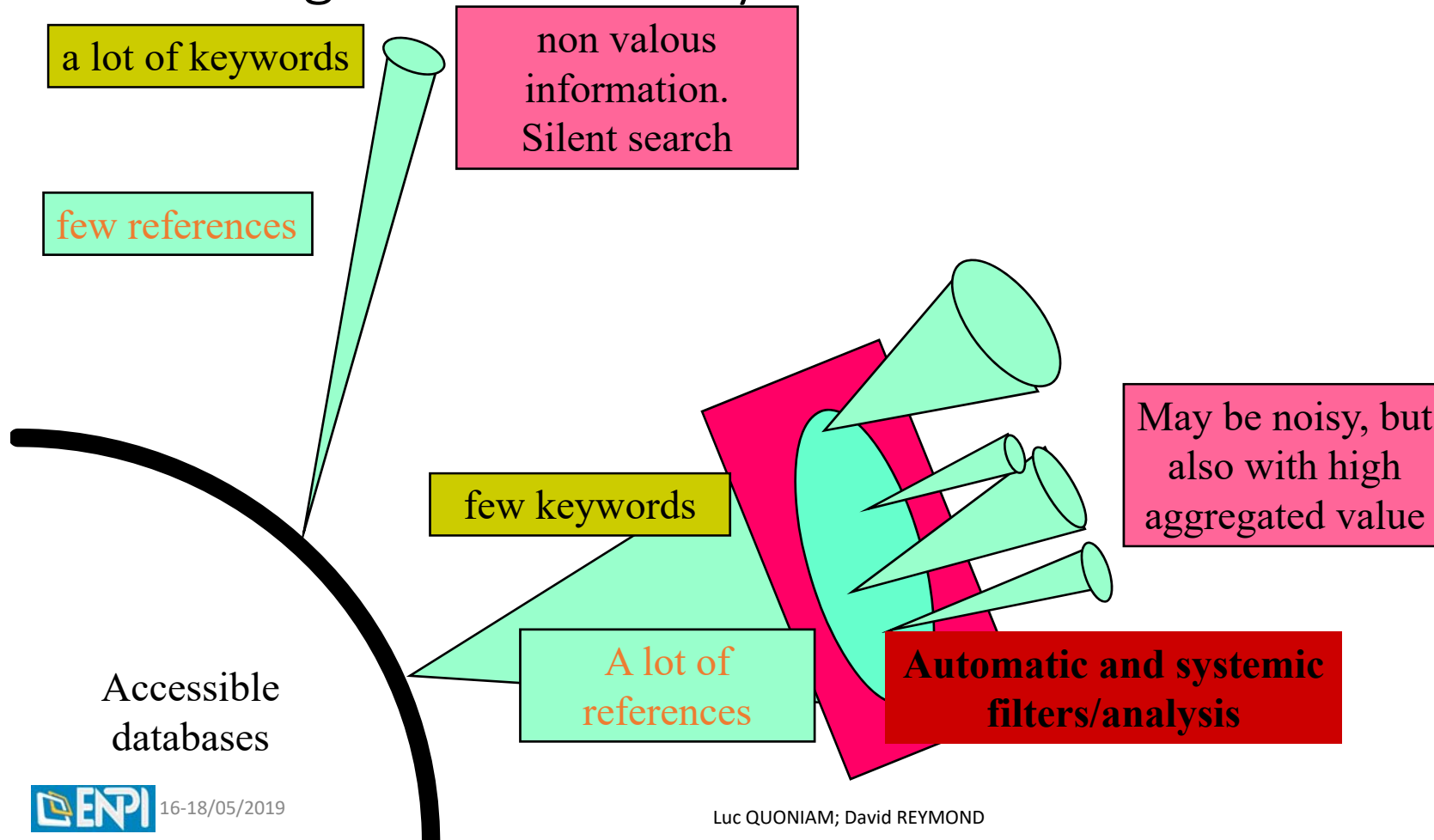
Use of TRIZ methods in industry

TRIZ gives to many companies a competitive advantage, reluctant to publicize their adoption of the method.

