TIP @ 50
RESULTS FROM TIP TEXT-MINING ANALYSES

TIP@50: What have we learnt? Where is innovation policy heading?

11 December 2017

OECD
BETTER POLICIES FOR BETTER LIVES

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT
MAN
NATI
INNC
SYSTE
SCIENCE TECHNOLOGY IND
ST
MOBILISIN
HUMAN
RESOURCE
FOR
INNOVATIC
SYSTEM INNOVATION:
SYNTHESIS REPORT
OECD

OECD

Turning Science into Business

PATENTING AND LICENSING AT PUBLIC RESEARCH ORGANISATIONS

OECD

Commercialising Public Research

NEW TRENDS AND STRATEGIES

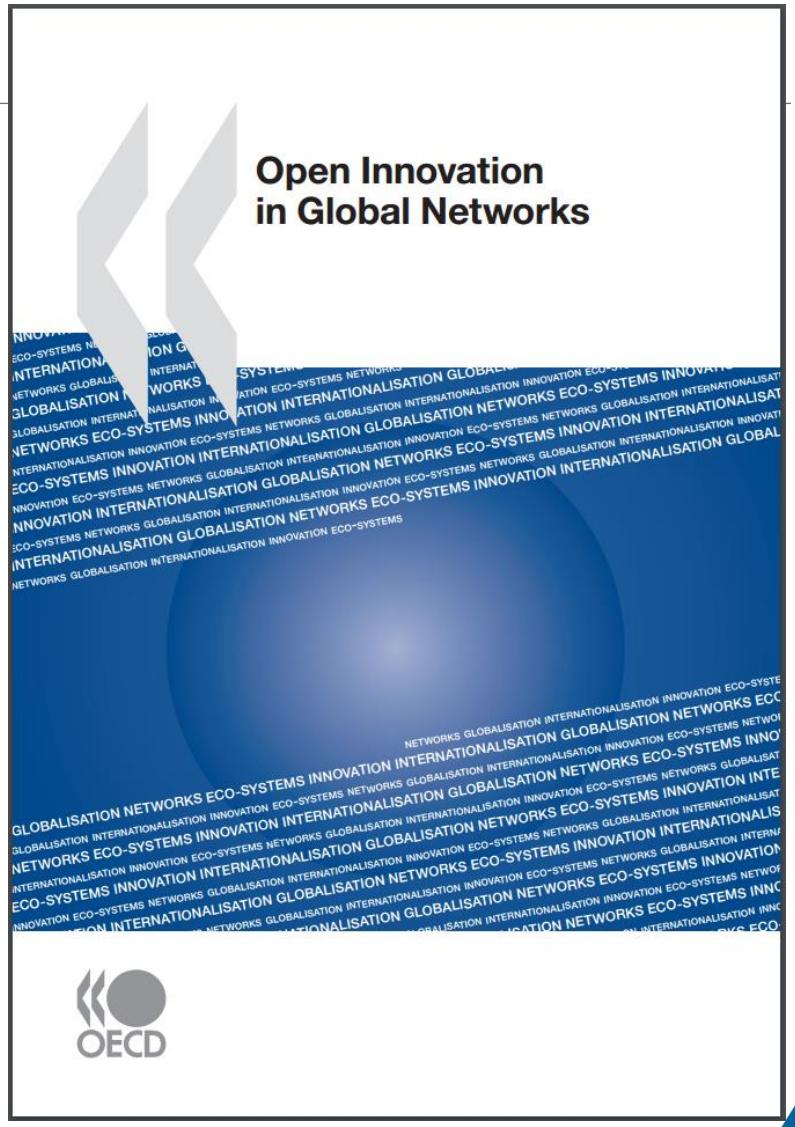
OECD

MAKING OPEN SCIENCE A REALITY

OECD

Demand-side Innovation Policies
OECD

Government R&D Funding and Company Behaviour
MEASURING BEHAVIOURAL ADDITIONALITY


Open Innovation in Global Networks
OECD

Going one step further: Automatic text analysis techniques

- Analysis of text's contents, properties and characteristics allow **not to read the text** but to **analyse and interpret representations** of the **information contained in those documents**

- Application of different **text-mining tools and techniques aimed** at to extracting information from texts (including the digital platform **CORTEXT** (www.cortext.net) and **iFora** database and visual interfaces, **Taltac** and **Spad**, **Iramuteq** and visual interfaces

Going one step further: Automatic text analysis techniques

- **Pre-processing of TIP documents** over 25 years resulting in a total of 116 reports and 160 agendas/summaries

- Presentation reflects **perspectives from 4 teams' analyses** with own methodologies & tools

- **Words of caution:**
  - Results are dependent on data and methods and explain differences in findings
  - Results are sometimes preliminary and early assessments
  - More detail is available from research teams

There is much more to explore

- Possible **12-13 March** workshop in Paris (back-to-back with CSTP)

- **Agenda items**:
  - Full presentation of results of the text-mining analysis of the TIP corpus
  - How to use semantic analysis for innovation policy (detect trends, analysis, etc.)
  - Best practice of semantic analysis (strengths and pitfalls, data quality, etc.)
  - "Hands-on" experience of the possibilities of text-mining (and of its limitations)

Semantic analysis of 100 TIP reports using the IPP vocabulary

OECD Directorate for Science, Technology and Innovation

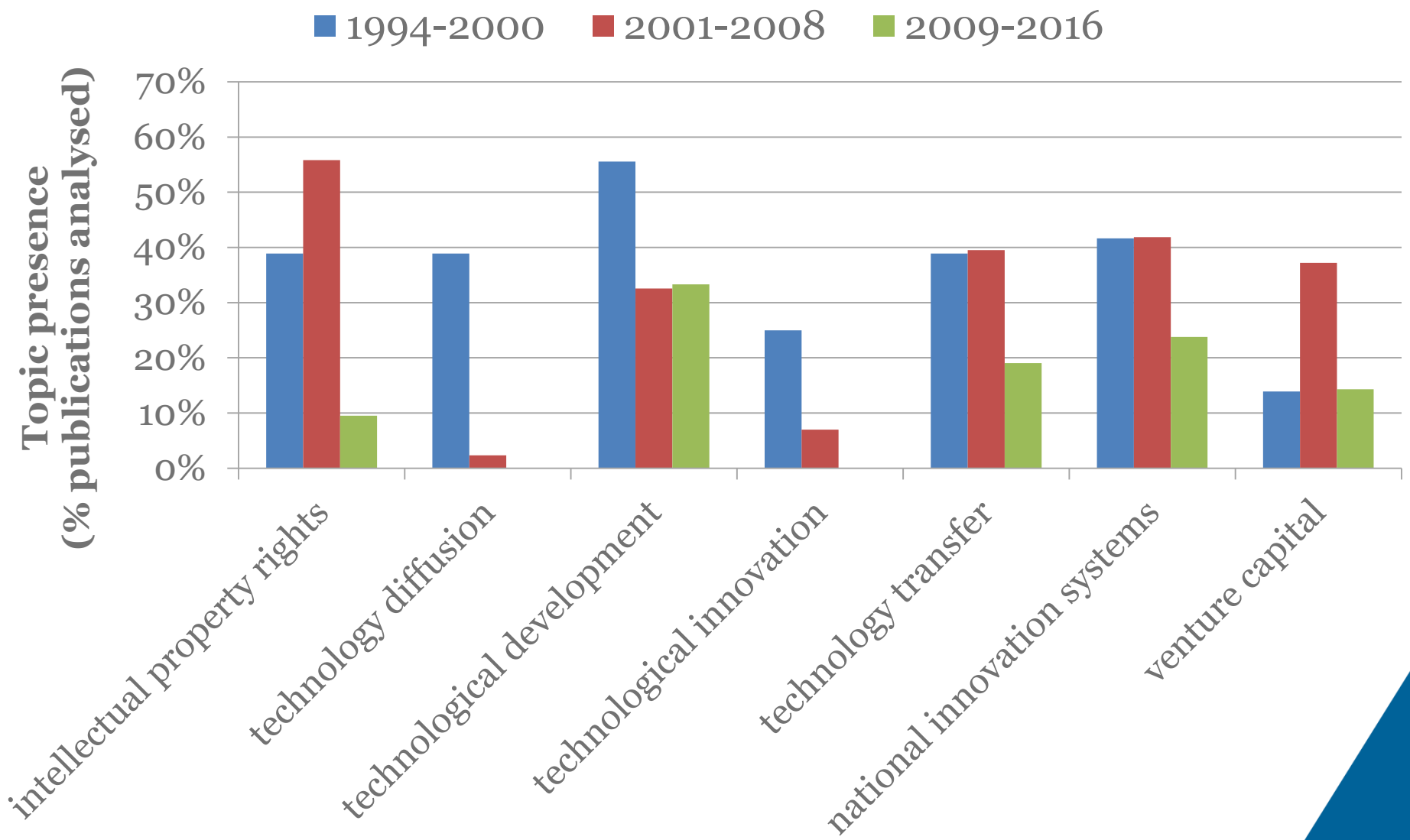
Andrés Barreneche, Alina Deniau, Michael Keenan, Blandine Serve

