

Appendix B: Luxembourg Research Institute Evaluation 2022: Mapping of Knowledge Structure: Department internal

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1 Introduction: LIST Department ITIS

1.1 Purpose & Structure

This document provides additional analysis and visualizations regarding the Luxembourg Research Institute Evaluation 2022 of LIST Department ITIS. Its purpose is:

- To map the broader research community and distinct research field the department contributes to.
- Identify core knowledge bases, research areas trends and topics.
- Highlight the positioning of the department within this dynamics.

It is structured as follows:

1. **Topics:** Further information regarding the departments research topics and their development

2. **Knowledge Bases:** Further information regarding the departments knowledge bases and their development
3. **Research Areas:** Further information regarding the departments research areas and their development
4. **KB-RA-TP interaction:** Joint visualization of knowledge bases, research areas, and topics.
5. **Specialization:** Departments research area and topic specialization compared to the broader research field.
6. **Collaboration:** Co-Authorship networks to other research institutions.
7. **TEchnical description:** Further guidance regarding concepts, methods, indicators, techniques, and workflows.

1.2 Further resources

This document and further factlitating information can be found online under:

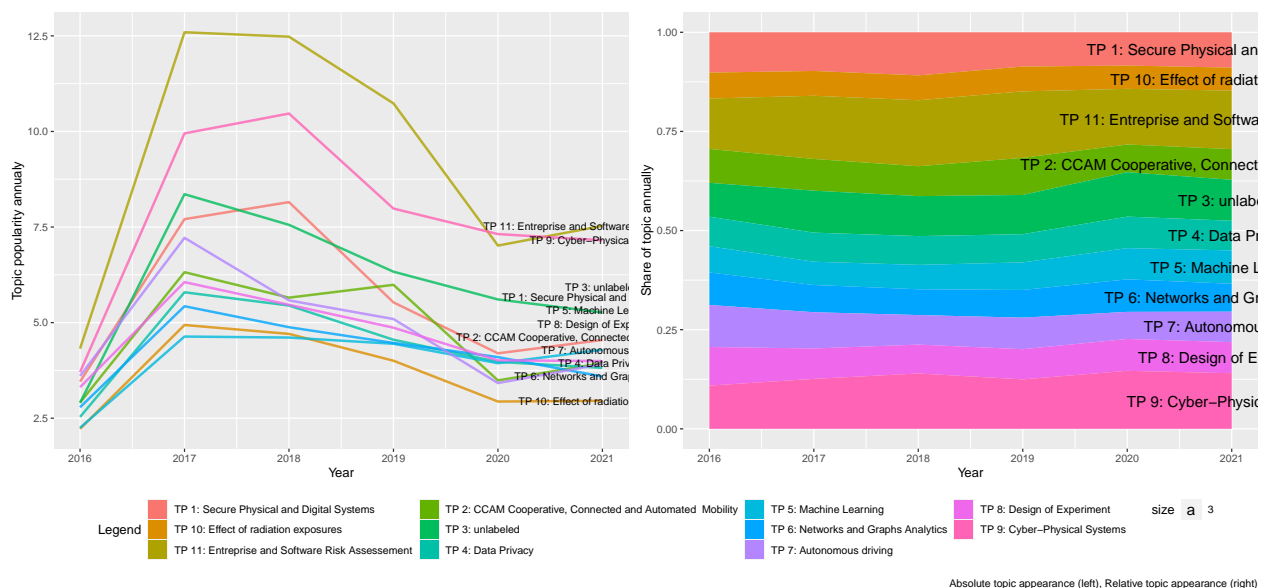
- This document: https://daniel-hain.github.io/biblio_lux_2022/output/field_mapping/field_mapping_list_itis.html
- Mapping of broad research field: https://daniel-hain.github.io/field_mapping/biblio_lux_2022/output/field_mapping_dept_list_itis.html
- Interactive Topic Modelling: https://daniel-hain.github.io/biblio_lux_2022/output/topic_modelling/LDAviz_list_itis.rds/index.html#topic=1&lambda=0.60&term=
- The method for the research-field-mapping can be reviewed here: Rakas, M., & Hain, D. S. (2019). The state of innovation system research: What happens beneath the surface?. Research Policy, 48(9), 103787.

