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### **Bringing the region back in? German Higher Education Institutions (HEIs) between regional engagement and isolated business**

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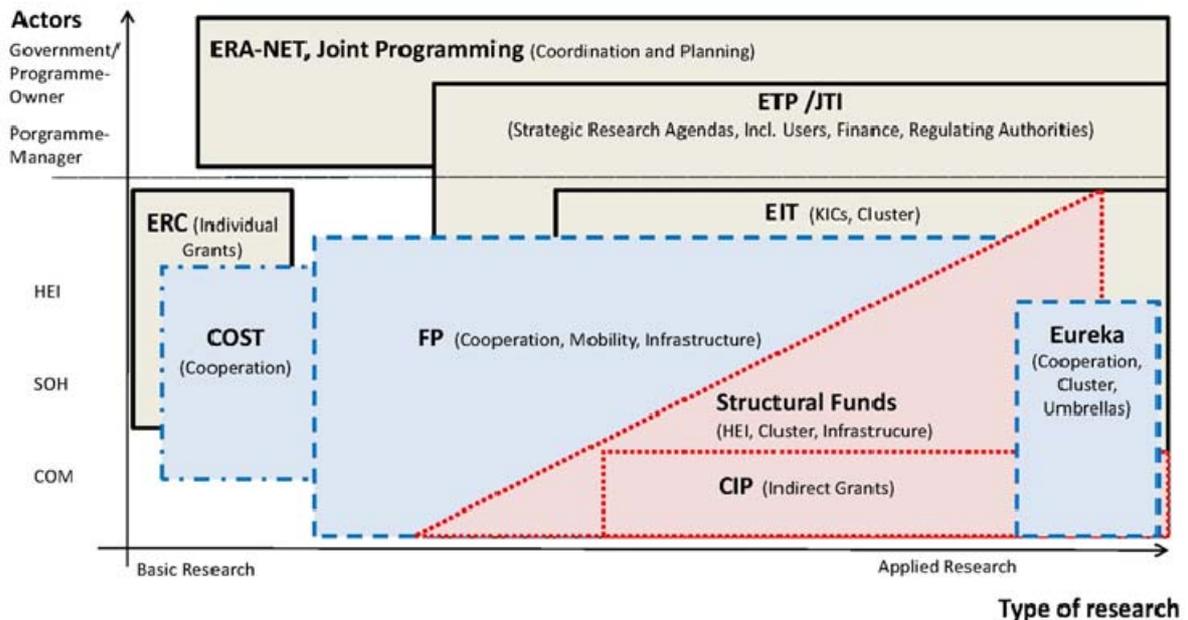
This **Draft Paper** was written in the context of the research project: “Involvement in regional networks and their impacts on internal governance structures at HEI”, funded by the German Federal Ministry for Education and Research (BMBF)

## **EU policies in support of HEI - reflecting the changing tasks of HEI**

Research and Innovation Politics was highly fragmented within the European Union right up until the launch of the European Research Area Initiative (ERA) in 2000. Except for the Framework Programmes, starting with the inception in 1984, the funding of and policy making for research and innovation (R&I) activities was neither a priority of EU politics nor a field that was known for considerable efforts of harmonization between member states. However, since the knowledge on innovation and the importance of research and development (R&D) for economic growth became more and more evident and important, also the EU – besides the nation states – became an important orchestrator of support measures within the field. Some single “border crossing” initiatives between neighbouring member states, the previously mentioned Framework Programmes for Research (and Technological Development), the programmes EUREKA and COST as well as a limited number of conjoint research centres like CERN and ESO have been the only common approaches before the extensive debate on ERA. Intensive EU-wide cooperation in R&I was solely established within the fields of nuclear research, aerospace and defence right up until 2000. Therefore policy makers tried to overcome the nationally fragmented policy making efforts through common targets and funding instruments with the introduction of the ERA initiative, the Lisbon Agenda as well as the Bologna Process. During the past ten years R&I politics at the EU-level consequently gained momentum through these initiatives, which were aimed at an improved coordination and cooperation of HEIs, companies, and non-university research institutions at a better exchange of information between them, the promotion of mobility of students and scientific staff and therefore at an improvement of the international competitiveness of the European science landscape. Through these dynamics also, the EU funding schemes in support of collaboration between these heterogeneous actors have gained importance over the past years and only recently new instruments were implemented in order to additionally address excellence (ERC, EIT) or coordination issues (ETP, ERA-Net) (Daimer et al. 2011:8). Even the characters of some well established instruments shifted towards support for HEI cooperation within the regional setting like the structural funds with their new strand of focus on research support<sup>1</sup> which was disputed (EFI 2011:52). Nowadays HEIs can benefit from a manifold of support instruments funded by the EU to strengthen several aspects of the academic and scientific life cycle of subjects or technologies as figure 1 shows.

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<sup>1</sup> Structural Funds, being an instrument of cohesion policy, were supplemented by the categories of support for R&D activities in regards to research centers, infrastructures, technology transfer and improvement of cooperation networks, which support the R&D investments by companies (especially SMEs) and the development of human resources in research and innovation (European Commission 2008:114).

Figure 1 Development of the European R&I policy landscape<sup>2</sup>

Source: Daimer et al. 2011: 8.

These instruments reflect the fact that the spectrum of HEI tasks broadened throughout the past decades. In addition to research and teaching, the task of transferring the generated knowledge, in order to exploit it for economic purposes, has been declared as a third mission of HEIs (Gulbrandsen/Slipersaeter 2007). This implies additional pressure on the institutions: besides research and teaching activities HEI are also asked to play an important role within the innovation process. Ideally knowledge and skills, which lead to new innovative products and processes, are passed on to utilizing partners outside the HEI through knowledge and technology transfer. In this context the regional setting of the HEI can play an important role, since nearby partners for cooperation can facilitate and catalyze the exchange and utilization of new knowledge. Following implications of regional innovation strategies the emphasis of regional nearness between the involved institutions became one key aspect of the European funding paradigm in regards to collaboration between heterogeneous actors (Charles 2003; Nauwelaers/Wintjes 2002; Premus et al. 2003).

