

Executive Summary

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Commercial exploitation of inventions among academics at German institutions of higher educations

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Executive Summary

Innovations are essential for economic growth and considered a job generator. Since institutions of higher education, like universities, are a great source of innovation, there is already a comprehensive infrastructure supporting technology transfer and commercial exploitation at these institutions. But despite these support systems, inventions still seem to be not sufficiently exploited.

Therefore we took a closer look at the innovation activity of academic staff at German institutions of higher education and analysed, which personal and institutional factors determine, whether the scientists engage in generating inventions and transfer them into the market.

While women invent less than men, there are no gender differences in protection and commercial exploitation of inventions.

An inventor is predominantly male, a foreigner and has a high risk taking propensity. The gender gap in invention activities does not hold for exploitation activities. Therefore we recommend encouraging female academics early on in their careers to engage in research and invention activities across academic disciplines by setting incentives and providing appropriate institutional frameworks.

Academics in STEM-fields generate most inventions.

Academics in STEM-fields generate by far the most inventions, followed by scientists in life sciences. Furthermore, men invent more than women across all single fields of studies. The result indicates that the female underrepresentation in invention activities cannot be solely traced back to their underrepresentation in certain fields (e.g. STEM-fields).

Applied and multi-disciplinary research foster inventions and their commercial exploitation.

In order to be successfully commercialized, an invention needs to be of significance for the market. An applied or multi-disciplinary research focus and a career experience outside of academia foster the further development of inventions and their likelihood for market entry.

Sideline business fosters invention activity.

A market-related sideline engagement fosters invention creation as well as its commercial protection and exploitation.

Requirements for tenure positions should acknowledge knowledge transfer and market-related experiences

Post-doctorate researchers generate most inventions, but do not protect or exploit them more often than other researchers, due to the current requirements for tenure positions, which solely acknowledge highly ranked scientific publications. In order to stimulate knowledge transfer from academic institutions into the market, we recommend also acknowledging achievements in knowledge transfer and market-related experiences within the requirements for tenure positions.

Research activity should be contractually stipulated across all academic institutions

Academics at universities generate significantly more inventions than academic in other institutions of higher education. Research activities are a part of the working contract in universities, in contrast to institutions of applied sciences, whose working contracts include more teaching hours. Therefore, making research activities an explicit part of working contract across academic institutions would facilitate invention creation.

There is already enough infrastructure supporting exploitation activities, but it needs to be promoted more.

Technology Transfer Offices and patenting agencies support the researchers in academic institutions to commercially protect and exploit their inventions. Therefore, using their services goes along with higher protection and exploitation activities. Since there is already a comprehensive infrastructure in Germany's academic institutions for different target groups, especially young researchers at the beginning of their academic career need more awareness regarding their opportunities and support systems to commercially exploit their research results.

Bijedić, T.; Brink, S.; Chlosta, S.; Werner, A. (2016): Verwertung der Innovationen von an Hochschulen tätigen Wissenschaftlerinnen und Wissenschaftlern, IfM Bonn: [IfM-Materialien Nr. 243](#), Bonn.