2 Topic modelling

2.1 Topic Development

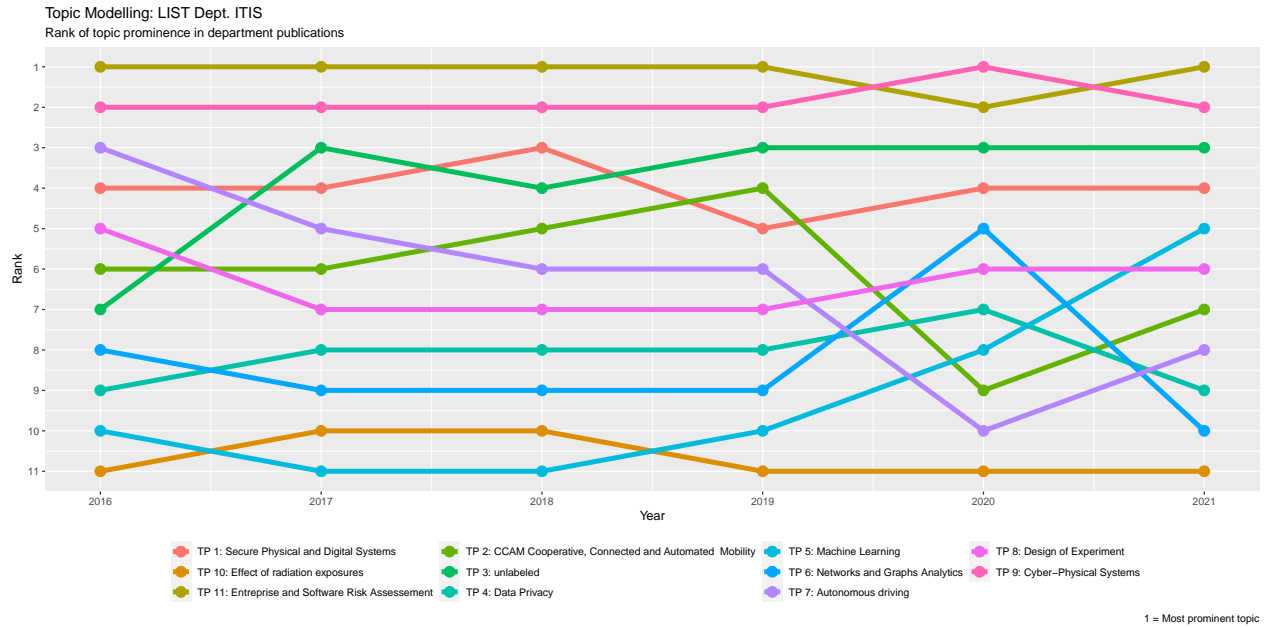
Shows changes in topical focus of the department over time.