<sup>2</sup> Abbreviations Funding Programs: CIP - Competitiveness and Innovation Framework Program, COST - Cooperation in Science and Technology, EIT - European Institute of Innovation and Technology, ERA-NET - European Research Area Network, ERC - European Research Council, ETP /JTI - European Technology Initiative/ Joint Technology Initiative, FP - Framework Program  
Abbreviations Actors: HEI - Higher Education Institutions, SOH - Science and Research outside Higher Education Institutions, COM - Company

As potential beneficiaries of such programs, HEIs themselves arguably turned into strategic actors through targeted observation of their surroundings (Krücken et al. 2009; Krücken/Meier 2006; Nickel 2004), while some time ago they only used to be objects of steering efforts by other stake holders. In this context science and innovation researchers discuss the emergence of "*entrepreneurial universities*" (Clark 1998; Etzkowitz 2003; Gibbs 2001) and the "*boundary spanning roles*" of new university units (Youtie/Shapira 2008) as well as the particular importance of HEIs in sharing tacit knowledge within their regional context (ibid.). These role concepts and the connected relevance in local knowledge transfer schemes (Abramson et al. 1997; Charles 2003; Gunasekara 2004; Premus et al. 2003) is a relatively new experience for German HEIs – compared to US-American, British or Australian HEIs – especially in regards to university-industry collaboration. There are several explanatory aspects for "[t]he present enthusiasm for university-industry collaboration worldwide, particularly in [Continental] Europe [that] seems to be driven by the supply side factors without much consideration for the demand-side factors. In Europe, the university-industry collaboration emerged recently as a "top-down" phenomenon [...]. The current interest is mainly fueled by two factors: (1) emerging knowledge economy and (2) the governmental interest in getting returns for on its investment in research." (Reddy 2011:27f)

### **Underlying project context**

Within the funding scheme "New Governance of Science – Research on the relationship between science, politics and society" by the German Federal Ministry for Education and Research we currently undertake a research project<sup>3</sup> that deals with the participation of German HEIs in regional networks and the implications of such engagements in the internal governance of the HEI. With this draft paper we would like to present some very first insights in our empirical work. With regard to the statement by Reddy (ibid.), we would like to point out that, within our project, fairly broad definitions of both the regional setting<sup>4</sup> as well as the engagement<sup>5</sup> within this setting of HEIs are applied.

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<sup>3</sup> The project "Involvement in regional networks and their impacts of internal governance structures at HEI" is carried out by a project team at the Fraunhofer Institute for Systems and Innovation Research ISI under the conduct of Prof.Dr. Knut Koschatzky. Team members: Dr. Stephanie Daimer, Dr. Henning Kroll, Benjamin Teufel, Nicole Schulze and Miriam Hufnagl. We thank our colleagues for the valuable cooperation. More information: [http://isi.fraunhofer.de/isi-en/p/projekte/governance\\_regional\\_ko.php](http://isi.fraunhofer.de/isi-en/p/projekte/governance_regional_ko.php)

<sup>4</sup> We do not use a neat geographical definition for the regional setting but asked our addresses within the surveys to think about partners that can be reached within a one to two hour drive.

<sup>5</sup> Engagement could be any institutionalized interaction with non HEI members be it information events, project cooperation, social engagement within the regional etc.

We would therefore like to consider regional cooperation between German HEIs and regional actors, discussing the central questions: With whom do German HEIs cooperate and what kind of regional interactions do they carry out? Why are German HEIs regionally active? Are political programs, e.g. implemented by the EU or national funding institutions, appropriate support measures for the establishment of successful regional cooperation? Likewise, we deal with the question whether or not new schemes of incentives to organize regional cooperation within HEIs have traceable impacts on the cooperation affinity. Additionally we try to answer the question of whether we observe effects on the internal governance processes in German HEIs, which are related to regionally oriented activities.

Besides several local case studies (e.g. Koschatzky/Stahlecker 2010) or the general analysis of regional settings for the innovation system (e.g. Koschatzky/Lo 2004, 2007) the relevance of regional factors for German HEIs has hardly been the focus of broad empirical studies. Several issues that address the new “third” mission of HEIs (knowledge and technology transfer) received increasing attention by policy makers and scientists: for instance, cluster politics efforts for the improvement of university-industry collaboration (like the leading edge cluster competition<sup>6</sup>). However, the “region” as a constant supplier of partners for scientific, economic and social engagement in a broad sense has not been the objective of an empirical study of HEI throughout Germany.

## **Data and method**

Two surveys, an online survey of German professors and a paper-pencil survey on the management level of HEIs, namely deans and presidents, built the bases for the empirical observations presented here. The professors’ survey draws a sample due to the usage of the VADEMECUM database. This database registers 52000 institutions of the German science area, including names and addresses of the scientific staff. 41470 professors were working at German HEIs<sup>7</sup> in 2010. Focusing on professors as scholarly teachers, we extracted scientific staff excluding the following groups: presidents and vice-presidents, rectors and vice rectors, all kinds of deans and associate deans, chancellors, treasurers, managers and secretaries as well as CEOs. We contacted 16590 professors. Although the operator of the database states to update the database annually<sup>8</sup>, there were numerous inaccessible ad-

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<sup>6</sup> <http://www.hightech-strategie.de/en/index.php> (accessed 4. August 2011)

<sup>7</sup> <http://www.destatis.de/jetspeed/portal/cms/Sites/destatis/Internet/DE/Content/Statistiken/BildungForschungKultur/Hochschulen/Tabellen/Content50/PersonalGruppen,templateId=renderPrint.psm!> (accessed 4. August 2011)

<sup>8</sup> <http://www.raabe.de/vademecum/> (accessed 4. August 2011)

ressees. After data cleaning, a sample of 14223 German professors remained<sup>9</sup>. Generally we opted for a broad survey approach because a preliminary review has shown that a restriction on certain types of institutions, faculties, departments or even subjects would limited our ability to reflect upon the high heterogeneity of German HEIs.