OECD Library and Archives

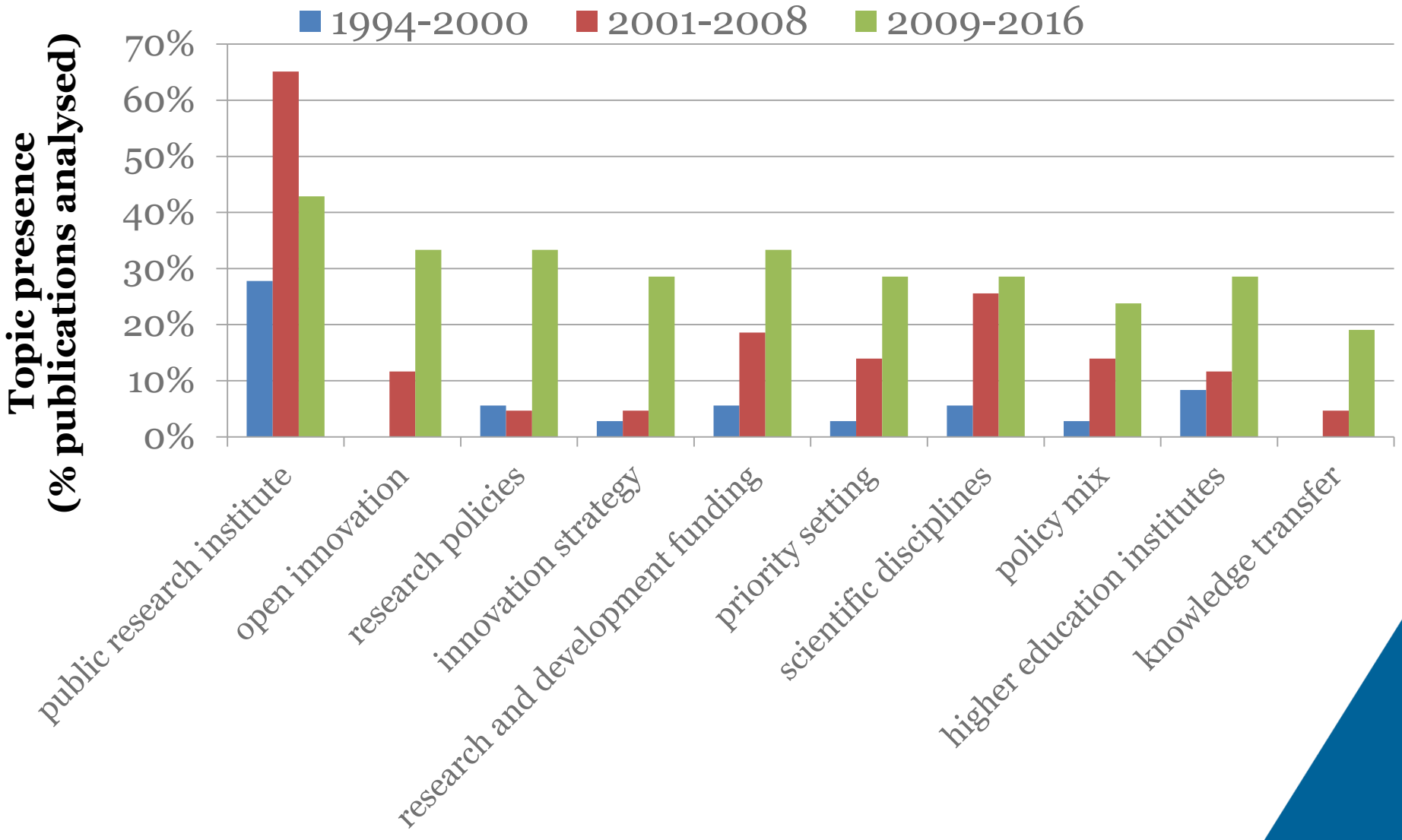
Frédéric Abrazian, Mary-Ann Grosset, Jan-Anno Schuur, Thierry Vebr

