

Report of Committee 8b – Collaboration

2014-14-09

Committee 8b

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Introduction – The purpose of the assessment exercise is to help create a body of knowledge for the further development of the administrative support function for KTH’s strategic partnerships for KTH’s faculty. Based on the assessment criteria, *service*, *competence* and *cost*, the goal is to create a sound basis for decisions that will promote the efficient and strategic allocation of the partner coordinator resources within KTH Business Liaison.

This report summarizes the findings of the external assessment committee based on a self-assessment report along with an on-site visit to KTH, which included a series of interviews with various stakeholders during an on-site visit in June 2014.

Comments

General Comments on the Collaboration Effort – KTH takes on a strategic viewpoint when it comes to orchestrating the collaboration between university and industry. This strategic viewpoint aims at increasing the overall impact of university on society and to establish long-term relationships between the university and industry, which is relevant to KTH. The validity of such a strategic approach is based on the notion that the educational aspects of a university are the primary justification for its existence. The primary purpose of a university is to educate young people. In the end, it is the university’s promise to deliver higher education for the next generation for which a state is spending tax players’ money to hire academics and to orchestrate universities. The university education differs from high school education in the sense that students need to learn to handle and approach open questions for which there exist no answers yet. This implies that students need to perform research work to hone their skills and to develop their personality as independent and free thinkers. In such an educational context it is the task of the professors to provide the guidance for the students, which is necessary for them to find their ways and to excel in this task. In order to be able to provide this guidance and leadership the professor have to perform research work themselves. Otherwise they won’t have the experience and lack the credibility to effectively instruct and guide the students. In addition to this, without their own research experience they wouldn’t know sufficiently well where the unanswered questions may be found and how to formulate them properly. Eventually, it is the industry, or more generally stated, the society needing young people who are trained and educated at the best possible level in order to make an economy successful in a sustainable way. This high level of education and training for each generation is a key ingredient for creating a stream of innovation, which is necessary for the success of a society and for maintaining its prosperity.

If we understand an innovation to be a new idea that has been implemented and which proves to be successful in the “market place” then it becomes clear that the majority of innovations will be accomplished in industry. The university is the cradle where the young talents are identified and fostered and who then will be enabled to create innovations throughout their professional life. It is the major societal impact a university can develop and exploit, by giving a country the possibilities to extend and maintain its standard of living based on a continuous stream of innovations.

The current report deviates slightly from the format for the Memo as proposed by KTH. The committee found that the task at hand is of a slightly different character requiring its own set of comments and recommendations.

The members of the panel have been impressed by the engagement, the competence and the commitment of all people at KTH who have been involved in the assessment exercise.

Comments on Service – If KTH succeeds in establishing the strategic viewpoint on industry collaboration and focusing on its societal impact then this can serve as a role model for other universities to follow, in Sweden as well as on an international level. While it may be easier to identify the benefits, which industry may take out from this approach it is also necessary to generate a tangible upside for the university in general and for the people working in the university in particular. The university's top management needs to understand that this process represents a major deviation from existing models, launching a major change process in order to manage the differing expectations. The existing model of collaboration with industry, as seen typically by professors, is that industry finances research projects and/or doctoral candidates. This is valid and true, but it turns out that industry partners are more interested in the persons who are educated and trained throughout the research work. The actual results generated by the research projects are not of primary interest for companies. In the long run, society benefits more from the scientifically educated and trained people produced by academic research projects and not so much from the particular scientific results. Academics often display an inverted assessment of the very same situation.

In summary it is fair to state that the strategic initiative to industry collaboration, as envisioned by KTN, is an extremely important and valuable approach, which has the potential to serve KTH well as a whole. This approach can prove its value only over a longer period of time. The challenge is to develop a new way of working – it's a cultural change to bring this into the core activities.