The survey addressing the management level of German HEIs was designed to be a whole population survey. Names and addresses of the management level of universities were compiled from a list of the German Rectors' Conference as well as the General Faculties Assembly. 1435 deans of different scientific fields have been contacted as well as 366 presidents of HEIs after data cleaning. The return rate for the professorial level was 11,1%, for deans 27,8% and for the highest level of HEI management, the presidents, 39,6%<sup>10</sup>.

Both surveys were conducted with almost identical questionnaires, asking for regional activities and motivation for as well as the support and impact of these kinds of activities of the addressees. Questions about the utilization of political programs for financing regional activities were also an important part of the questionnaires.

## **Implications for the interaction of HEIs with their regional counterparts – Findings and observations in the context of an online survey**

Analysing the representative cohort of professors (main unit ca.1600) who took part in the survey one might get the impression, that professors at German HEIs are generally rather engaged in their regional area, since about 33% claimed to perform regional activities quite often, that were related to their job as a professor or arose from the context of the scholarly employment. An additional number of about 58% indicated an occasional engagement. Asked about their current most significant research network partners, most addressees identified international partners (about 51%), followed by national ones (34%) and even though most of the addressees mentioned regional projects as important aspects of their scientific work, regional networks were only named by 10,2%. Surely it is hard to tell if the emphasis of international partnerships might be a consequence of social desirability or the result of the political emphasis on internationally comparable excellence of HEI, however it seems that the cohort has gained a considerable amount of experience with regional engagement. 37,2% had even been involved in project work that took over three years (up to three years: 37,2% / less than one year: 25,6%).

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<sup>9</sup> Exclusion of undeliverable emails due to change of HEI of addressee, retirement, death of addressee or misspelling of the address.

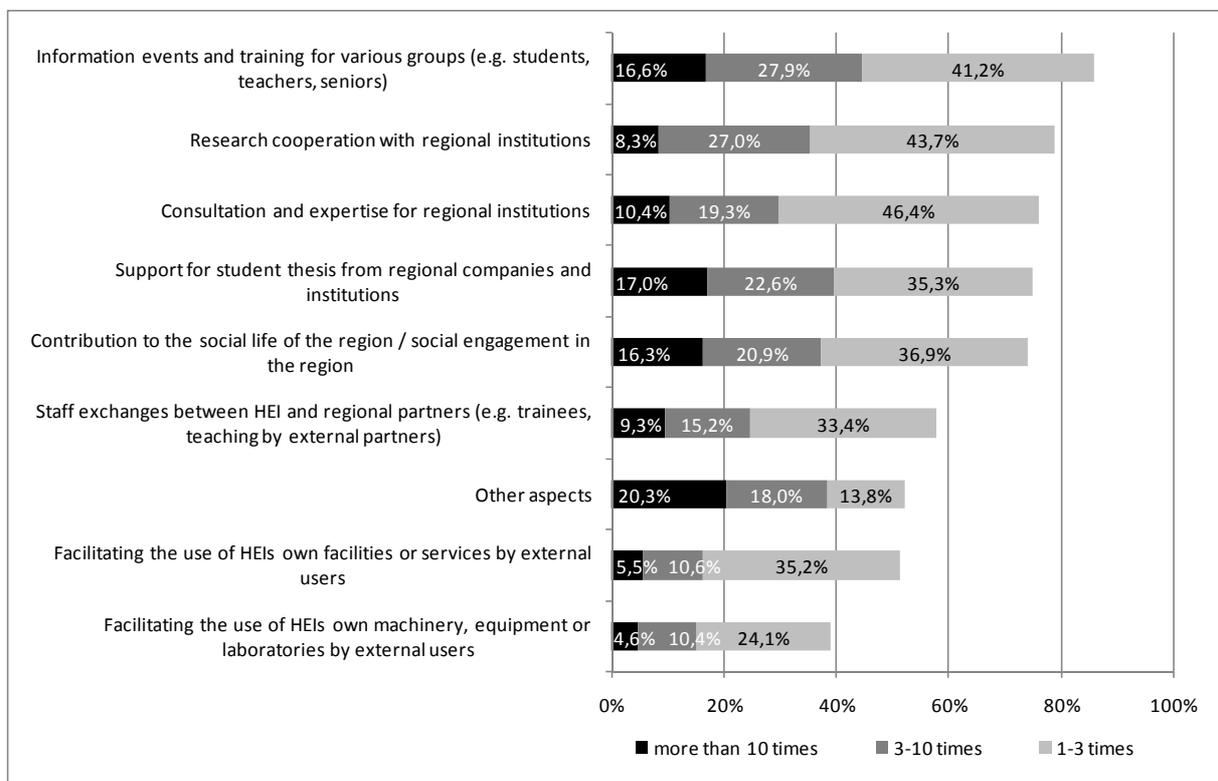
<sup>10</sup> The surveys were carried out between April and June 2011.

## Regional activities of HEIs in Germany

A broad impression of the different activities conducted by HEIs with regional partners is the starting point of the investigation. Inspired by a typology of Benneworth et al. (2009: 6) who identified 18 different engagement activities in the areas of teaching, service, knowledge sharing and engaged research, we formulated nine different university activities as indicated by the axis of ordinates in Figure 2. In the online survey professors were asked to name their regional activities of the last five years and also the frequency of the engagement.

As Figure 2 shows, three types of identified activities (excluding *other aspects*) are undertaken quite often (more than 10 times): *support for student thesis from regional companies and institutions* followed by *information events and training for various groups* and *contributions to the social life of the region*. Adding up all conducted activities the most frequent form of engagement is the proposition of *information events for the public*, closely followed by activities that trigger the knowledge transfer to other professional actors that are possibly active in innovation processes: *research cooperation with regional institutions* and *consultation and expertise for regional institutions*.