Topic Modelling: Research Field of LIST Dept. ITIS
Timeframe: 2016 – 2021



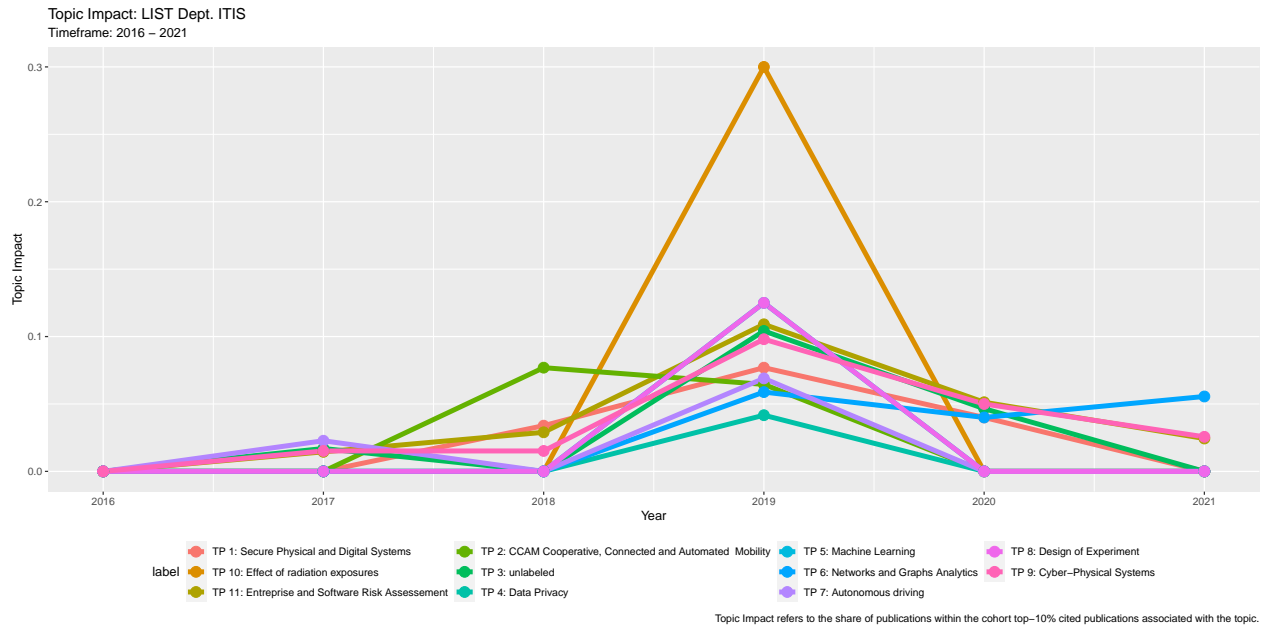
2.2 Topic Ranking

Shows changes in topical focus of the department over time (ranking).



Topic Impact

Shows which topics were particularly impactful (cohort citation percentile) over time.

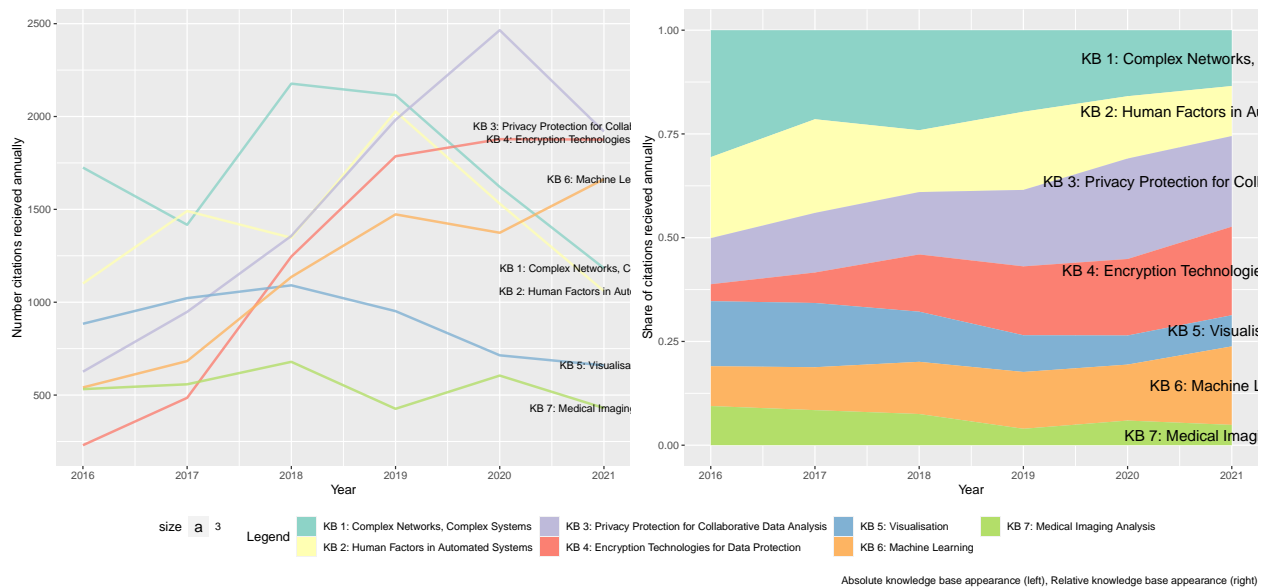


3 Knowledge Bases: Co-Citation network analysis

3.1 Knowledge Base development

Shows the development of citations to the knowledge bases by department publications.