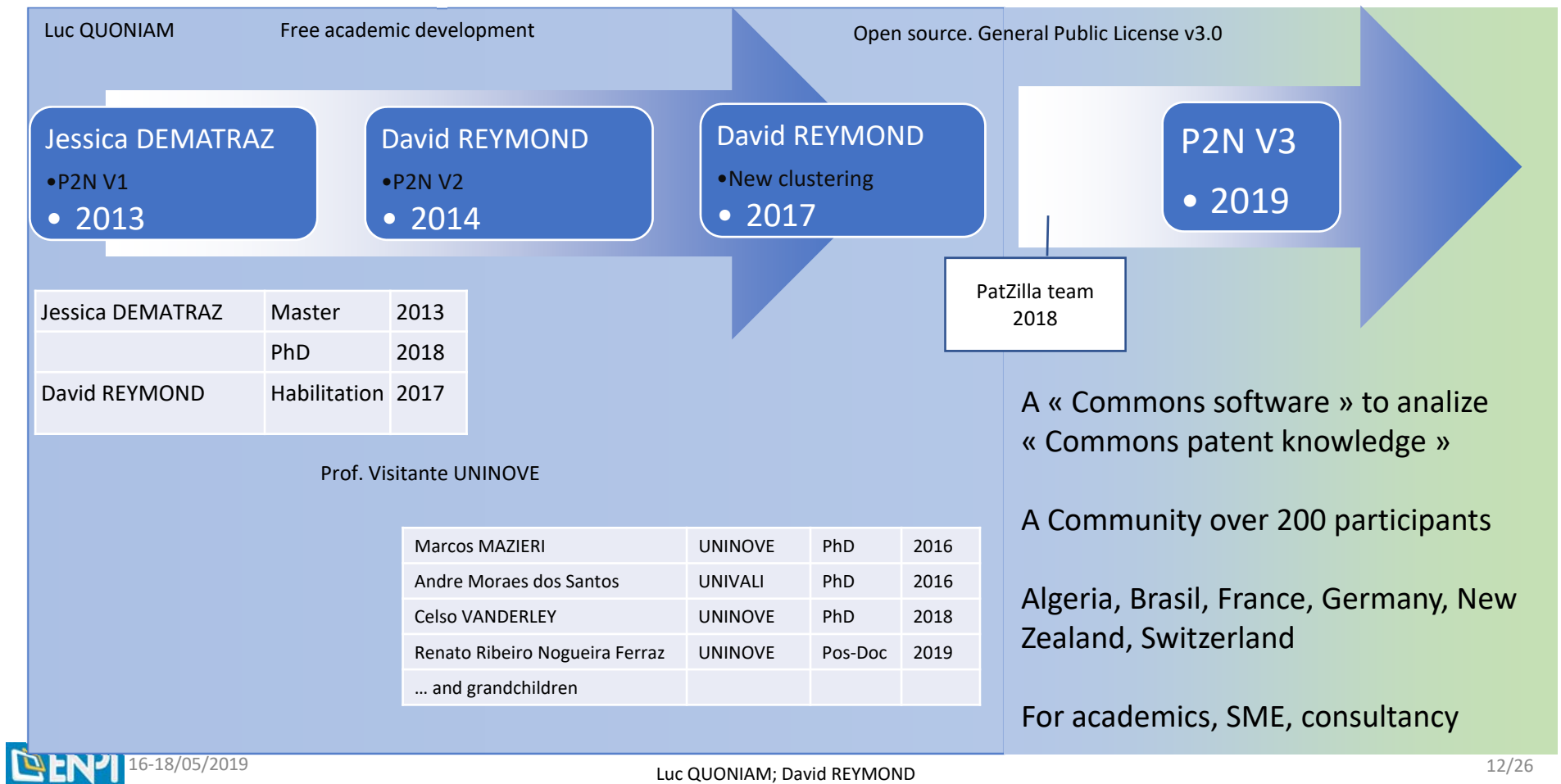
- Samsung is the most famous success story, and has invested heavily in embedding TRIZ use throughout the company, right up to and including the CEO; "In 2003 TRIZ led to 50 new patents for Samsung and in 2004 one project alone, a DVD pick-up innovation, saved Samsung over \$100 million. TRIZ is now an obligatory skill set if you want to advance within Samsung".
- Rolls-Royce, BAE Systems and GE are all documented users of TRIZ
- Mars has documented how applying TRIZ led to a new patent for chocolate packaging
- Leaffield Engineering, Smart Stabilizer Systems and Buro Happold to solve problems and generate new patents
- Rolls-Royce, Ford, and Daimler-Chrysler, Johnson & Johnson, aeronautics companies Boeing, NASA, technology companies Hewlett Packard, Motorola, General Electric, Xerox, IBM, LG, Samsung, Intel, Procter and Gamble, Expedia and Kodak have used TRIZ methods in some projects.
- Numerous German industrial companies in the recent decade has followed the principles of the Advanced Innovation Design Approach, which recommends application of the selected TRIZ for the identification of customer needs, comprehensive problem definition and ideation, new concept development and optimization.

Even if the box is larger, still in the box!
Why not using 110 millions patents?

Collecting in another way!



Time line



Guide line

- Open source. General Public License v3.0 -> free
- Scalable (pay mode OPS) simple mode -> expert mode -> new analysis
- English language (worldwide), post graduate level
- Platform independent : IOS, Windows, Linux
- 2.0 : everybody can participate using collaborative platforms use, teach, demonstration but also publications, documentation, programming
- Simple mode : offline all “html” with Firefox browser, « autonomous » i.e. internet independent, an instantaneous website
- Expert mode : use Open source and General Public License v3.0 solutions for sophisticated analysis