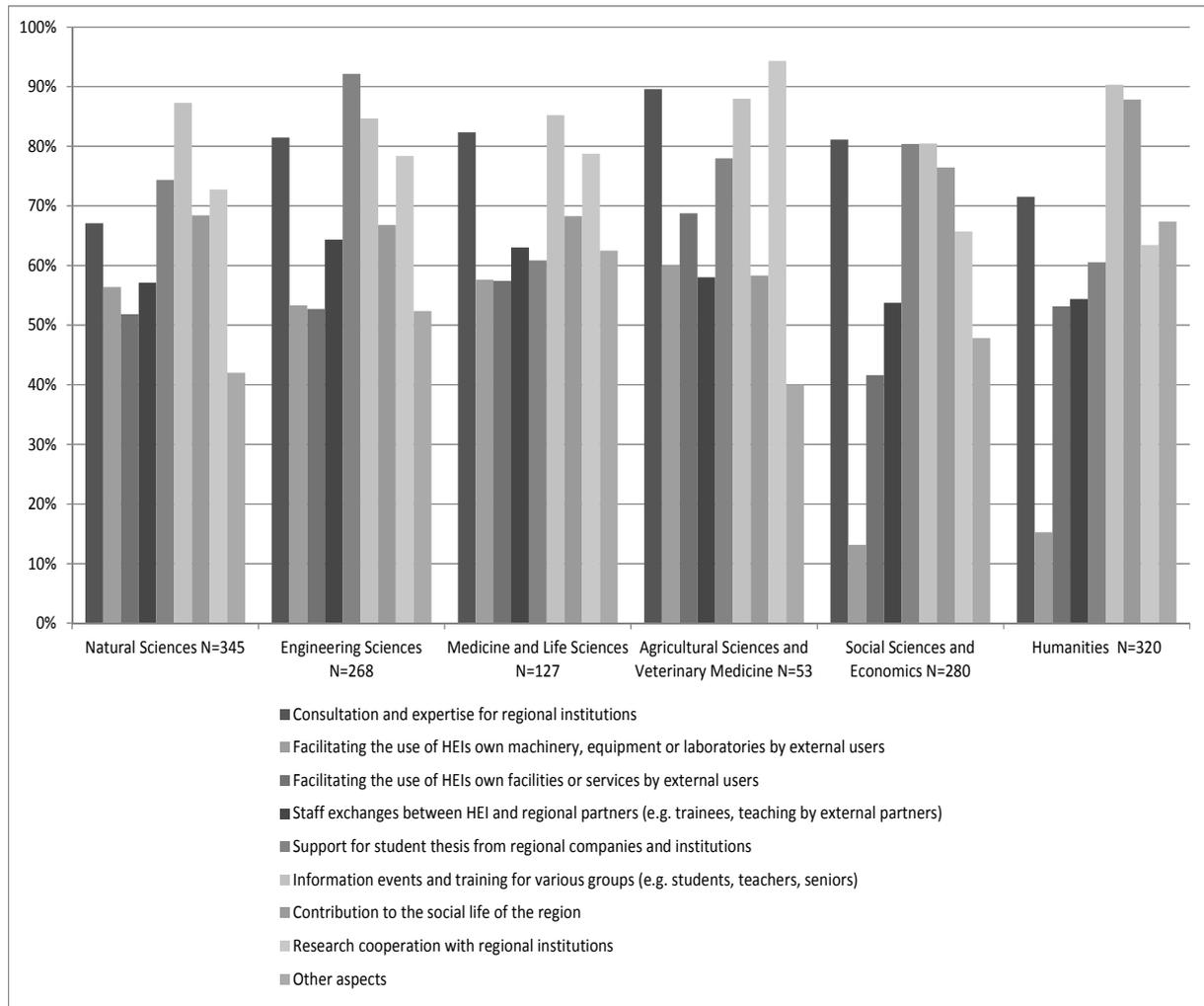
Figure 2: Type and quantity of regional activities



Generally 64,9% of deans and 79,3% of presidents reported an increased participation of the professors at their institutions in regionally oriented activities over the past ten years. To a greater extent, this trend is observed by the management of universities (~85%, ~75%) compared with presidents and deans of universities of applied sciences (~75%, ~55%), quite possibly due to the fact that the latter have been traditionally more engaged in cooperation outside their own entity qua its “work assignment” within the German higher education system. Significant difference can also be observed with regard to different disciplines. Particular methods and tasks of the various disciplines might explain the variation of activities between them. However, the trend towards strengthening the regional commitment can be observed in all disciplines and subject areas over the past ten years.

Separating the answers given by professors according to different disciplines, the general resemblance in answer patterns seems quite obvious. Following the argument of stressing the third mission of HEIs (Knowledge transfer) we have to bear in mind, that natural sciences, engineering sciences, medicine/life sciences and agronomy show by definition a greater and more relevant affinity towards cooperation with other research institutes and companies. Moreover, the fact that the categories two to four were mentioned more frequently by those than by the “humanities” and social sciences seems consequential. Also the slightly more frequent mentioning of the last two categories by social sciences and humanities seems comprehensible.