Knowledge Bases: LIST Dept. ITIS
Timeframe: 2016 – 2021

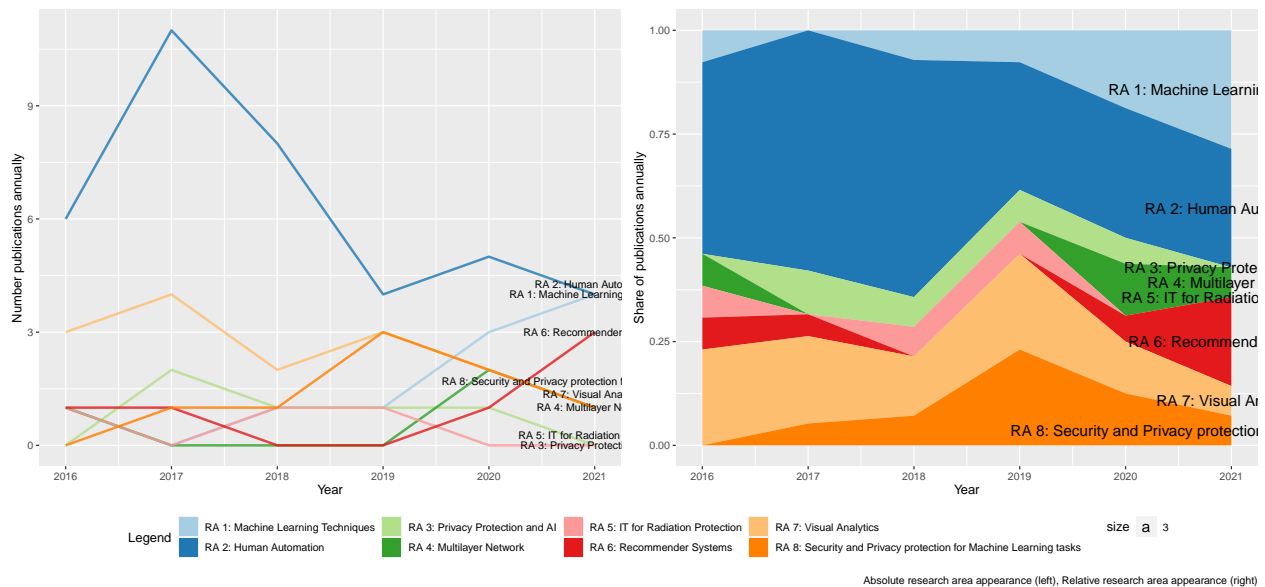


4 Research Areas: Bibliographic coupling analysis

4.1 Research Area Development

Shows development of department publications in the research areas over time.