50 Most frequent topics
1994 – 2016

Topics becoming **less** frequent



Topics becoming **more** frequent



UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

CAPP Research Centre
for the Analysis of Public Policies

HINTS ON 50 TIP

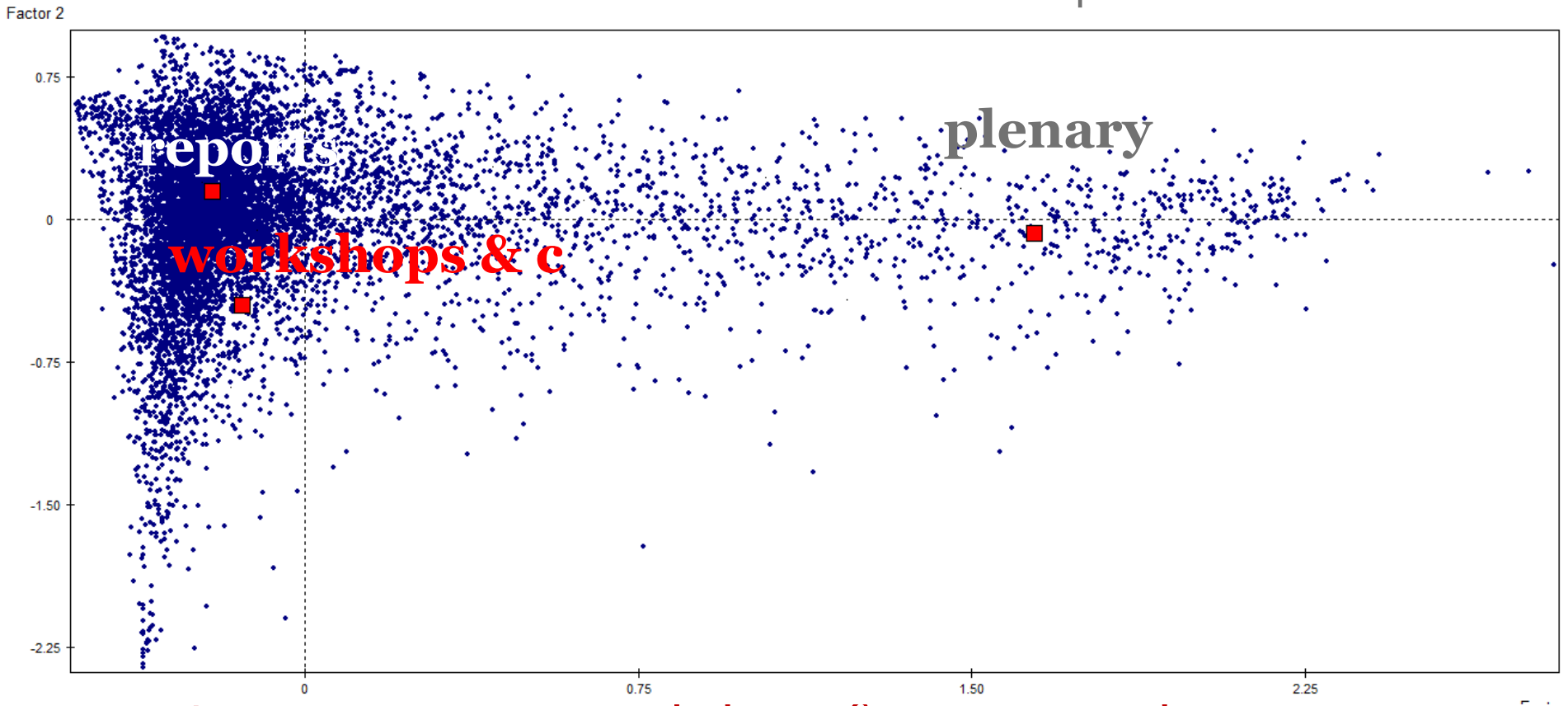
UNIMORE INTERPRETS THE TEXTS FROM THE ARCHIVE OF OECD WPTIP'S DOCUMENTS

PRELIMINARY RESULTS

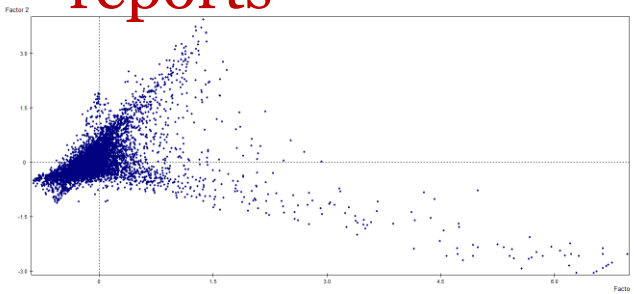
Margherita Russo and Pasquale Pavone

Corpus of texts

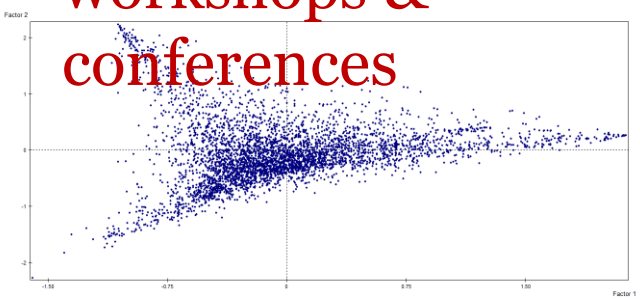
lexicon distribution in the factorial plan