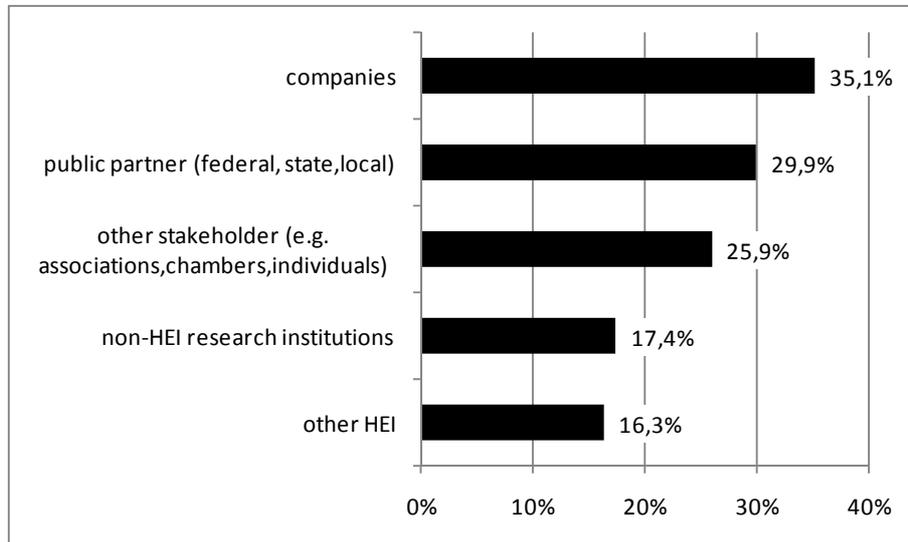
Figure 3: Type of regional engagement depending on groups of disciplines



These results raise the question, with whom HEIs collaborate to which purpose? As Figure 4 illustrates, HEIs seem to cooperate mostly with organizations different to their own forms of structure. Companies are the most frequently chosen partners for regional cooperation (35,1%), closely followed by public institutions like federal, state or local organizations (29,9%). Regional Co-operations with other HEIs are more seldom (17,4%), one reason being the relatively low density of HEIs in Germany. The 418 HEIs<sup>11</sup> are spread over Germany and only in agglomerations like Berlin or Munich we can find more than just one university in the region (defined as the area reachable within one hour by car). However, quite often polytechnics/universities of applied science and universities exist within one regional “neighbourhood”. However, despite the nearness, the frequency of interactions between the institutions

also does not seem to be very high, quite possibly due to the focus on different scientific fields with different emphasis (e.g. basic vs. applied research).

Figure 4: Cooperation partners (Multiple responses possible)



### Incentives vs. intrinsic motivation

Concerning the motivations of professors to engage in regional activities, we suspect two strands of motivation: either a reaction to the offer of incentives announced by the managerial level of the HEI or an intrinsic motivation to operate in their region. The latter might surely consist of several reasons and quite possibly be “triggered” by the budget, expertise or simply availability of the cooperation partnership or indeed a genuine interest in exchanging with the external.

First, we want to focus on the incentive motivation. There are several possible incentives that could encourage professors to engage with regional partners. We identified three main incentives: the reduction of the individual teaching load, more staff appropriations and other financial incentives. Figure 5 presents the distribution of incentives either given by the faculty level or the HEI management, or both.

Obviously most incentives are (and can only be) offered by the HEI management, but when the overall quantities considered, it is evident, that so far, the support of regional activities by the inducement is not prevalent among German HEIs. However, in those cases where incentives are offered, professors named other *financial incentives* most often; one prominent reason might be the appellate proceeding of German universities. Activities beyond research and teaching can be a reason to allow a salary supplement grant. We can summarize that only 14% of regional activities are arguably motivated by incentives of the university management. Hence we unsurprisingly conclude, that currently the intrinsic motivation – triggered

by various issues and combined with the expected positive effects of those engagements – is the dominant reason to become active, not financial incentives.

Figure 5: Incentives for regional engagement

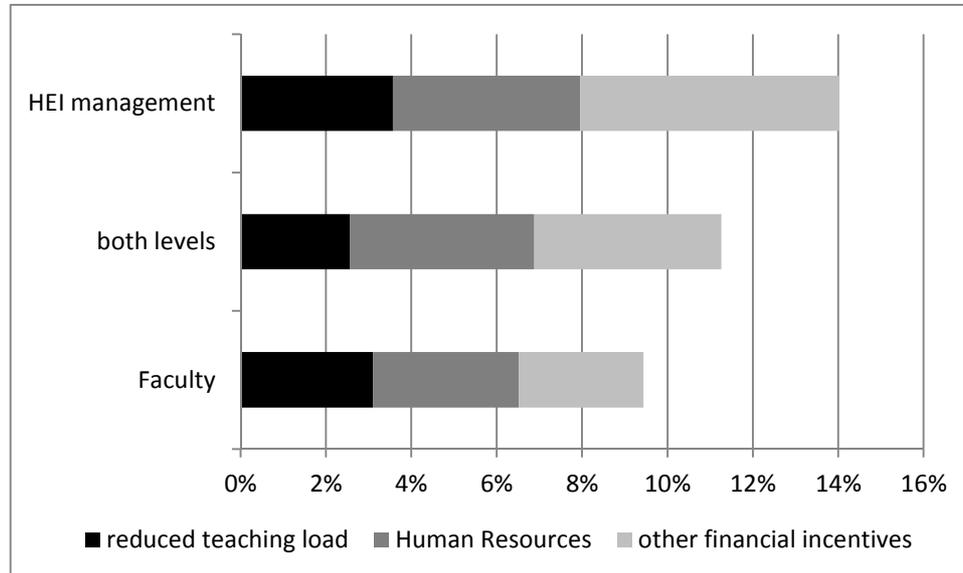
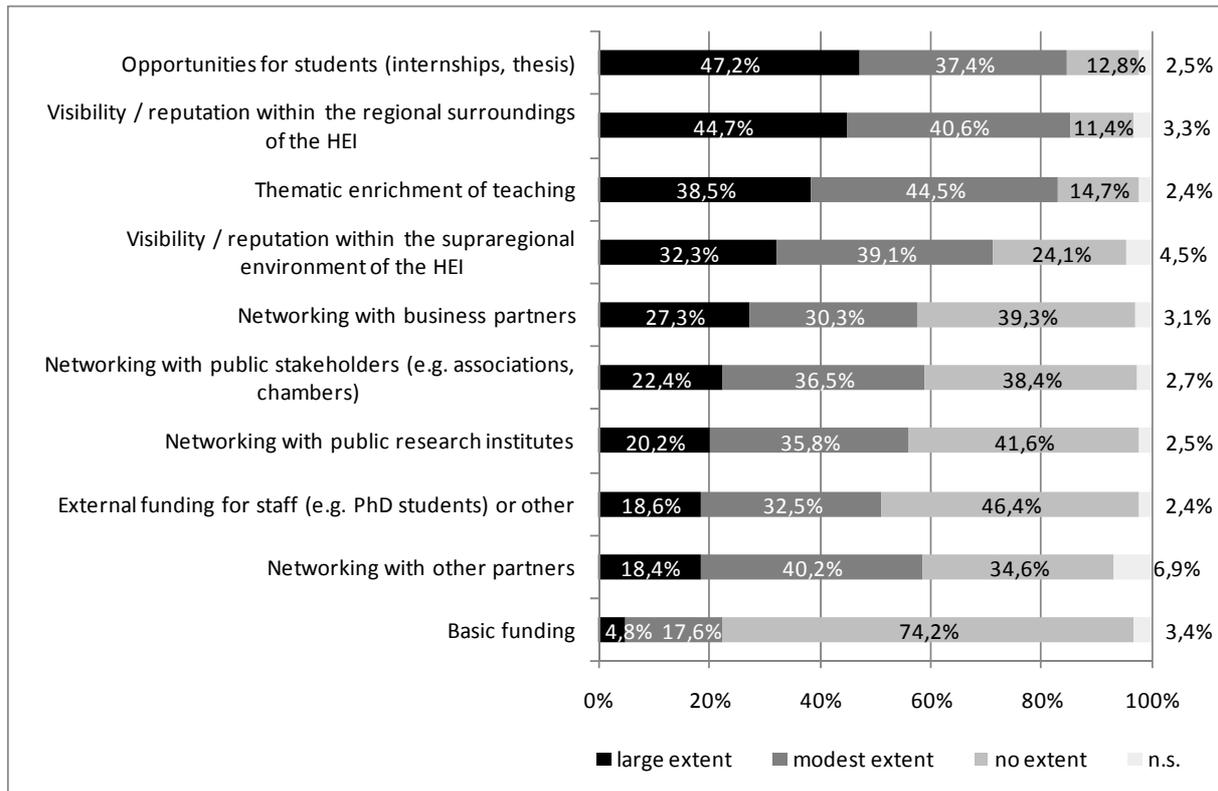