Research Areas: LIST Dept. ITIS
Timeframe: 2016 – 2021

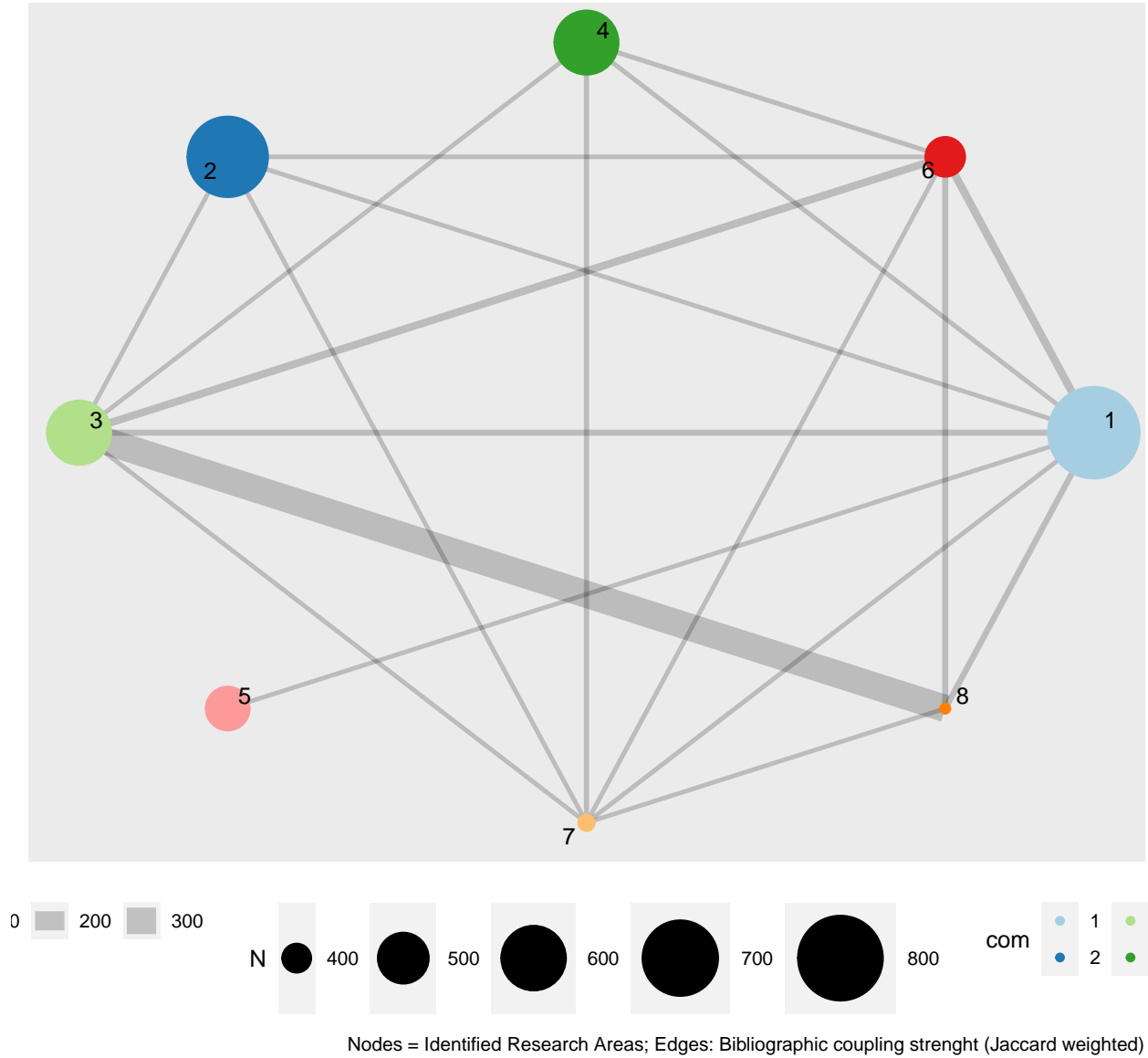


4.2 Research Area Similarity

Shows the similarity of the departments research areas (by bibliographic coupling strenght).

Research Area Similarity: LIST Dept. ITIS

Timeframe: 2016 – 2021

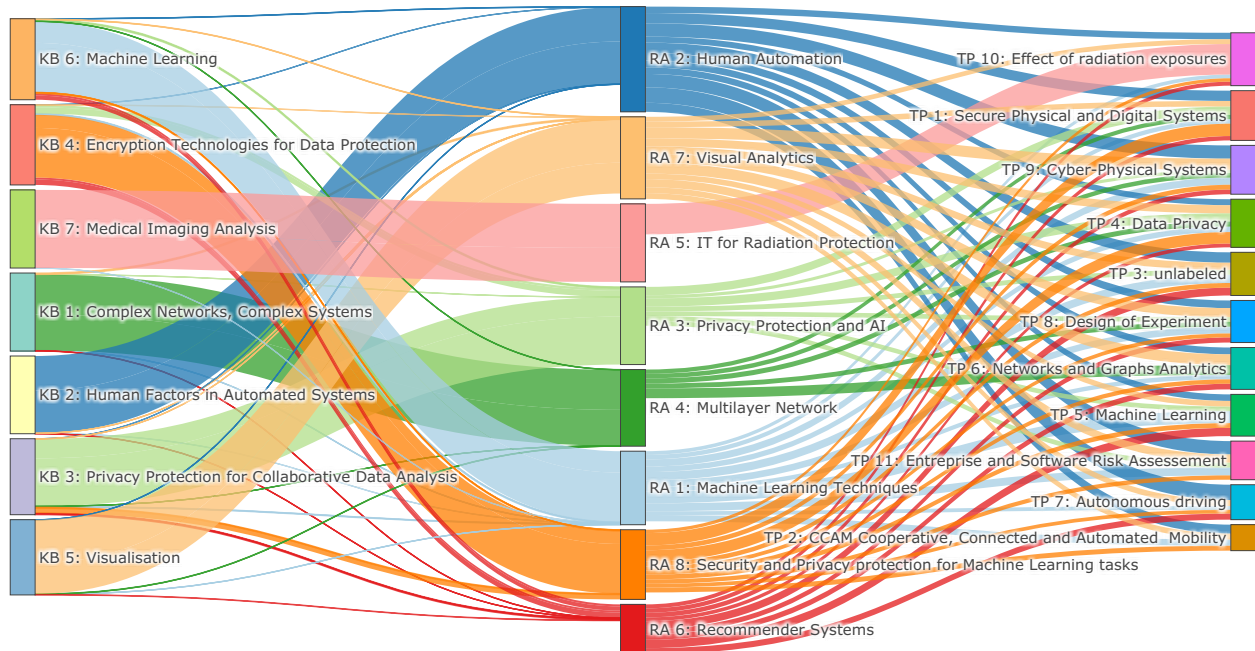


5 Knowledge Bases, Research Areas & Topics Interaction

5.1 Joint Overview over Knowledge Bases, Research Areas, and Topics

This plot shows the connection of publications in the research areas to knowledge bases (by citations) and topics (by gamma, document-topic weight)