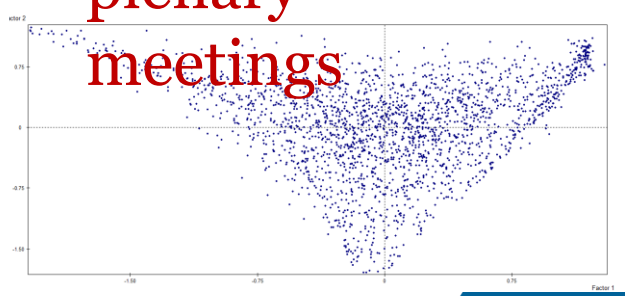
reports



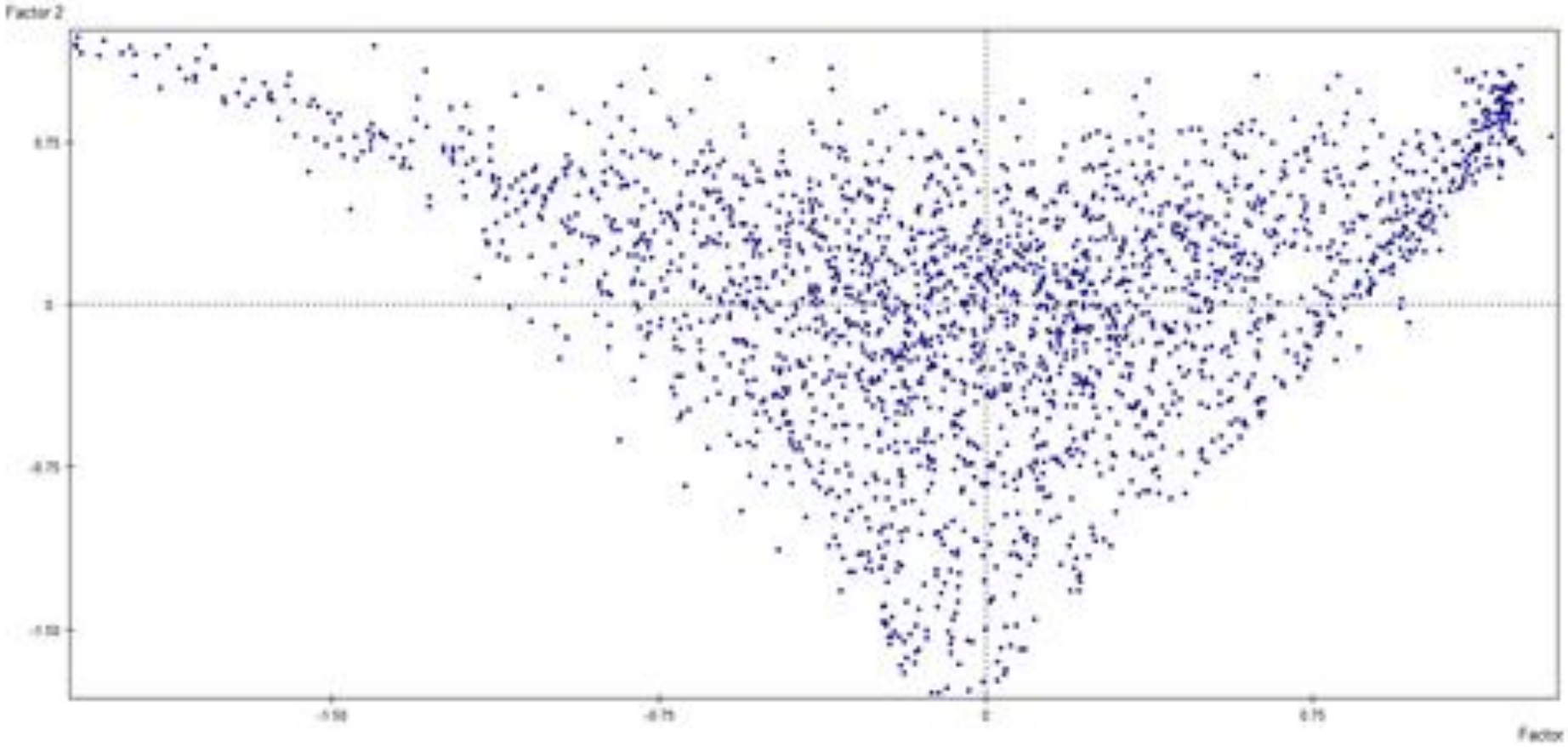
workshops & conferences



plenary meetings

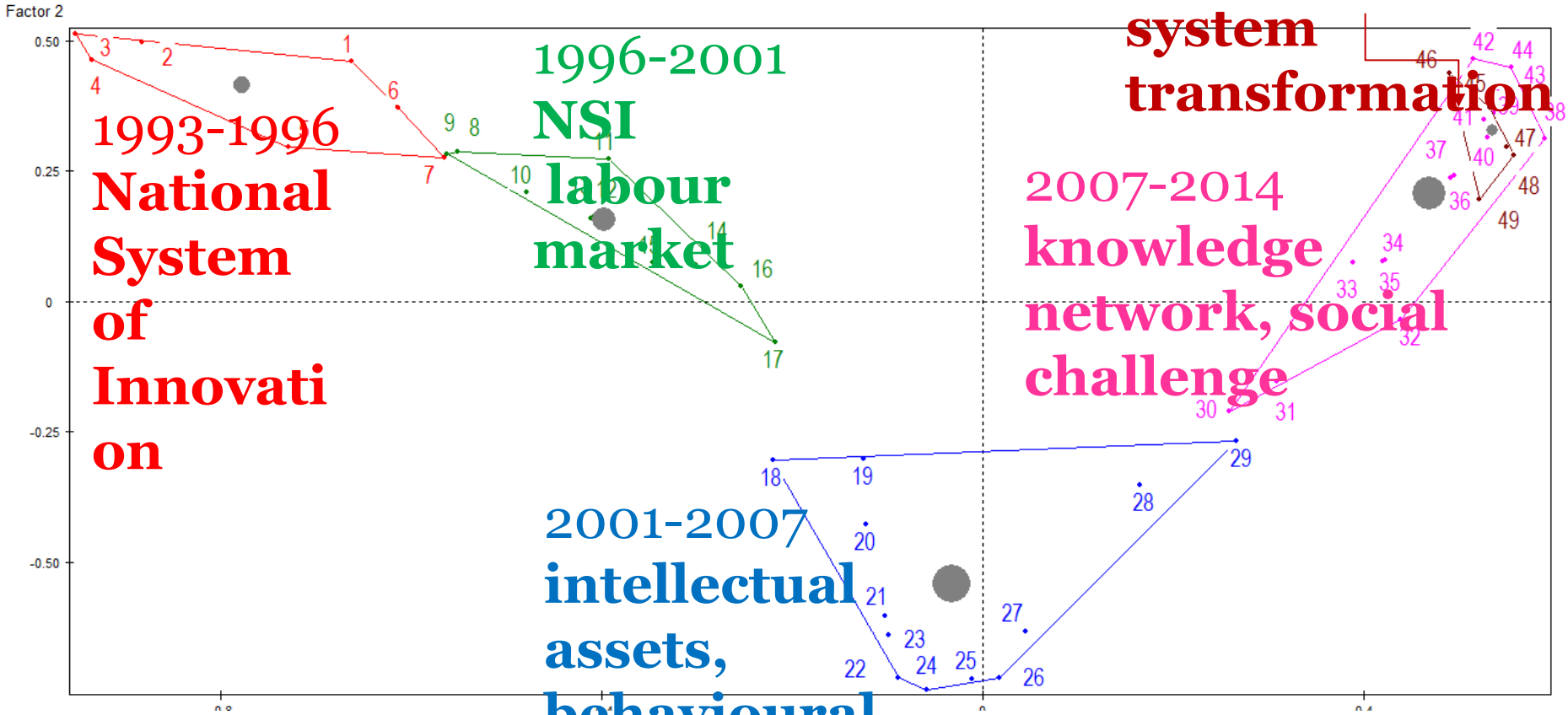


Plenary meetings 1-49



Plenary meetings 1-49

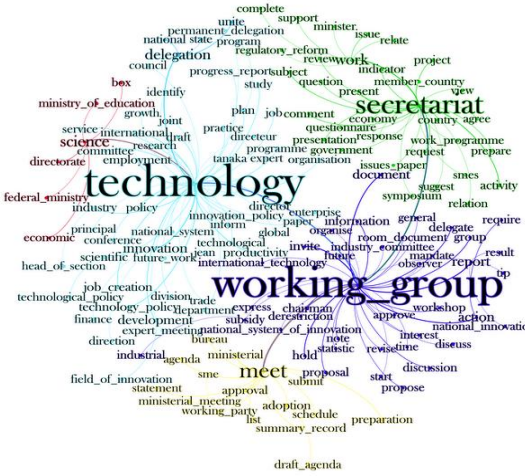
Topics



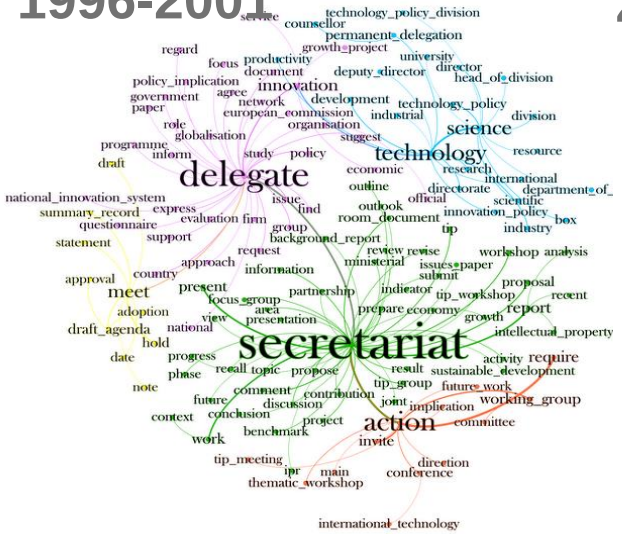
Plenary meetings 1-49

Organizational discourse_*pivotal words*

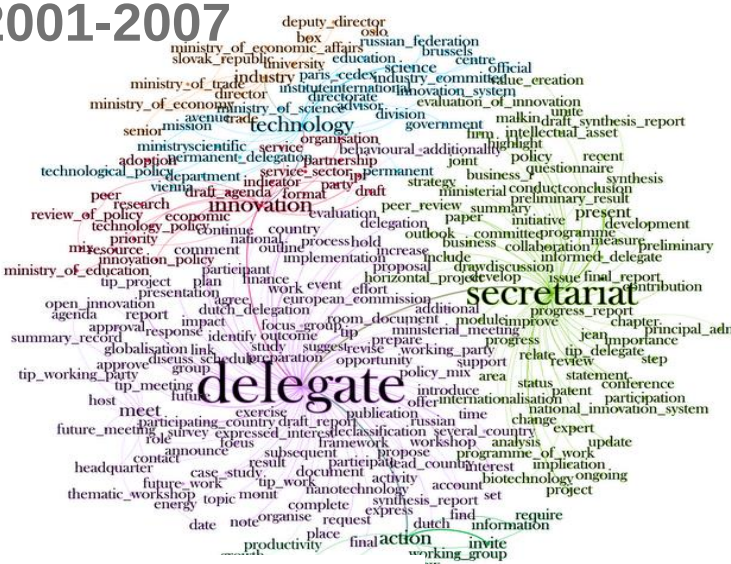
1993-1996



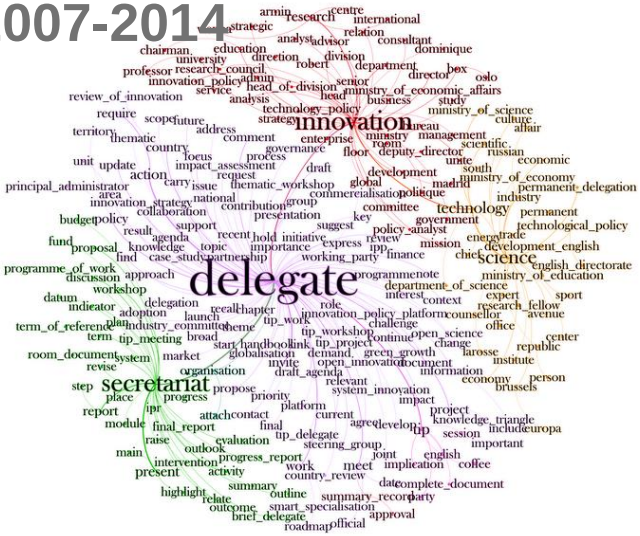
1996-2001



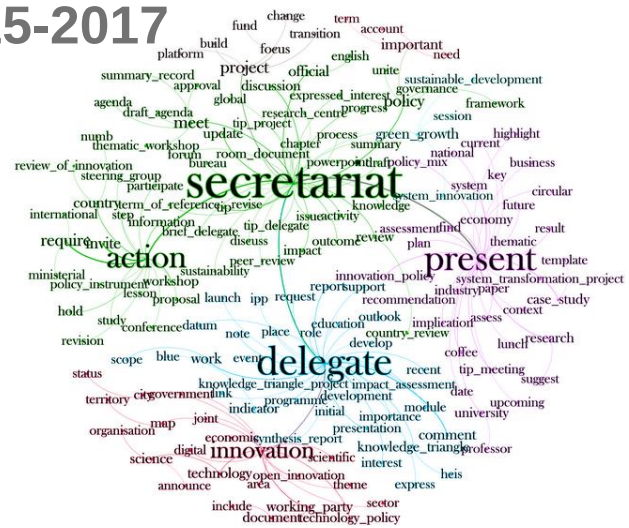
2001-2007



2007-2014



2015-2017



plenary meetings

1993-96
National System of Innovation

1996-01
NSI labour market

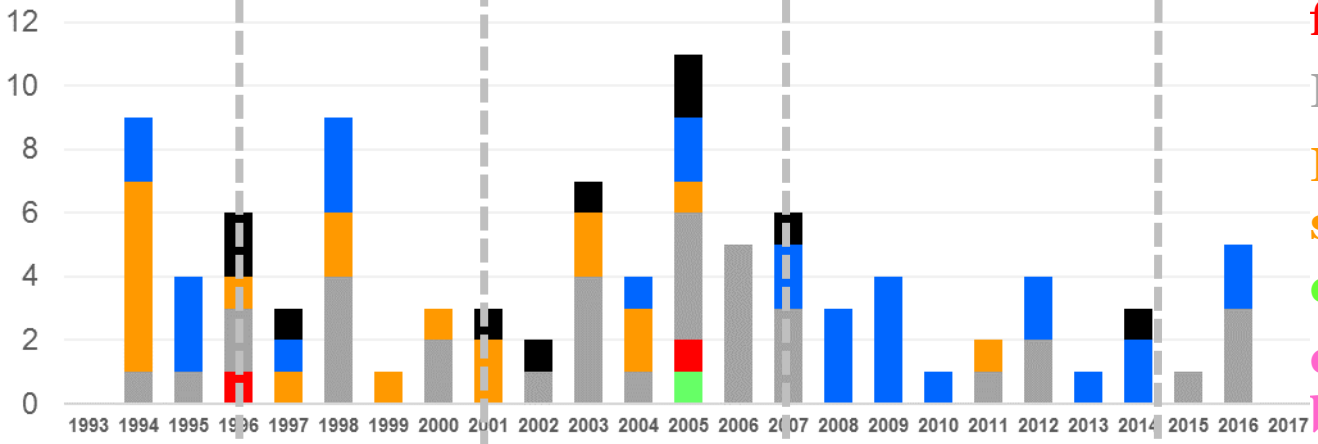
2001-07
intellectual assets, behavioural additionality