Software 2.0: the best knowledge of a large community

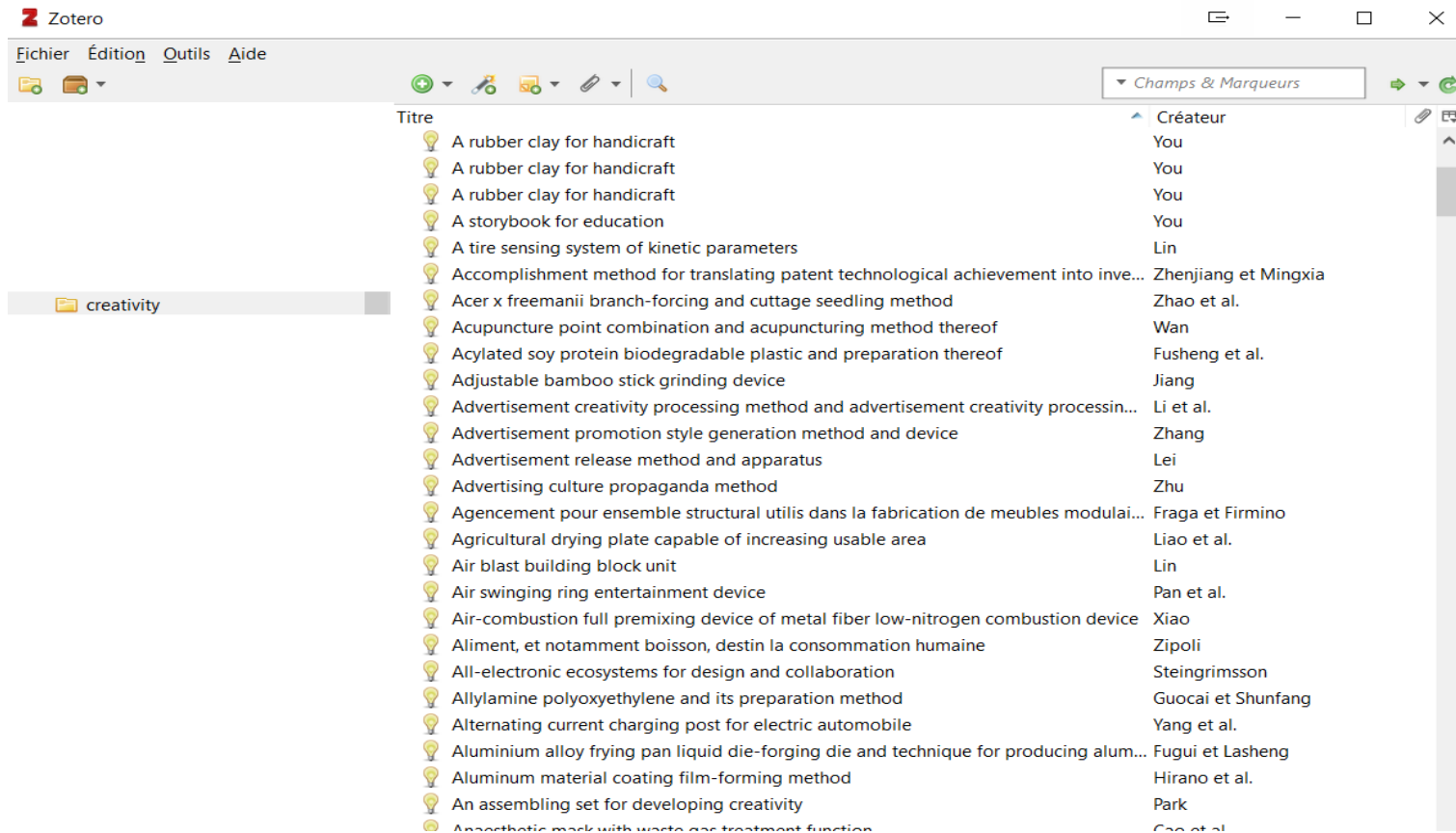
Core		
Collect	API OPS	Espacenet: over 110 000 000 patents
Treatment	Python 2 -> 3	
Network position	Graphviz	
Data Analysis	R statistical package	

Outputs: basic with Firefox browser or download to use with:		
Interaction controls with HTML tables	Datatables	https://www.datatables.net/
Bibliographic	Zotero	https://www.zotero.org/
Geographic maps	D3.js	https://d3js.org/
Pivot table	PivotTable	https://pivottable.js.org/
Networks: all relations in the patent set	Gephi	https://gephi.org/
IPC Mind Map	Freeplane	https://www.freeplane.org/
Images	Pillow	https://pillow.readthedocs.io/
Abstract multi language content analysis	Carrot2	https://project.carrot2.org/
	Iramuteq	http://iramuteq.org/
IPC, Titles, Abstract EN content analysis	Clustering	David REYMOND Habilitation