Figure 6 illustrates the positive effects for professors unfolded by regional activities. With 83% to 85% agreement, that these activities unfold positive effects to a large or modest extent, the dominant categories are: *visibility/reputation within the regional surroundings of the HEI, the opportunities for students (internships, thesis) and the thematic enrichment of teaching*. Regional engagement seems to have only marginal effects on grants/funds for staff or basic research, and also the element of networking is mentioned as more important respectively, unfolding more positive effects. Taking into consideration, that the cut down of funding in HEIs due to current reforms also results in a decline in core funding with effects on the number of employees and endowment, it seems that regional engagement did not yet amount to an alternative way of financing research and teaching. However, this statement is only valid with regard to regional engagement. Surely scientific staff started compensating cut downs by applying for funds at foundations and nationally funded research programs as well as EU funded research programs (without a regional component).

We therefore conclude, that regional activities of German professors seem motivated mainly by the desire to fuel the knowledge and technology transfer through teaching and training students (as the future scientists and employees), besides improving the visibility and reputation of themselves and the HEI in the surrounding area.

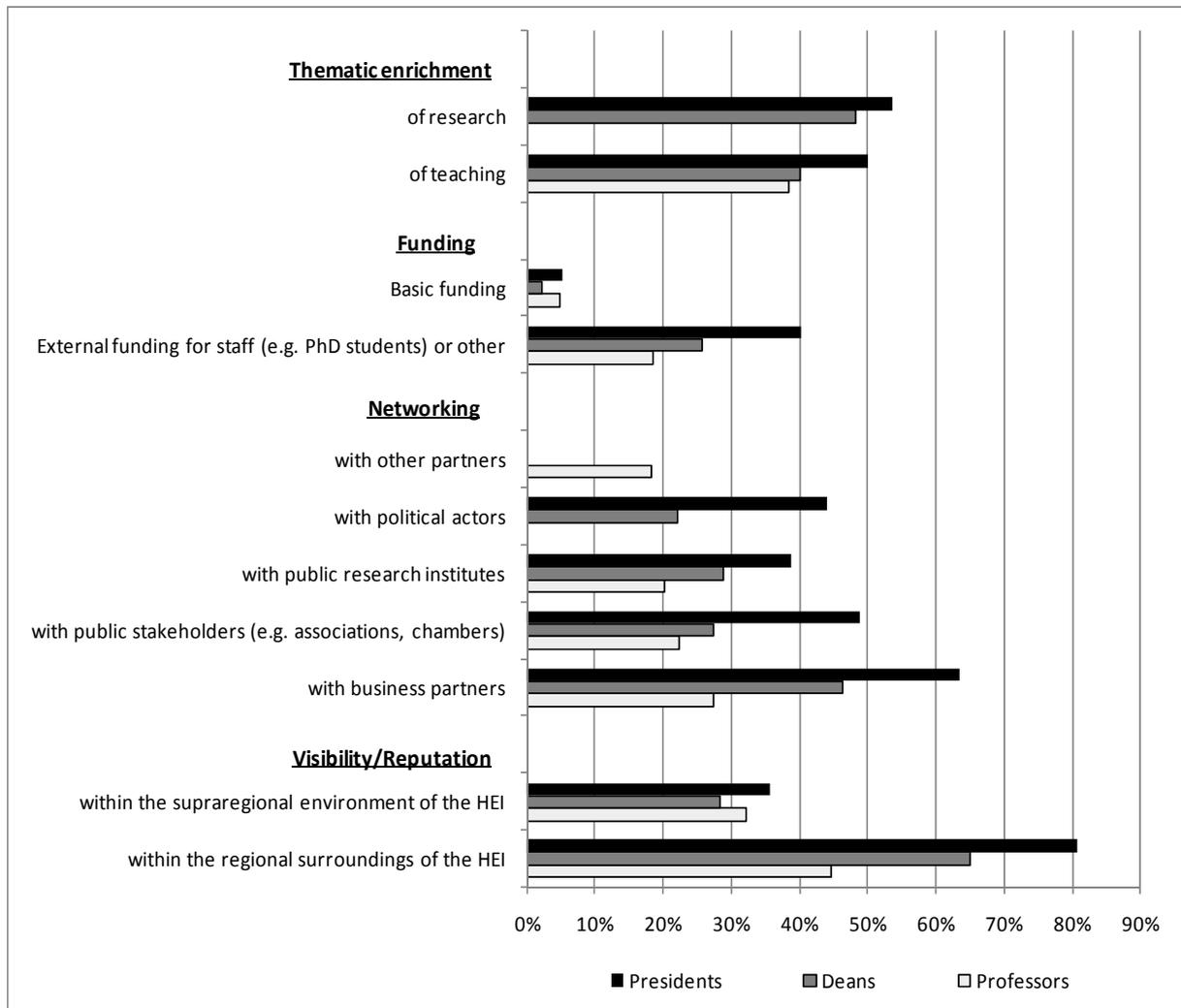
Furthermore asked about the improved positioning of their own research topics within the faculty or the entire HEI only 21% of professors confirmed an observable impact.