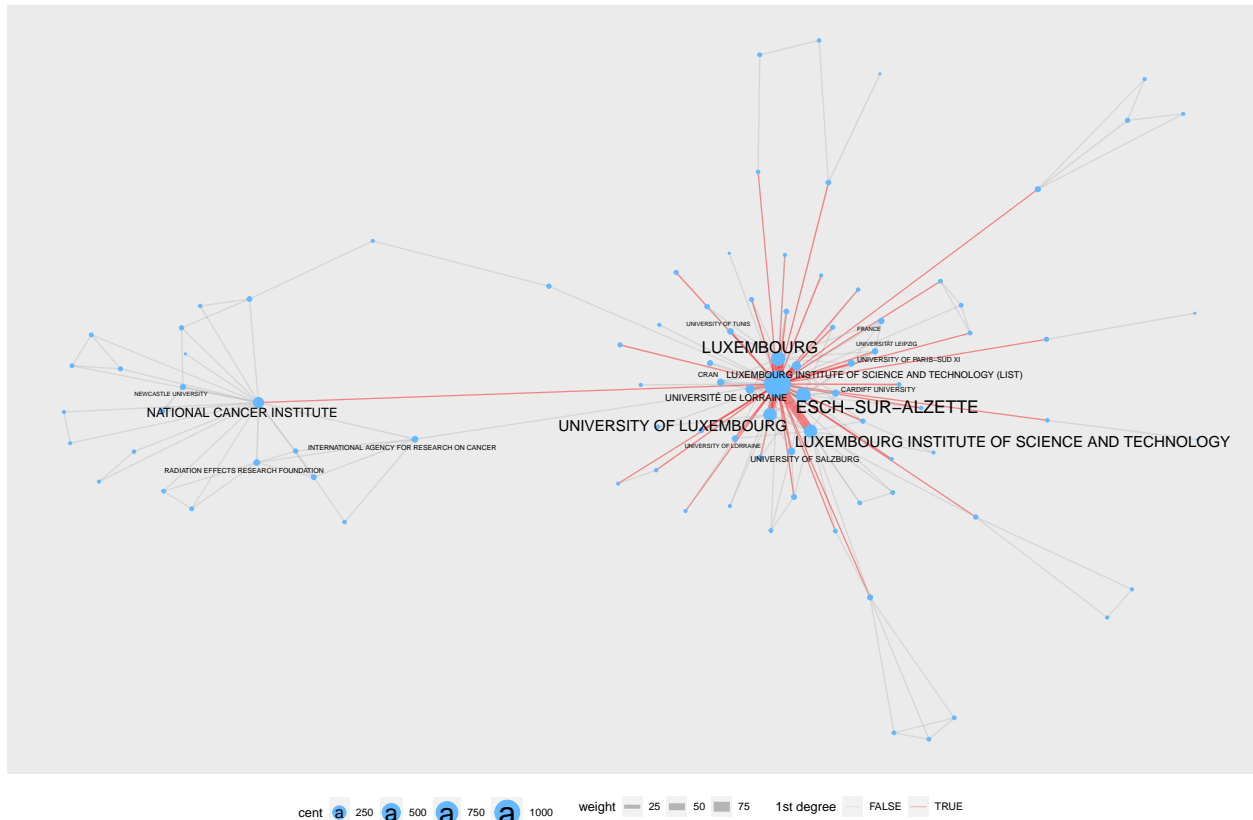
Knowledge Bases, Research Areas & Topics: LIST Dept. ITIS



6 Collaboration

6.1 Collaboration network 2nd Degree

Shows overl collaboration (co-authorship) structure of the department.



7 Missing Publications

The bibliometric part of the 2022 research evaluation is based on Scopus data, one of the most comprehensive providers of academic publications. However, some potentially relevant scholarly output is not covered. Reasons might be that the publication outlet is not Scopus indexed. While most academic journals are, the coverage of bookchapters and conference proceedings is less exhaustive. In rare cases, errors in the database can also lead to underreporting.

To get an exhaustive overview covering all scholarly output, find below a breakdown of publications not matched with Scopus, and therefore not included in the overall evaluation.

7.1 By Reason

7.2 By Type

7.3 By outlet (Journal articles only)