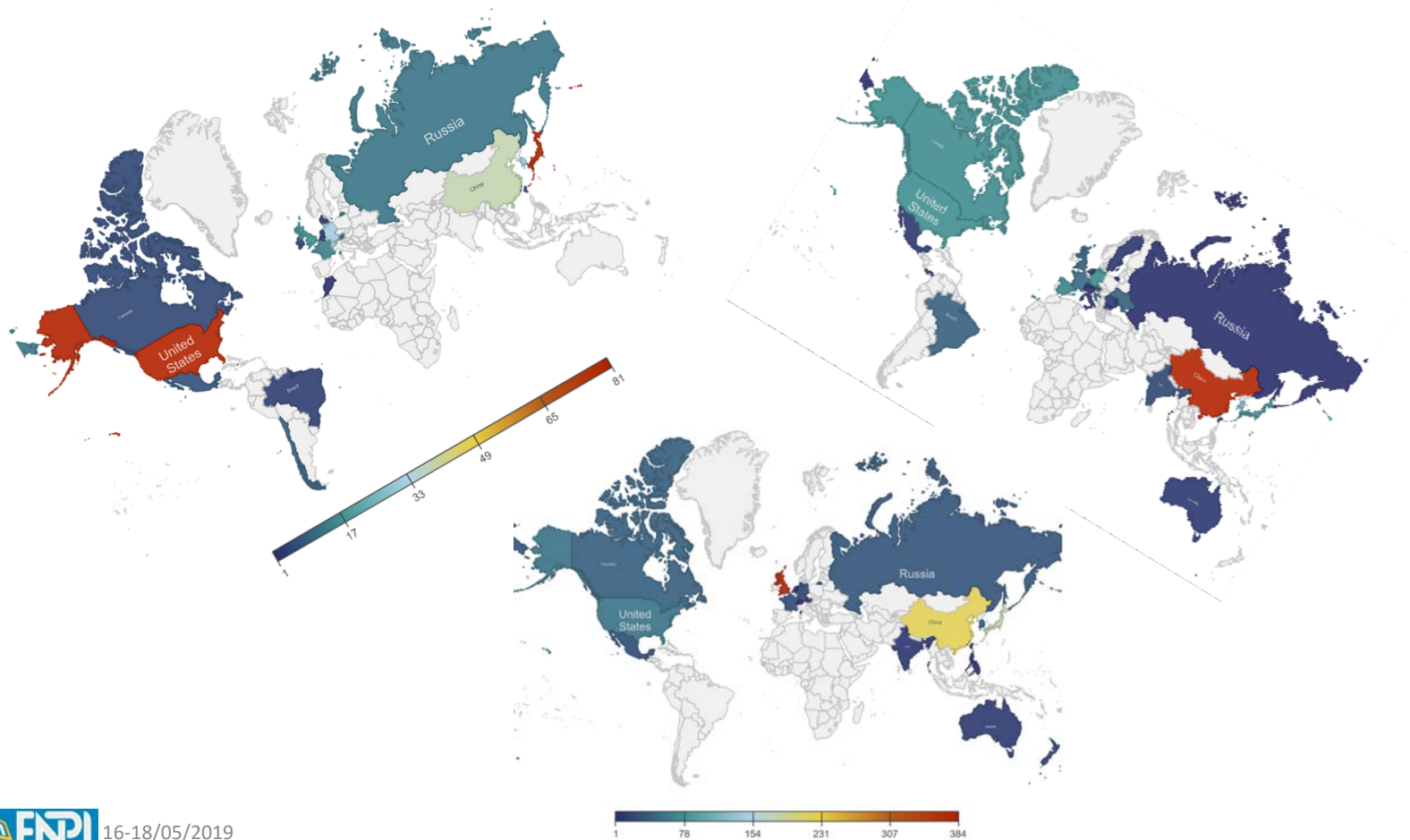
Tables

Country	Title	Inventor	From	Applicant	From	IPC11	IPC17	CPC	Prior-Date	Pub year	Label	Kind	Ref	CitP	CitO	Cited	Citations Equiv.	Pri	
S	Search	Search	S	Search	S	Sear	Sear	Search	Se	Se	Sea	S	S	Sea	Search	Sea	S	Search	S
AU	System and apparatus for financial education, entrepreneurship education and life management	Moumneh Kamal		Moumneh Kamal		G07F17/10, A45C1/12, G09B19/18	G07F17, A45C1, G09B5, G09B19	G09B5/00, G09B19/18, G06K9/00255, G06K9/00288	2013-07-152016 2014-06-23	2016	AU2014291759	A6	0				0	US2017039891, 0 US2015017611, SG11201510672Q, JP2016535865, WO2015008121, EP3022718, CA2917137, AU2014291759	
AU	Youparazzi social photographic & video online auction & homepage	Newman Benjamin Martin, Lyons Darryn Paul		Youparazzi Pty Ltd		G06Q30/08	G06Q30		2015-03-032015	2015	AU2015100254	A6	0			0	AU2015100254 0		
AU	Matching angel investors with entrepreneurs	Milam Joe		Angel Legacy L L C		G06Q30/02	G06Q30	G06Q30/02, G06Q40/06	2001-03-232002 2002-03-21	2002	AU2002250224	A6	0			0	US2002138385, 0 WO02077755, AU2002250224		
AU	Entrepreneurial game	Rodrigues Michael Victor		Rodrigues M V		A63F1/04	A63F1		1980-01-021980	1980	AU5430380A	A6	0			0	AU5430380 0		
BE	Machine with which colour photograph images and texts can be printed by means of heating and pressing onto various materials via transfers	Empty		Brandt Tino De, Arnould Yvon	BE	B44C1/16	B41F16, B44C1	B44C1/16, B41F16/00	1995-03-171996	1996	BE1009214 A6	A6	0			WO2007114715	BE1009214 0		
CA	Système et appareil pour l'éducation financière, l'enseignement de l'entrepreneuriat et la préparation à la vie	Moumneh Kamal	AE	Moumneh Kamal	AE	G07F17/10, A45C1/12, G09B19/18	G07F17, A45C1, G09B5, G09B19	G09B5/00, G09B19/18, G06K9/00255, G06K9/00288	2013-07-152015 2014-06-23	2015	CA2917137A1	A1	0			0	US2017039891, 0 US2015017611, SG11201510672Q, JP2016535865, WO2015008121, EP3022718, CA2917137, AU2014291759		

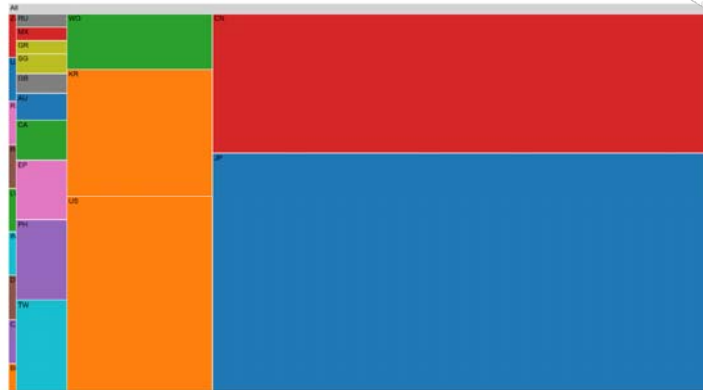
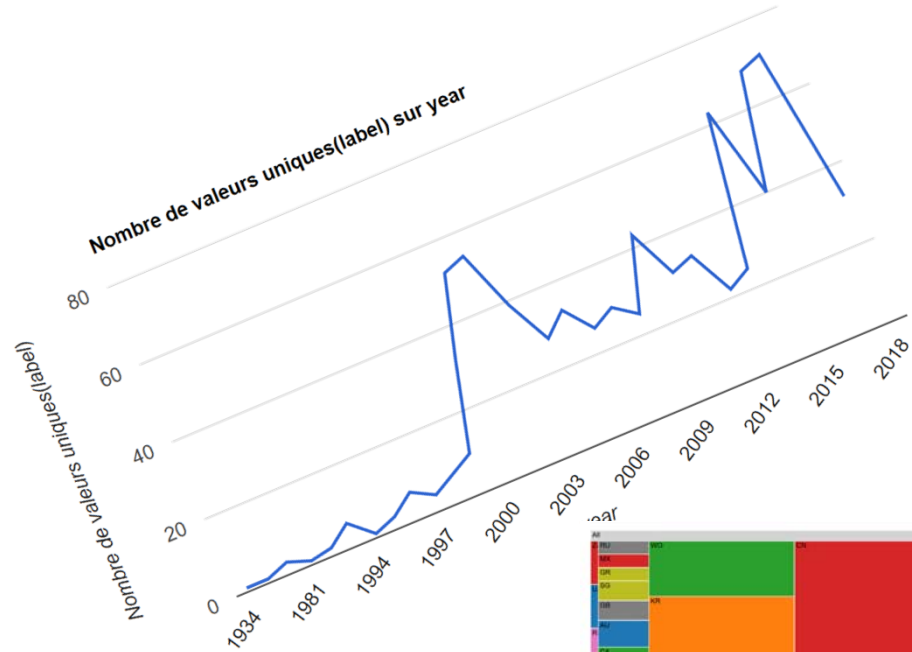
Patent bibliographic database