Figure 6: Positive effects of regional activities as seen by professors



If we take the deans and presidents into account concerning the positive effects, there are substantial differences in the perception of effects. Figure 7 shows noticeable differences in the professorial perception and the managerial perception. These distinctions might originate from the different insights: presidents might have a broader view on the activities happening at the HEI and therefore might be able to gain a more positive impression fuelled by the sheer quantity of the regional engagements by all members of the HEI. Whereas professors might only perceive the activities they carry out themselves individually is carried out by their colleagues in the faculty. This narrowed view might result in a broader assessment of the impact of such activities. Deans represent the level between these two groups, in regards to their position in the university hierarchy and accordingly also take the intermediate rating of the activities. However these explicative statements are so far rather speculative, case studies involving interviews with the addressees that will be performed later in the project, will either approve or disapprove our conclusion. So far we can definitely see differences in the answer patterns; admittedly the reason for those is up to anecdotal "evidence".

**Figure 7 Positive effects of regional activities as seen by professors and the management of HEIs<sup>12</sup>**



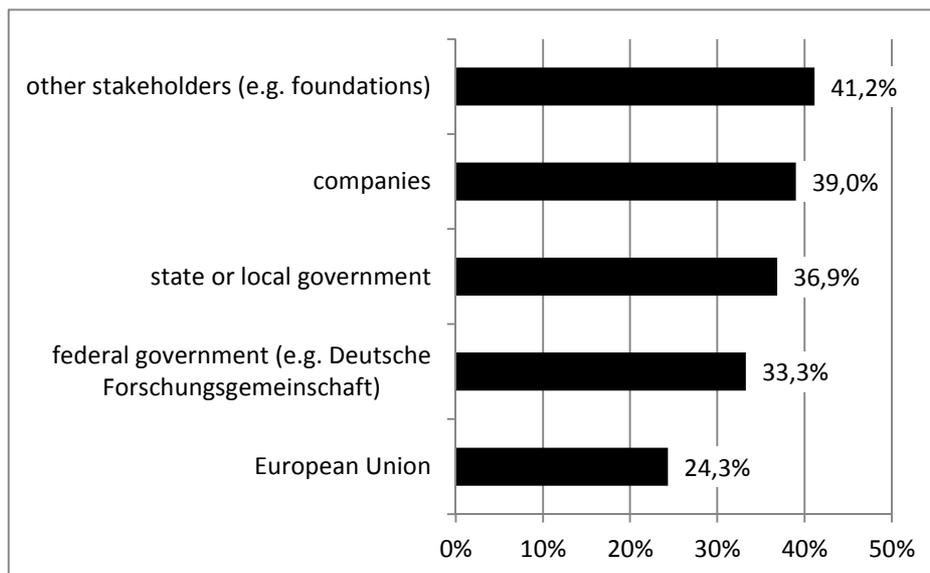
### The role of political programs for regional activities

Apart from the observation of positive effects of regional dedication, we were also interested in the financial support of external stakeholders for regional activities. Since projects can be funded by more than one player, we permitted multiple answers when asking which funding institution supports the regional engagement of the addressee (see Figure 8). Most regional projects were financed by stakeholders (like foundations) (41,2%) and companies (39,0%); most of them might have local ties since we only asked for projects with a regional network-

<sup>12</sup> The questions underlying this analysis included slightly different variables: professors were not asked for their valuation of the influence of regional engagement on research; in regards to networking we differentiated between *other partners* (professors) and *political partners* (presidents and deans).

ing aspect. The local proximity might be advantageous for both, the beneficiary and the facilitator. Additional case studies will shed light on the circumstances. Also, local and state governments (36,9%) as well as the federal government (33,3%) fund regional activities. Both political levels developed political programs to promote regional collaboration and cooperation, e.g. *InnoProfile* supporting transfers between research groups and joint projects. About a quarter of addresses received financial support for their regional engagement from the EU.