2007-14
knowledge network, social challenge

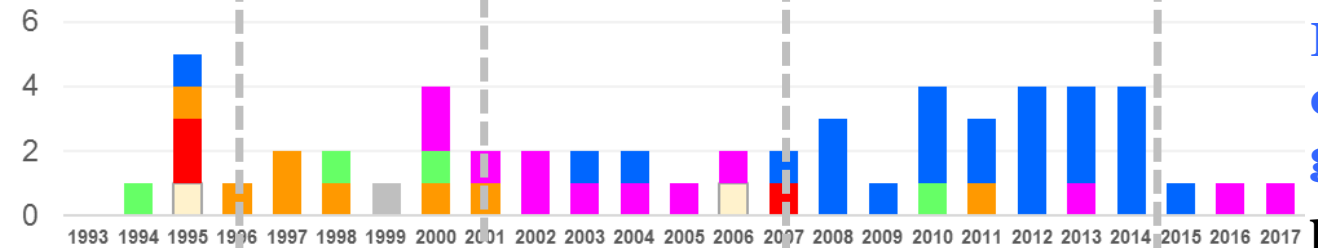
2015-17
digital economy, system transformation

TOPICS

reports



workshops & conferences



venture capital

fiscal measures

HEIs & research

KIBS, networking, science park, incubator

environmental issues

evaluation, behavioural additionality

system innovation, RIS3, priority setting, open science, global challenge

patents

National Research University
Higher School of Economics

Institute for Statistical Studies and Economics of Knowledge

Preliminary results of text mining study based on NRU HSE intelligentFOResightAnalytics (iFORA) system for OECD Working Party on Innovation and Technology Policy (TIP)