Maps: deposit, inventors, applicants

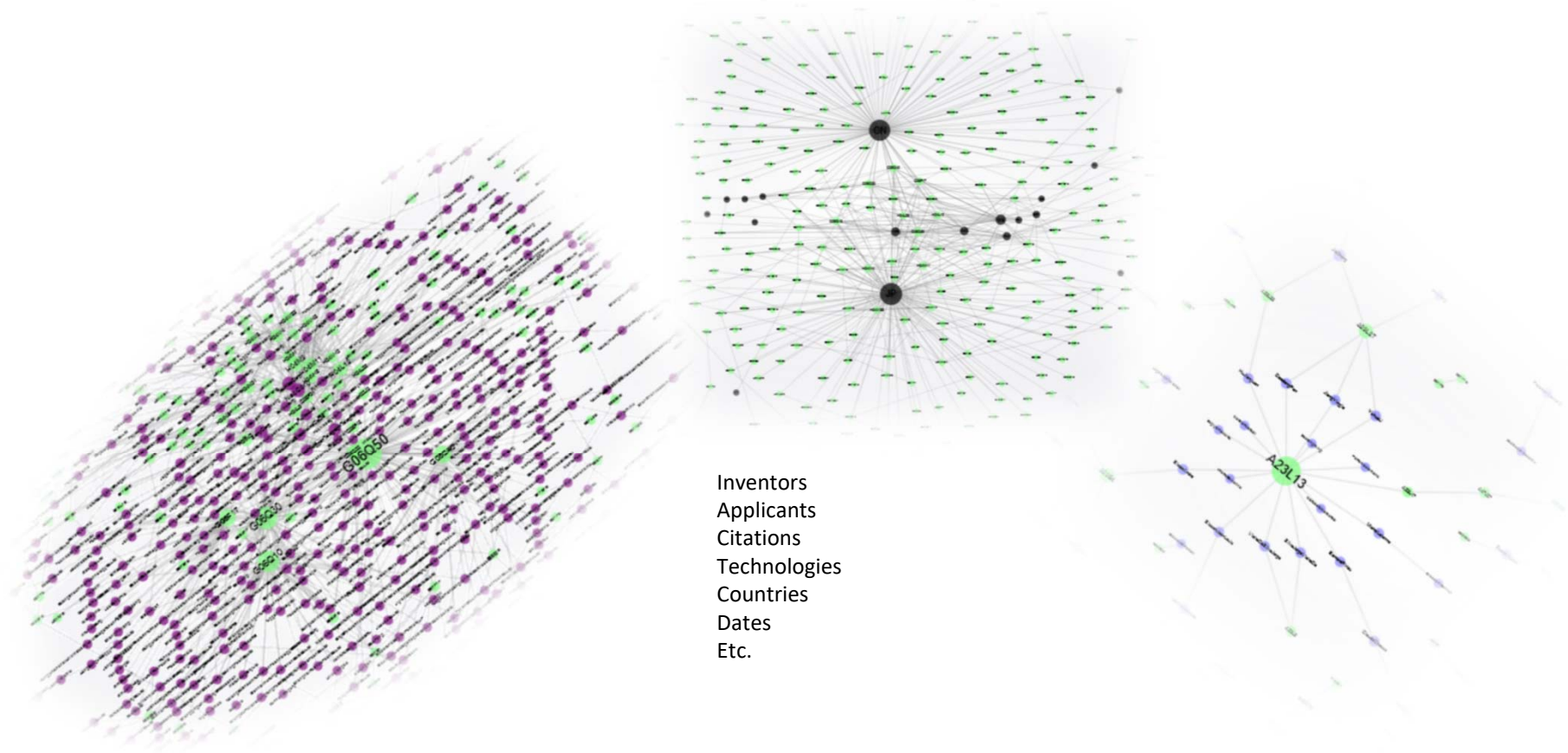


Counts, pivot tables, graphs



country	Applicant-Country	AE	BE	CA	CN	CZ	DE	GR	IL	IN	JP	KR	LB	LV	MX	PH	RO	RU	SG	TW	UA	US	ZA	Totale
country	Applicant-Country	AE	BE	CA	CN	CZ	DE	GR	IL	IN	JP	KR	LB	LV	MX	PH	RO	RU	SG	TW	UA	US	ZA	Totale
AE																								
BE																								