Figure 8: Funding Institutions of regionally orientated projects

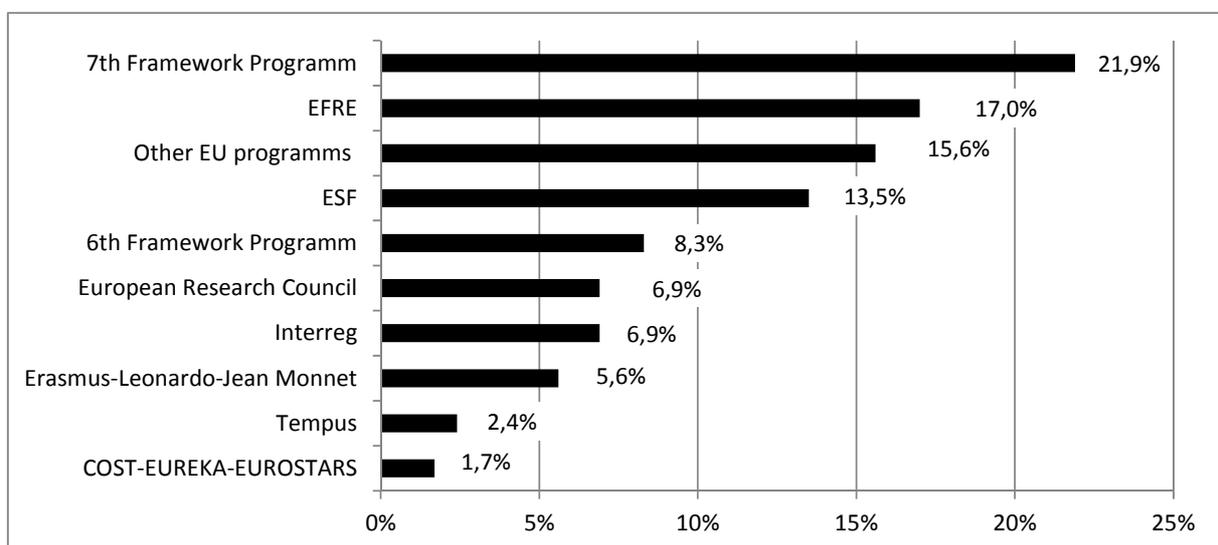


The nomination of the funding institution will certainly not allow any conclusions about the impact of the money spent, neither on the volume of the projects. Thus the quantity of funded projects by the EU is lower than those funded by the others. In summary we can conclude: geographical proximity between the facilitator and the HEI seems to have an impact on the number of sponsored projects.

Throughout the introductory pages we already mentioned various EU funding programs. But which are the most relevant to regional activities at German HEIs? Figure 9 depicts the EU programmes mentioned by those addressees who approved of receiving funding in regards to their regional engagement. Nearly 22% mentioned the Seventh Framework Programme (FP), which is the central instrument with a clear dedication to promote R&D activities in the member states. The FP is therefore a quite heterogeneous tool that includes the elements of cooperation, ideas (financial support for the European Research Council ERC), people (Marie Curie mobility program to support the flexible alternation of scientist between European HEI) as well as the Joint Research Centre (JRC) to support the European legislative process in R&I. According to Article 163ff of the EC treaty, the objective of the FP is to strengthen the research activities within the community and therefore foster the competitive-

ness. Hence it seems rather consequential that the current FP has been mentioned most often in terms of research supports. Structural funds – by definition the European regional policy measures to strengthen the economic and social cohesion between the member states by facilitating budget for regions of lagging development – were actually mentioned most often (they consist of i.a. the two support instruments<sup>13</sup> EFRE and ESF). During the past decade the portfolio of structural funds was supplemented by more budget dedicated to promote research and technological development. This alternation of the funding tool can be interpreted as a shift in regional cohesion politics, accepting the fact that research and development are essential factors in economic growth and need to be accordingly supported in order to support national and respectively regional innovation systems.

Figure 9: EU Programs that support regional engagement of addressees



## Conclusion:

The political discourse in EU R&I politics seems quite dominated by excellence and internationalization. Our paper therefore wanted to draw attention to the region and underscore its significance for research and teaching activities at German HEIs. The results (generated by two surveys) support our request: all levels at HEIs realized an increasing relevance of regional engagement at their HEI. We can summarize that regional activities of HEIs cover mainly the *support for student thesis from regional companies and institutions*, the realization

<sup>13</sup> EFRE European Regional Development Fund: with the scope on “regional competitiveness and employment”, ERFE supports – besides other objectives – innovation and the knowledge economy of all member states of the EU; ESF European Social Fund mainly supports research project in the context of human resource,

of *information events and training for various groups* as well as making *contributions to the social life of the region*. One of the most cited types of activity has been the *research cooperation with regional institutions* and the *consultation and expertise for regional institutions*. These types of activities reflect typical forms of knowledge transfer. Cooperation and collaboration of HEIs with regional partners like companies and foundations are conducive to the transfer of knowledge to exploit it for economic purposes and to enrich and improve social life. Even the enrichment of teaching and the support for student thesis are forms of knowledge transfer: the transfer via heads. Staff transfer is one of the most crucial forms of transferring tacit knowledge and in this case to exchange knowledge between HEIs and companies. Students get in touch with issues outside of HEIs; companies and public institutions get new impulses from science. All in all regional activities of HEIs play a significant role in knowledge transfer because regional players are important recipients of scientific knowledge.

Rarely the management level of HEIs rewards transfer activities and/or regional activities with additional funds or other benefits. Still more than one third of the respondents claim to perform regional activities quite often and almost 60% indicate occasional engagement. Hence, the motivation to conduct regional projects is often more intrinsic than extrinsic: Increasing visibility and more reputation for the discipline or professorship as well as the thematic agenda settings are often the motive force on the professorial level. In this context it is not surprising that companies and stakeholders are the most cited funders of regional activities. But also political players like state, local and federal government just as the EU are important financiers of regional projects. Therefore, additional external funds can provide a balance to the reduced base funding. To “bring the region back in” even further, it would be important to offer new and more financing options for regional engagement and more open space to pursue regional activities. In this sense, we would like to endorse the following observation: “If universities are to continue to play a role in regional economic development, it is vital that knowledge transfer and network initiatives are fully supported to ensure sustainability.” (Huggins et al.2008: 334) One might therefore question, if short term project funding on European as well as national level might be an appropriate tool for strengthening the ties and help build functioning regional innovation systems. Further investigation and evaluation is surely needed to gain more knowledge about how to improve the regional networking of HEIs.

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