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Concept of more efficient usage of SME resources for innovation and facilitation of collaboration with local research institutions and universities

Background: In Germany, more than 99% of all firms are small and medium sized enterprises (SME) (ifm Bonn; 2015). Compared to large firms, SME have a more restricted access to production factors (labor, land, capital) for innovations (Welsh, White; 1981). The usage of SMEs lack of resources could be a starting point (incentive) for collaboration with universities and research institutions. But collaboration also requires resources. The more participants, the more variables arise. Resulting in more complexity which leads to more costs of information i.e. for planning, management and controlling. **To avoid unwanted resource trade offs,** we want to show conceptional tools to use SME limited resources for collaborative innovation efficiently. Thereby the concept must be always considering SMEs strong limitation in time, skilled employees and financial resources.

Methods: 1st step: Literature review on the state of the art of innovation and collaboration. 2nd step: Analysis of best practice examples in literature and realization of interviews with 22 persons of SMEs, transfer and research institutions in Dresden area (Saxony). 3rd step: Developing a Model of an efficient cooperation innovation process (Dähne, et al.; 2018). 4th step: Workshops with concerned SMEs, transfer and research institutions and other stakeholder to develop common solutions and software tools. 5th step: Workshops with software developer, App developer (prototyping), Front-End-Designer and Database developer to realize tools. Next steps: Finishing and Testing tools for usability, effects of SME measures. Integration in transfer websites and APP-stores.

Results: Beside mentioned problems, we acquired in workshops a general **interest for collaboration.** But especially lacks of information (i.e. *how to do?* and *with whom?*) prevent potential collaboration projects in a early stage.

Early stage problems: **How to do?** **With whom?**

Therefore, we developed 2 online tools: Innovation readiness and Collaboration readiness to determine status of ability to innovate and collaborate. That allows SME quickly to identify internal and external barriers, understand their current status and derive measures to overcome barriers.

In addition, SME receive appropriate information about how **universities can help** with identified barriers (starting point).

By using the ***Model of Promoters*** approach (Dähne, von der Weth; 2017), the tools also provide information about which missing functional roles could be filled by project partners.

After understanding what functions a potential partner has to take on, it's difficult for the most SME to find them in person nearby.

Often, it occurs that potential partners work unnoticed on related projects in an area around.

Initiation problems: **Where and how I may find them?**

Therefore, we are currently developing, together with software engineers, the Promoter APP The main function will be the visualization of potential randomly allocated promoters in your area. It will be possible to see short profiles of persons nearby your location in seconds. All further information could get linked sources i.e. University webpage, LinkedIn, ResearchGate, etc.

For an easy and quick understanding of all tools and to get background information about innovation and collaboration, we are preparing short Explanation movies to transfer knowledge.

Sources: Innovation levels of maturity (Berg; 2013); Entrepreneurial innovation factors (Astor, et al.; 2013 and Rothwell; 1994); Regional innovation factors (Schmeisser, Kantner, Geburting, & Schindler, 2006); Innovation barriers (Müller-Prothmann & Dörr; 2009 and Agrawal; 2006 and Astor, et al.; 2013); Cooperational factors and cooperational barriers (Heisig & Dähne, et al.; 2018); Cooperation readiness (Geuna & Muscio; 2009); Model of Promotors (Dähne, von der Weth; 2017); Model of an efficient cooperation innovation process (Dähne et al.; 2018)

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