CA																								
CN																								
CZ																								
DE																								
GR																								
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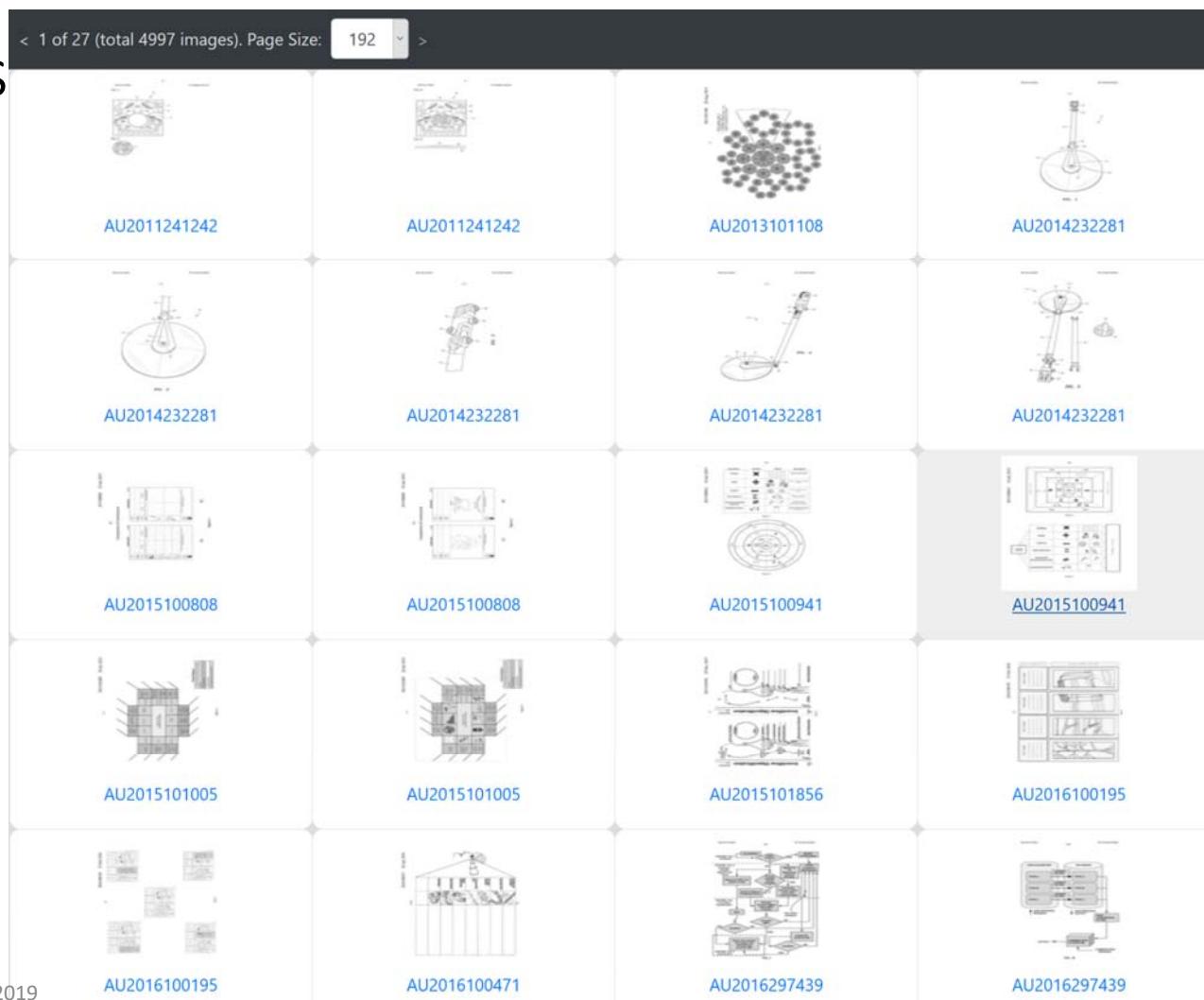
Relations and networks



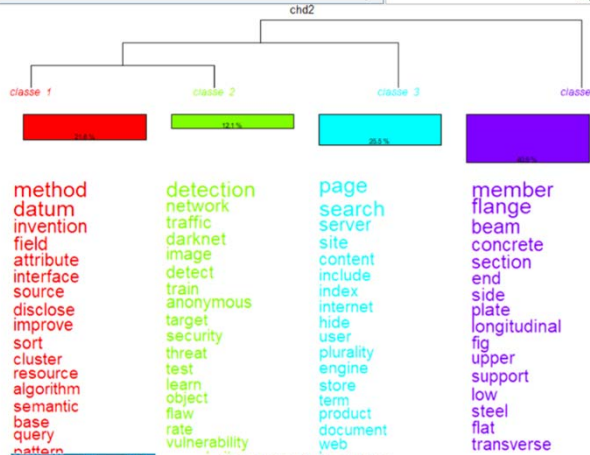
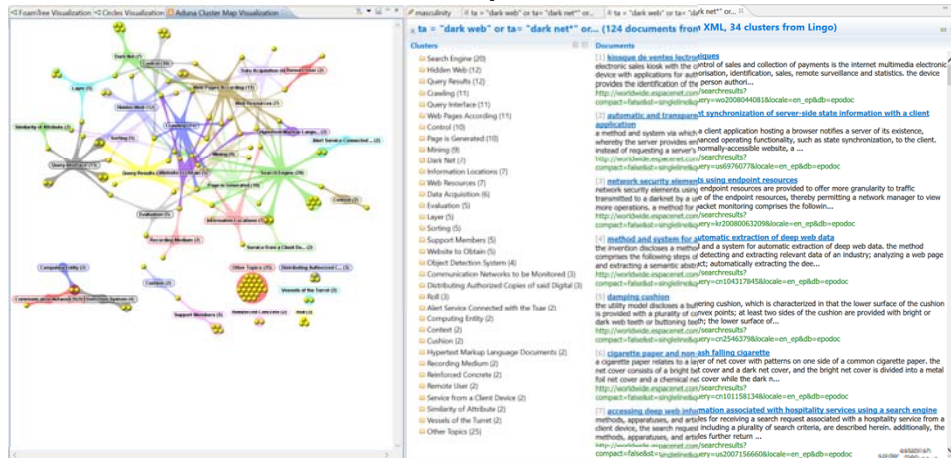
Mindmaps