http://issek.hse.ru

http://foresight.hse.ru

https://prognoz2030.hse.ru/

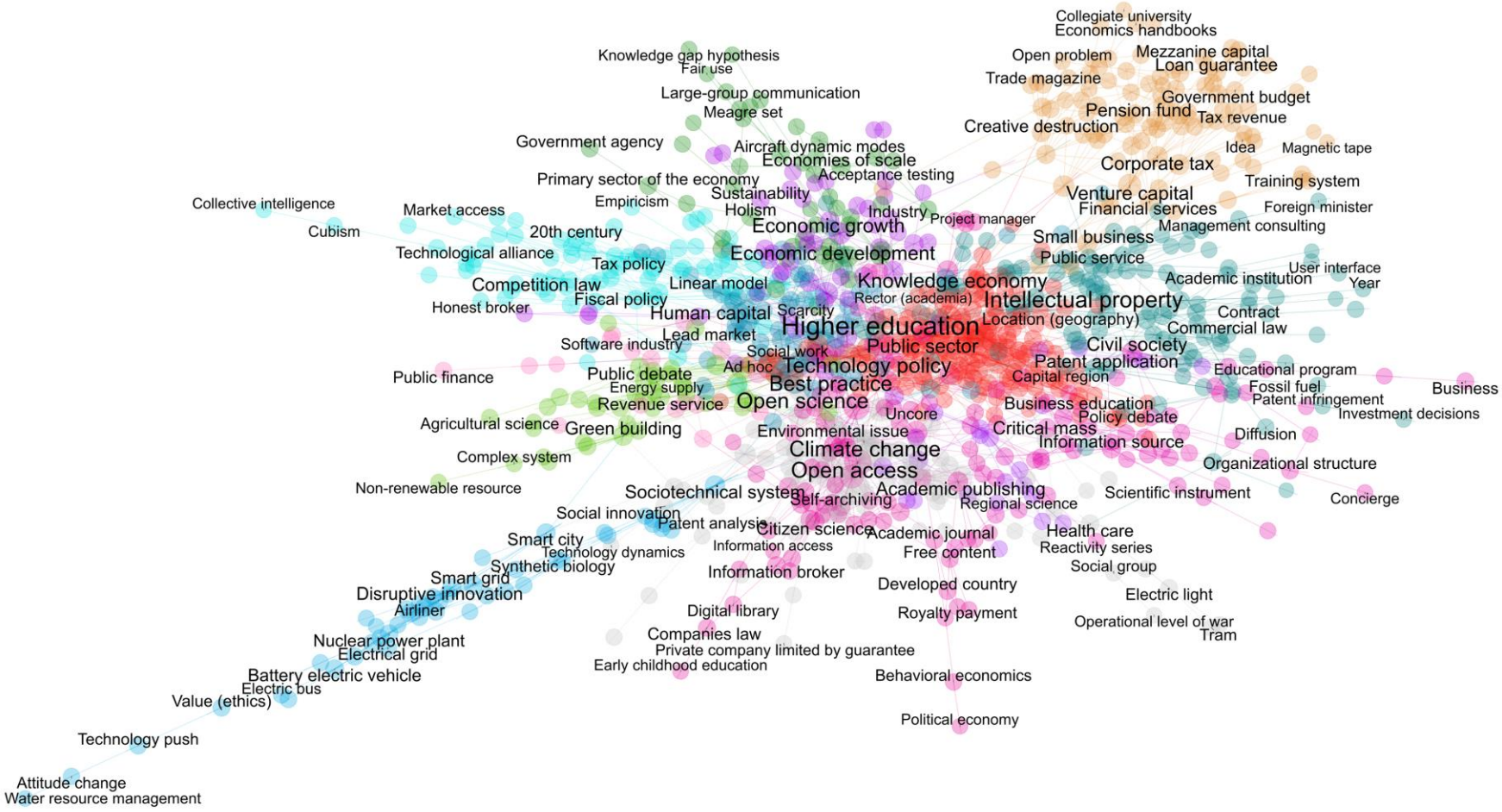
dmeissner@hse.ru

ikuzminov@hse.ru

pbakhtin@hse.ru

2017

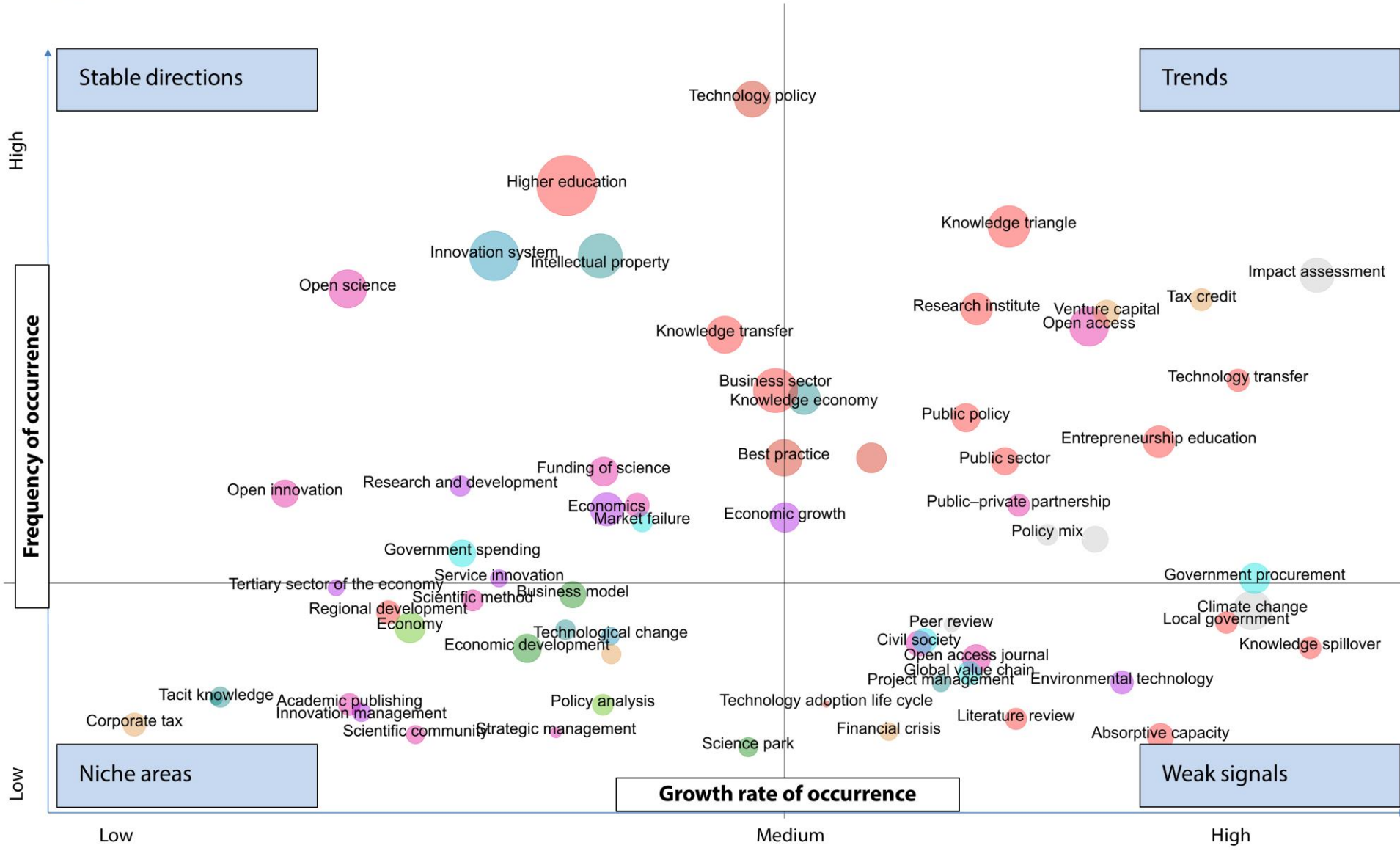
Semantic map of OECD TIP topics based on 1993-2017 period



© NRU HSE. Confidential, for use only in OECD TIP workshop

Source: intelligentFOResightAnalytics (iFORA) system (IP owner - NRU HSE ISSEK)

Trend map of OECD TIP topics based on 1993-2017 period

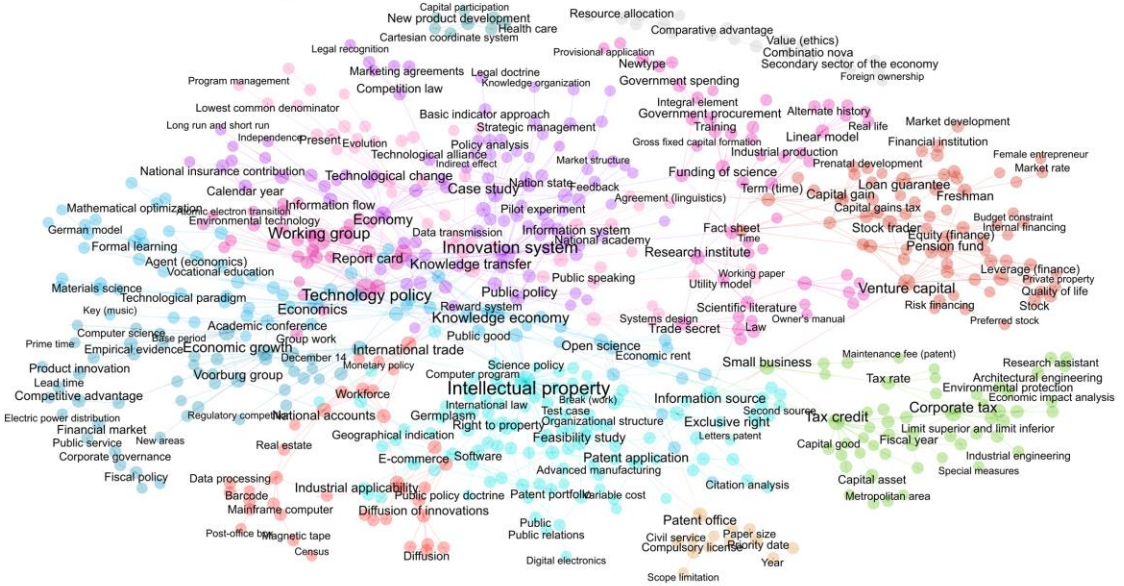


© NRU HSE. Confidential, for use only in OECD TIP workshop

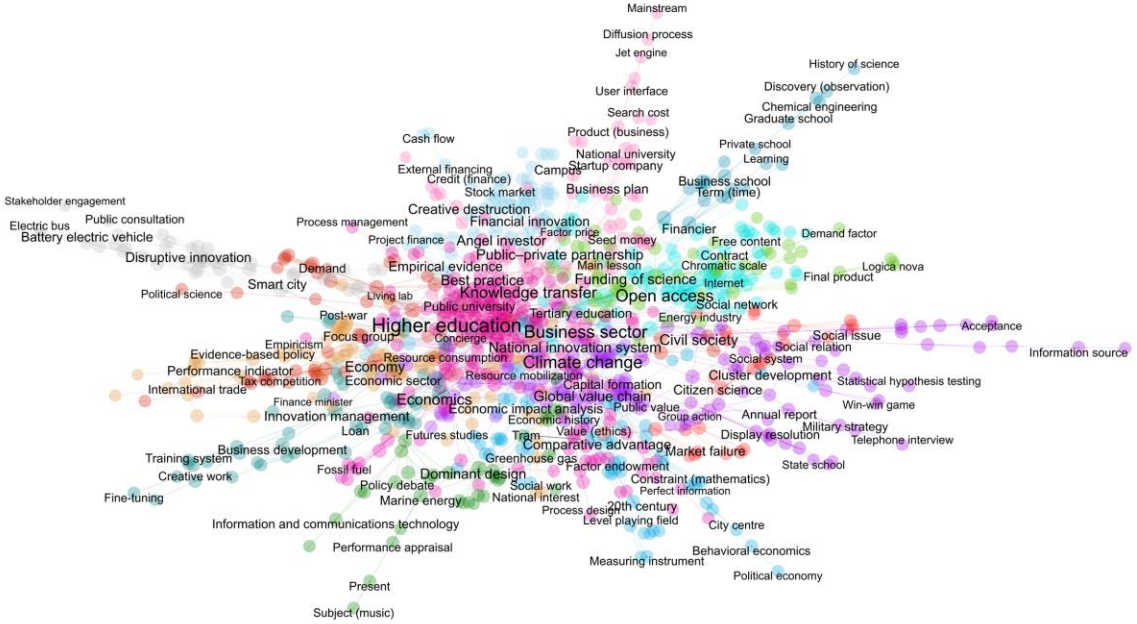
Source: intelligentFOResightAnalytics (iFORA) system (IP owner - NRU HSE ISSEK)

