Outline for a Master Thesis

Topic: Innovation dynamics over time: an assessment based on patents and trademarks.

Context:

Innovations evolve over time. Universities, companies, private persons and others are involved in the innovation process. It is often assumed that innovation takes place in a linear way with fundamental research taking place in science, applications being then developed in firms before the final products enter the market. The thesis aims to analyse and visualize the innovation dynamics. To do so, technical applications are represented via patents and market introduction is represented with trademarks. Assessing the data sets over time should reveal where different dynamics and innovation topics from – either from the market side or from a technical side.

The following aspects should be included in the thesis:

(1.) A literature review on text-analyses methods to represent data over time, their advantages and disadvantages in relation to the analysed text data. An assessment of the data sets of trademarks and patents with a short introduction of their usage in innovation studies.

(2.) Introduction to the innovation field that should be assessed (e.g. robotics, artificial intelligence, biotechnology, medicine) with an explanation of the nature of the innovation.

(3.) Application of the chosen method in (1) on the relevant trademarks and patents in the innovation field.

(4.) Assessment of the results achieved in (3) and combination of the two data sets in one analysis. Especially of interest is here when different topics evolve and in which data set this evolution is represented first.

(5.) Finally, the results achieved should be synthesized and discussed critically.

The thesis can be written in German or English.

Requirements:

Advanced knowledge in the field of innovation and programming is mandatory (and/or the motivation into acquire this knowledge)

Experience with SQL/ Python is of advantage but not mandatory.

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