Images

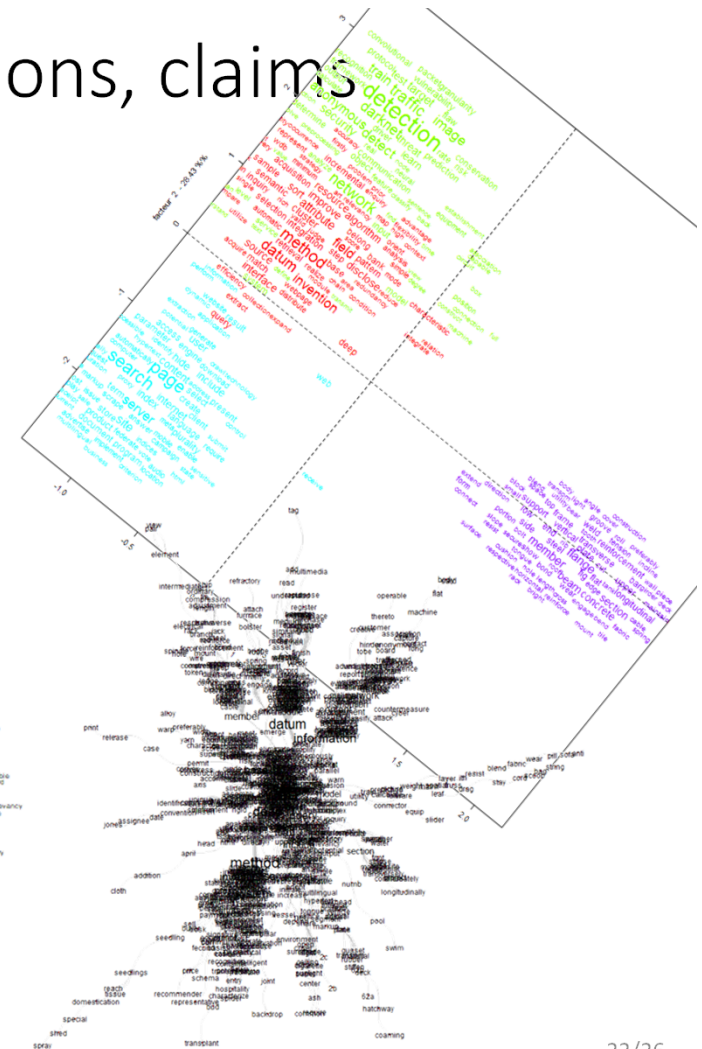


Content analysis: abstracts, descriptions, claims



Dendrogramme CHD1 - phylogram
16-18/05/2019

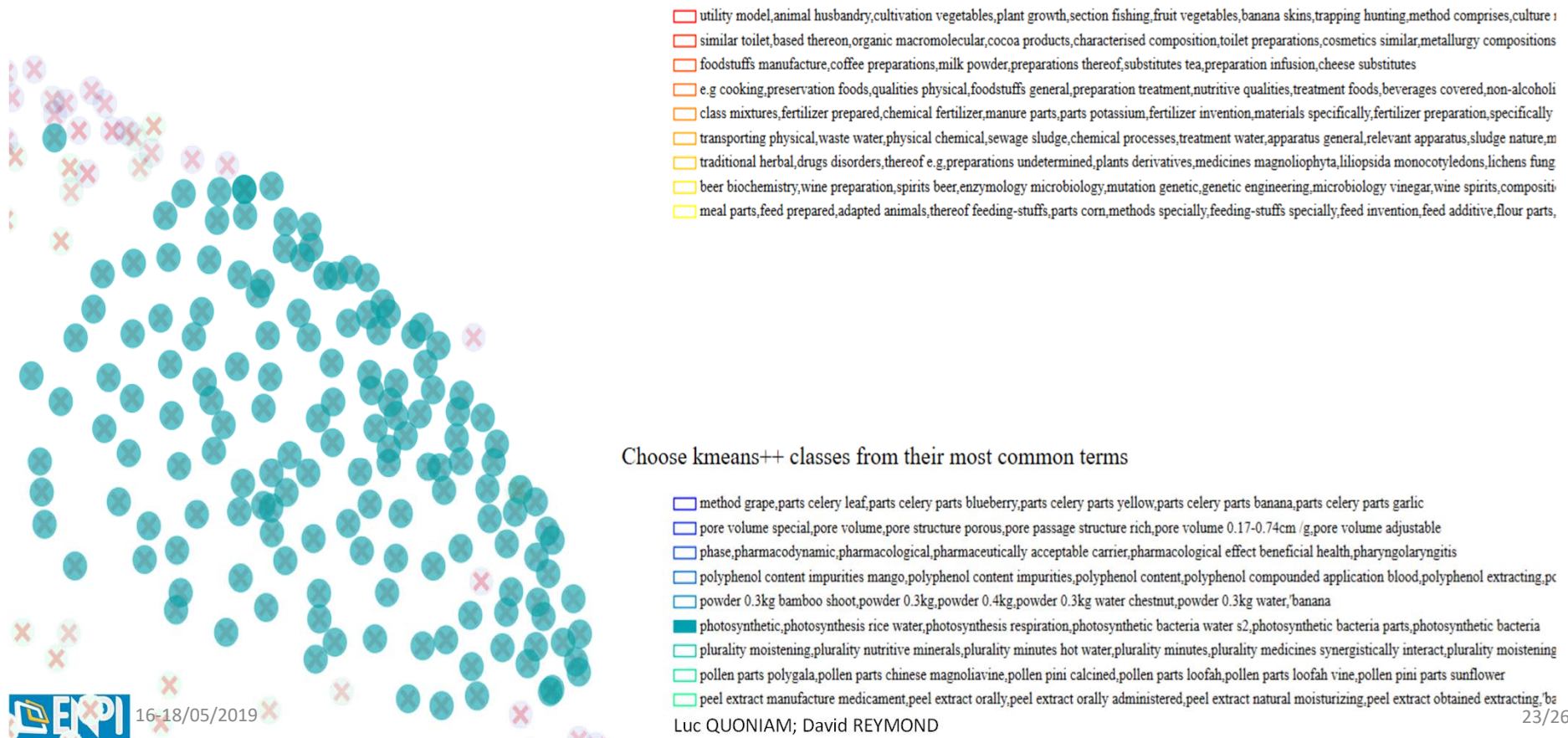
Luc QUONIAM, David REYMOND



22/26

David's clustering: IPC+ abstract + description+ claims

Combine with IPC (mostly) terms in Goffman zone



Nowaday

- Version 3 available
- Google.com : $\pm$ 3000 pages
- Google scholar : 62 publications, 188 citations
- Teached in any brazilian regions, Algeria, France
- Coming soon
 - TRIZ integration
 - Inventor has an academic connection?

and a lot of ideas to be experimented and implemented...

<https://github.com/Patent2net/P2N-v3>

<http://patent2netv2.vlab4u.info/>

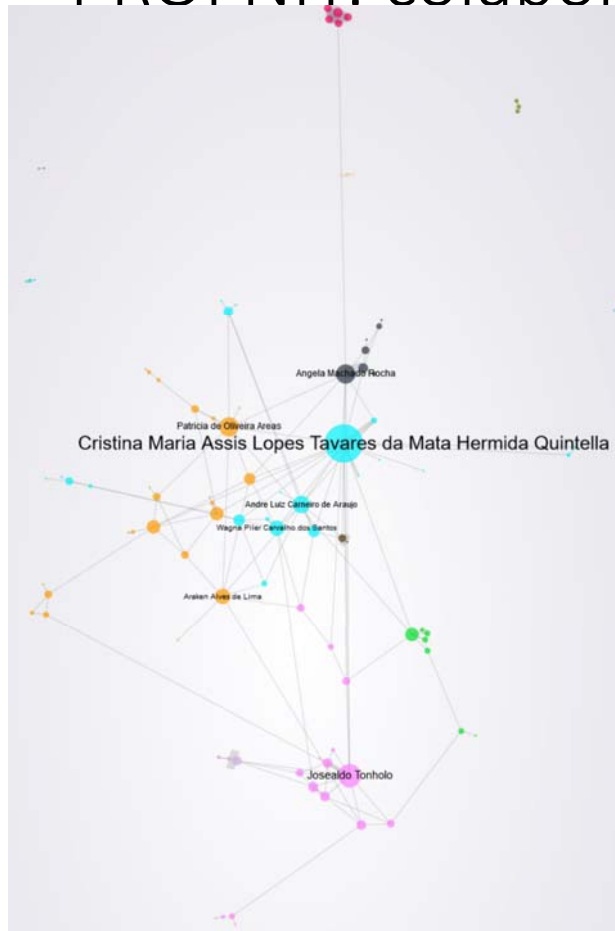