Comments on Cost – The cost dedicated by KTH to this initiative is difficult to assess; the efforts are widely distributed (vice rector, collaboration leaders, faculty representatives, etc.), and hence it is difficult to account for all direct or indirect costs associated with the tasks. Roughly estimating the cost based on the available information reveals that the overall cost (approx. €1.5 mio/y) is moderate in comparison to the potential strategic value of the collaboration with industry.

Comments on Competence – The evaluation committee has perused the CVs of selected collaboration leaders. Also taking into account the impressions gained from the interviews with three such leaders the evaluators agree that the staff associated with the task is excellently qualified and highly competent. The motivation of all interviewed persons was remarkably high. All of the interviewed leaders confirm the importance to have a thorough understanding of the internal functions of the industrial partners. It is also this thorough understanding of the university side along with the knowledge of the needs of the industry partners, which enables the collaboration leaders to actually perform a service and to accomplish their tasks.

In spite of their great skills and competence, the service performed of the coordinates is very demanding and complex and it's therefore hard to define the necessary competence.

Observations

Industry interest focuses on education – The study of the self-report as well as the various interviews reveal that the industry partners have interest mostly in educational aspects and are less so interested in getting access to research results created within the bounds of KTH. As one example for this we learned that Ericsson claims to cover all relevant research topics internally with their own R&D division and that they hope to have access to graduates who have more

competence and qualifications in software engineering. This is clearly an educational focus and demonstrates the main interest of an industry partner. A similar position can be found with Scania. In contrast to this is Skanska, a company that is obviously not interested to invest in research activities. It is also mainly interested in educational aspects of KTH to have access to better-educated graduates. Industries also have a strong interest in having an influence on the educational curricula. It has to be mentioned that all these companies have many other different kind of research co-operation with KTH, but it seems that expectations from the strategic initiative has been mainly educational.

Professors focus on research – While industry expects mainly to have an improved access to highly educated graduates, the interviews show that professors invest their time and effort in building up industry collaborations with the mid-term and long-term expectation that this effort will eventually result in an increased number of research contracts or in more money for doing research. A few of the interviewed professors quite explicitly made statements in this direction. This expectation implies that the engagement of the professors (faculty representatives) in this type of collaborations is likely to vanish if these mid-term and long-term expectations are not met. It may even happen that the close communication between professors and industry may lead to a consolidation of research contracts as the industry partner starts to understand various inefficiencies in orchestrating research work in academia. While this can be seen as a positive result it may also lead to shrinking (private) research budgets, which will certainly create disappointment among the professors the existence of the collaboration program is threatened.

Research platforms and collaboration are only loosely coupled – KTH has created research platforms, which represent major topics of research, which integrate researchers from multiple schools and faculties and who can all contribute to the advancement of any of the platform topics in an interdisciplinary way. These platforms represent a potential backbone to structure the research agenda of KTH in a way that is easy to understand and to follow by society and industry partners. The networks in such a platform could also be used to identify and integrate further collaboration partners within KTH. However, as we can see the platforms are not used to their full potential to serve as a guideline for the strategic collaboration program. The collaboration with Scania appears to be the only initiative that already employs the networks and structures of a platform, the connection between the collaboration initiative and the platform is weaker for the other companies.

Strategic collaboration excludes competing companies – Once KTH has identified a strategic partner for collaboration and the once this collaboration becomes active then there is a potential risk exclude other companies, which are potentially competitors in the same sector. This has happened in one of the initiatives.

Quality of communication with industry partner has been improved – Many stakeholders within KTH confirm that the strategic collaboration process leads to an improved dialogue with industry. In particular, the KTH people state that it has become much easier to talk to upper management of companies, which was also one of the objectives of the initiative, and to discuss topics more in depth and on a wider range. The improved dialogue encourages a more focused and a more pro-active agenda setting for education and research. It seems that both partners gain an improved understanding of the existing collaboration although the process has been slower than expected initially when starting the initiative and which partly can be explained by differences in expectations between KTH and industry partners.