Structural comparative analysis

1993-2007 topics



2008-2017 topics

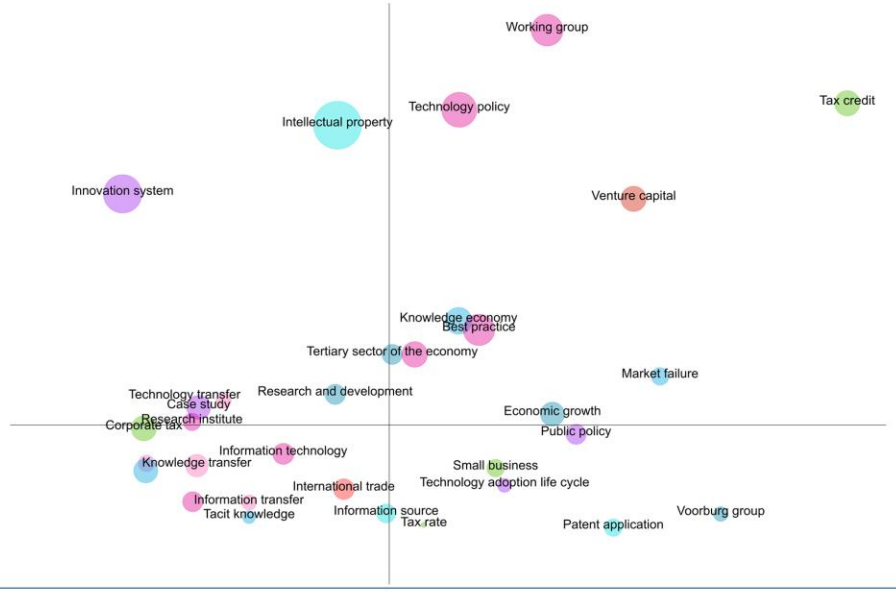


© NRU HSE. Confidential, for use only in OECD TIP workshop

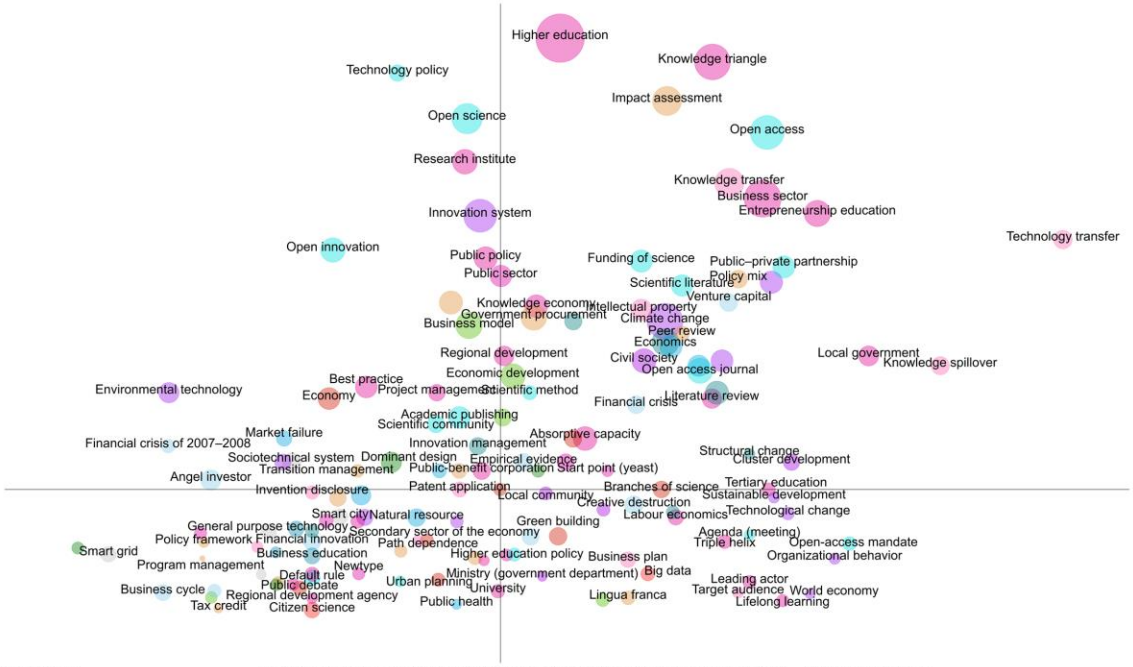
Source: intelligentFOResightAnalytics (iFORA) system (IP owner - NRU HSE ISSEK)

Trends comparative analysis

1993-2007 topics



2008-2017 topics



© NRU HSE. Confidential, for use only in OECD TIP workshop

Source: intelligentFOResightAnalytics (iFORA) system (IP owner - NRU HSE ISSEK)

Policy mixes, policy processes & policy rationales: an analysis of OECD TIP working group 1994-2014

Philippe Larédo & Antoine Schoen

RISIS
Research infrastructure for research and innovation policy studies

Themes: A focus on the 13 policy areas

POLICY AREAS	terms	P1	P2	P3	total
Public research	33	25%	25%	18%	**23%**
Knowledge transfer & commercialisation	23	12%	9%	9%	**10%**
Open science	4	0%	0%	**10%**	3%
Human resources	11	**10%**	3%	2%	5%
New and/or specific technologies	12	**18%**	6%	3%	9%
Services	9	3%	**8%**	1%	4%
Intellectual property	11	8%	**16%**	5%	10%
Tax incentives	9	5%	7%	**1%**	4%
Smart specialisation	4	0%	0%	**10%**	3%
Public private partnerships	7	**2%**	11%	17%	9%
Environment and green development	18	11%	5%	9%	**9%**
Global challenges	6	0%	3%	**10%**	4%
Other policy areas	13	4%	7%	5%	**5%**
	160	100%	100%	100%	100%

Number of terms per area

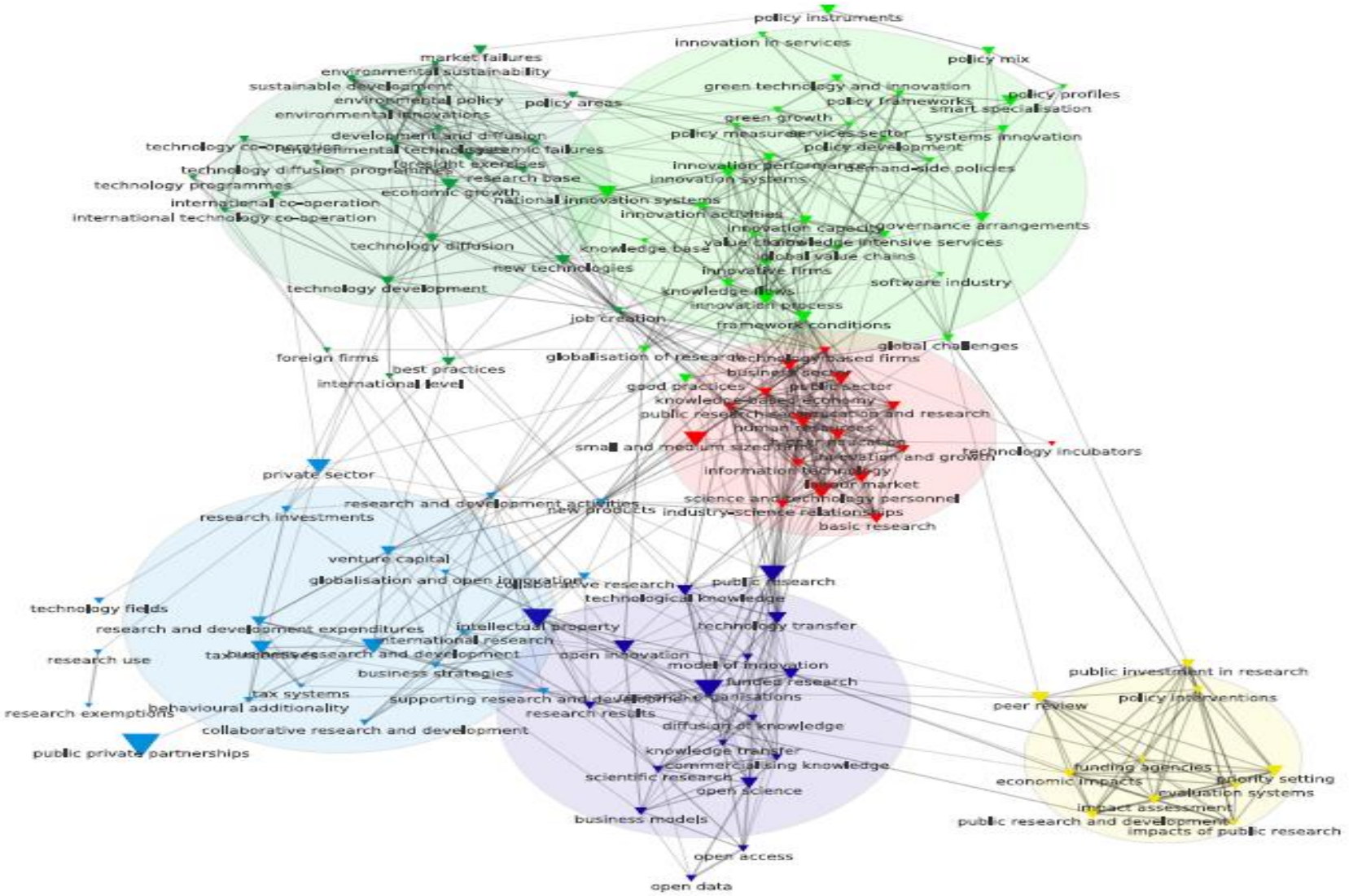
Occurrences of terms per area over the period
P1=1994-2000; P2=2001-08; P3=2009-14

Two major results:

1) Unequal importance of themes: 5 themes represent 2/3rds of occurrences

2) only 4 areas are equally present over the period, 7 peak in only one period, 2 are nearly absent from one period

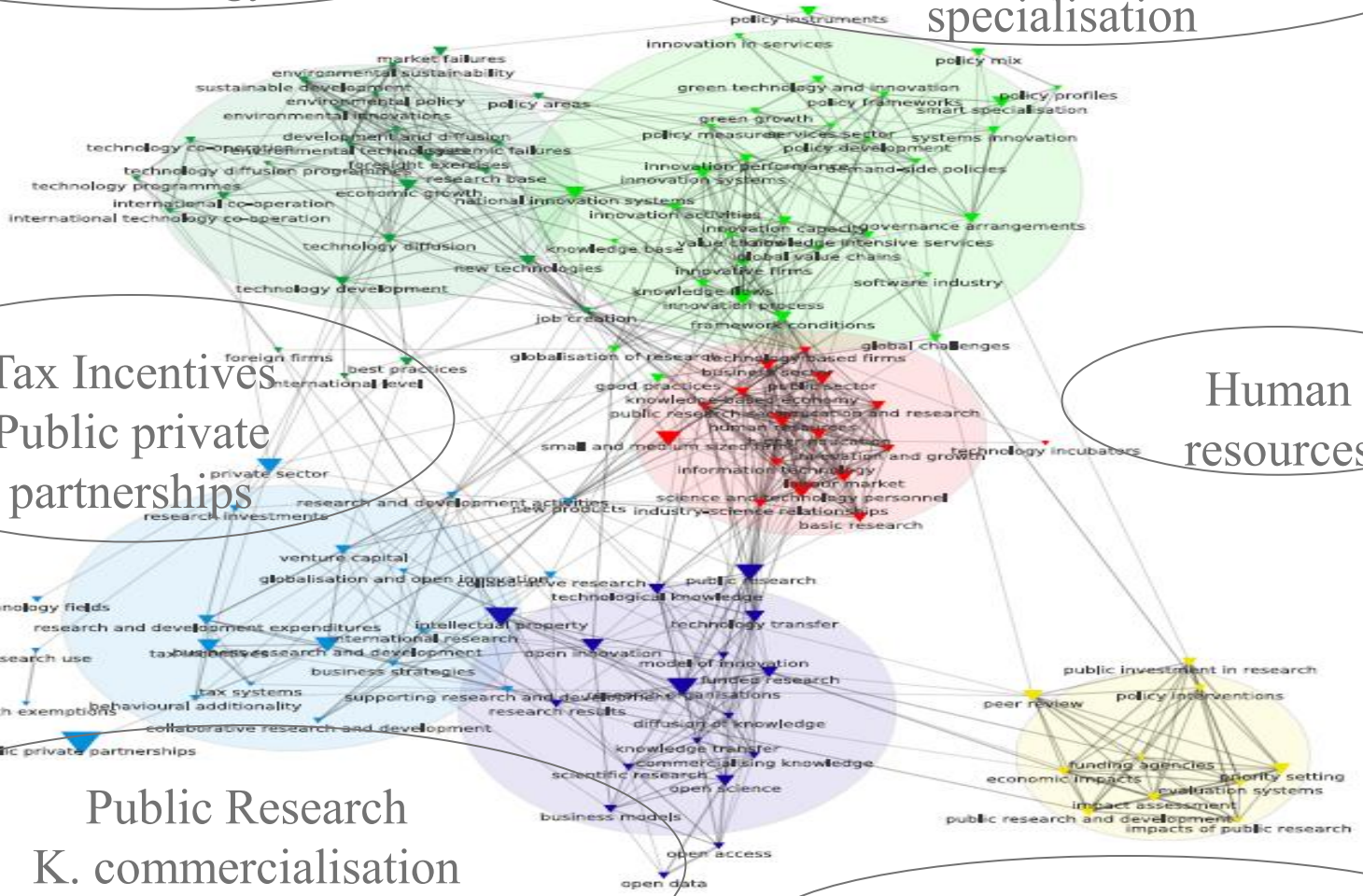
An overall views of links: 6 clusters highlighting ‘sub’ policy mixes



Clusters & their policy areas

Environment & New technology

Green Growth, Global challenges Smart specialisation



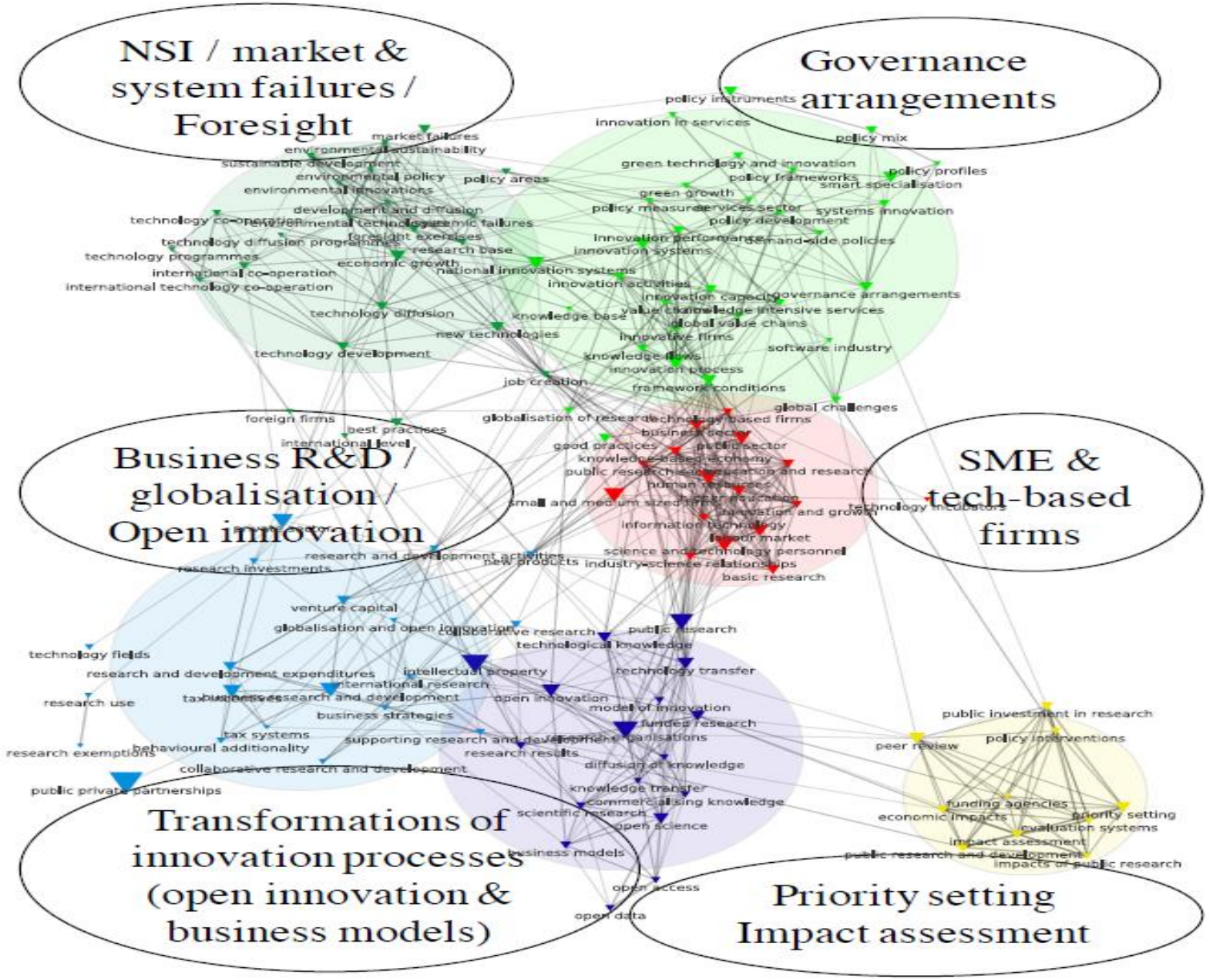
Tax Incentives
Public private partnerships

Human resources

Public Research
K. commercialisation
Open science
IPR

Policy processes & evaluation

Clusters: policy rationales & processes



Conclusions

- Innovation policy changed substantially over the past 25 years and 49 TIP meetings …
- … at the same time as a few themes have remained the same
- Semantic analysis itself and other new tools may mark new explorations of those very themes