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<http://lattes-sucupira.vlab4u.info/UFMS/ProfNIT.html>

Preparação para plataforma Sucupira: [2017](#), [2018](#), [2019](#), [2020](#), [Período 2017-2020](#)
[ScriptSucupira](#)©, [ScriptLattes](#)©

PROFNIT: colaboração entre docentes e produção



16-18/05/2019

Force On Force Off Reset Layout Reset Colors idlattes rotulo lat lon collaborationrank producaobibliografica artigoemperiodico livro capitulodelivro
trabalhoemcongresso resumoexpandido resumo posdoutorado doutorado mestrado ic modularity class

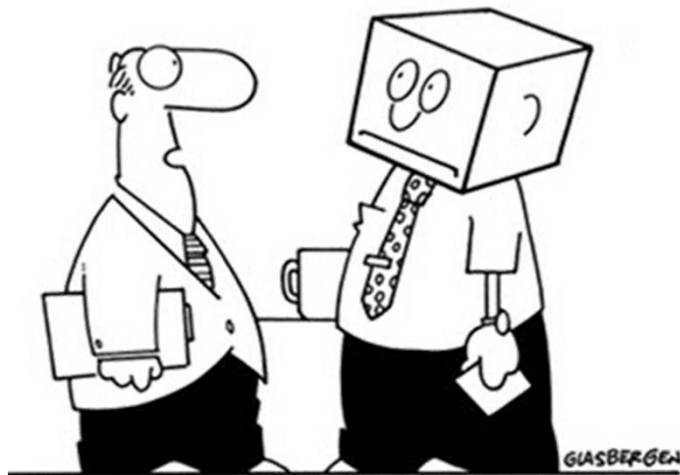
26/26

Thank you! Questions?

<http://patent2net.vlab4u.info/>

mail@quoniam.info

david.reymond@univ-tln.fr



**"Thinking outside of the box is difficult
for some people. Keep trying."**