From decision to action – It was recognized during the interviews with the coordinators that it was not quite clear who was responsible for making sure that decisions within the projects were accomplished. The coordinators don't have mandate to tell the professors what to do but who puts the decisions into activities? The coordinators can put forward suggestions of different activities to the steering-group, which will take it or leave it. But what happens after that?

Recommendations

Manage expectations of collaboration partners – KTH leaders should communicate the long-term visions and goals of the collaboration initiative more clearly and more explicitly to all stakeholders. It also needs to listen to comments and concerns raised by collaboration leaders and by faculty representatives and adjust the detailed execution plan accordingly. This (significant) communication effort needs to be intensified and needs to be kept up until the underlying message is digested and understood. Make sure that the vision is carried and pushed by all stakeholders. Release the vice rector from the task to keep the process alive based on only personal engagement and provide the project with proper goals, resources and mandate.

Adjunct professors should have a key role (and also other affiliated persons) in the projects according to their knowledge of both industry and academy. They could be laid upon a responsibility to strengthen the bonds between industry and academy.

Incentives for academics – For the strategic collaboration approach to fly it requires the whole-hearted support of the professors. In order to win their support the university may need to introduce an incentive scheme to lubricate the further development of the effort. Make it desirable for an academic to dedicate time and effort to develop collaborations, even if it does not produce additional research contracts in the short and medium time period. We are sure that an intensive dialogue has the potential to provide industry interest for long term research. The academics will learn to understand the mechanics of the incentive scheme quickly and so will help to make it successful.

Make clear why industries are interested in a long-term partnership and try to establish an interest within KTH academy. The support from the professors should not only include interest for research projects but also many other concerns that the industries might show interest in. It's of great importance to make sure that there are mutual benefits for both academy and industry. A lubricating incentive scheme could imply a new part of the traditional merit system for professors – and some small amount of money based on this new part of the system.

Competence and employment of coordinators – A common problem within universities is the difficulty in co-operating between academy and administration. That might have an impact on realizing the goals of the strategic partnerships, no matter skills and competence of the coordinators.

It was quite clear during the interviews that necessary presumptions for good results were that KTH-coordinators had a good knowledge of the actual industry and on the other hand industry-coordinator knew a lot of KTH, organization as well as academy.

To accomplish this we have talked about the following solution:

The two coordinators from KTH and industry form a team that together take care of the practical tasks as well as the responsibility that decisions will be realized – that goes within KTH as well as industry. Such a team could consist of both academic and administrative profession in such a way that an adjunct professor from the actual industry takes care of academy and professors, and a coordinator with about the same competence as they have today is concerned with the more practical and administrative tasks. In the same way as the adjunct professor works i.e. one day a week within KTH, the administrative coordinator should have the opportunity to “walk around” within the industry one day a week in order to get acquainted with the industry and its culture. The adjunct professor is employed by the actual industry and the administrative coordinator is employed by KTH. Such a settlement would probably be somewhat more expensive than today but would most certainly imply a more effective and less complicated process of the strategic partnership.

Questions about the positioning of KTH, the ranking and research profile – It is yet unclear to the evaluators how KTH will document and exploit the results from this strategic industry

collaboration project. It is not to be expected that the efforts will lead to an improved academic ranking of KTH; however, it may improve KTH on certain “employability rankings”. Also, the emphasis on the educational aspects of the collaboration by the industry partners is somewhat incongruent to the research profile KTH seems to prefer. Agenda setting based on rankings may be difficult. Quantitative assessments are helpful, but need to be meaningful. Clarify why it is beneficial to have more adjunct professors. Again, the goals and expectations of the program have to be stated more clearly in order to avoid confusion to the many other collaboration initiatives KTH already has.

Stronger alignment of the collaboration efforts with innovation activities – Research is not the only driving force behind establishing industry collaborations, but innovation processes also drive collaborations. It may hence be beneficial if the KTH’s efforts to facilitate collaboration (project 8b) are coordinated with its efforts to develop innovations and technology transfer (project 8a).