

Focusing on Quality: a Review of the RAE Visit Week

“KTH must specialize, as well as increase the international visibility of its research in order to secure a place among the best technical universities in Europe”. Those were the two key recommendations given by twelve International Expert Panels during the KTH International Research Assessment Exercise 2008. During one week in June, these panels helped KTH identify strong areas of research and technology at KTH, providing an important input in to the university’s research strategy.

Just after Midsummer, Sweden’s largest technical research university, KTH (Royal Institute of Technology) welcomed 80 international experts to take part in the evaluation phase of the KTH International Research Assessment Exercise 2008 (RAE). Over five intense days these high standing experts from academia and industry, the majority of whom came from abroad, evaluated the entire scope of KTH’s research base.

The main purpose of the KTH International RAE was to provide the groundwork for KTH’s Strategic Plan for 2009-2012. The experts also provided KTH faculty with valuable feedback on their selected research directions. The Panels were able to recognize many strong areas of research with considerable international potential at KTH; research in wireless communications, fiber and polymer technologies, mathematics and medical technologies were pulled out for special mention. The Panels also identified a need for focus and renewal, noting the high average age and poor gender profile affecting vitality in parts of KTH. They also highlighted the fact that KTH has to become more visible internationally, communicating its strengths.

The review week gave a unique opportunity for the research groups at KTH to interact and discuss emerging science and technology areas with the international experts. Lively conversations took place at, and in between, the review sessions, as well as during social events such as a dinner hosted by the KTH President in honour of the experts at the Moderna Museum.

As KTH was the first Swedish technical university to undertake an International Research Assessment across all its research fields, expectations of the week were set high. According to Prof. Tuula Teeri, Deputy President of KTH and Director of the KTH RAE, these expectations were also fulfilled. She is more than satisfied with the outcome of the review week.

“It was an exciting and rewarding week. I am very pleased that we managed to put together Panels of such an excellent standard. Their task was not only to evaluate the KTH research, but to help us identify our strengths, weaknesses and future potential. This will be extremely useful in

setting our future research priorities. We are very grateful to the experts for all their engagement and hard work," she says.

The experts showed their engagement and positive spirit right from the start at the kick-off meeting, asking many questions about KTH's strategic process after KTH President Peter Gudmundson's welcome and introduction presentation. At this meeting, which took place at the KTH Library, Prof. Tuula Teeri made clear that the KTH International RAE is an important part of the plan to establish KTH as one of the top 10 technical research universities in Europe. "To be able to secure that position we need to focus on quality," she pointed out.

"Furthermore, quality assessment has come to play a significant role when government resources are distributed to higher education institutions worldwide. The KTH International RAE will strengthen our position in the competition for grants and funding," Prof. Tuula Teeri believes.

Focus needed to be among the best.

Competition in the international research arena is tough, listening to the Panel experts, however, it is evident they believe that KTH stands a strong chance to be among the best in Europe, or in even the world, in some key research areas.

Tuija Pulkkinen, professor in Space Physics and head of the Space Research unit at the Finnish Meteorological Institute (FMI), was the chair of the Panel reviewing the research field "Energy, Technology and Electrical Engineering".

"I think that KTH could brand itself to be the number one energy university in the world, especially if they focus their research profile on sustainable energy. Sustainable energy combines two things; energy, one of the most important issues that we are facing right now in the world, and environment, which is also of the highest importance due to climate change and the need to mitigate its effects. A lot of the elements already exist at KTH, ranging from basic research to technological applications, for more efficient energy solutions, it just needs branding," she says.

Prof. Pulkkinen also sees a potential positive gender effect if KTH would take her Panel's advice to brand itself as a sustainable energy university.

"Energy is traditionally a very male dominated area, but, if you tie it to sustainability and global issues, that might also be a way to attract a more balanced student population," she says.

She finds participating in the KTH RAE well worth the effort.

"It enforced my picture of KTH as a high quality technical university, and it was also a great personal learning experience," says Prof. Tuija Pulkkinen. The support given to Panels by their KTH Student Ambassadors was noted for praise on several occasions.

The same positive experience is expressed by Howard Bussey, Professor in the Department of Biology at McGill University in Montréal, where his research interests include yeast genomics and cell surface biology.

“I have participated in review exercises before and they are always interesting. At the end of the day, our job is not to criticize, it is to be constructive and help people by discussing research strategies with the research groups and suggesting ways for improvement,” he says.

Prof. Bussey was a member of the Panel that assessed the research field Biotechnology, at AlbaNova university center. He confesses to knowing too little about KTH when Prof. Tuula Teeri first contacted him about the assignment. After the review week, though, he was “very impressed with some key parts of KTH’s research”. What does Prof. Bussey think about KTH’s potential to secure a place among the best technical universities in Europe?

“The quality of top level universities internationally is very high today so this is an ambitious goal. To be among the best you have to specialize. What I do know is that some elements within KTH’s research in biotechnology are among the best being done anywhere. Certainly, the work of compiling the Human Protein Atlas has an extremely high profile and is also important. The Protein Atlas is a global resource that almost everyone in human biomedical science could take advantage of,” says Prof. Howard Bussey.

When all the expert panel Chairpersons presented a summary of their respective Panels’ work at the end of the review week, the Biotechnology Panel Chair, Sir Gregory Winter, professor at the University of Cambridge, elaborated on this subject. Being one of the pioneers of protein engineering, he considered the Protein Atlas project as being a large and well organized project with a huge potential academically, as well as for commercial spin-offs. His Panel’s advice to KTH was to nurture the golden opportunities this project has created, using it to build a strong academic profile internationally and attract high caliber young scientists.

According to Sir Gregory Winter, the weak point of this project at this moment is that, despite the scale of the Protein Atlas project, it is surprisingly little known outside Scandinavia.

Useful self evaluation

For Professor Björn Birgisson, coordinator of the Unit of Assessment “Civil and Architectural Engineering”, belonging to the Panel reviewing “Technology for the Built Environment”, the KTH RAE was very timely.

“Yes, for us it has been an excellent activity. Civil and Architectural Engineering is facing a lot of retirements of our leading professors, and we need to look in the mirror and identify how to strategize for the future. The self evaluation exercise has been a fantastic help for us.” says Prof. Birgisson.

He thinks that KTH needs to put focus on areas that are of clear societal importance – and where the university has a clear potential for leadership. Leadership should be defined in terms of Europe and beyond, not just Sweden. Overall, the unit got good help and advice from the experts.

“The Panel composition was excellent, and that they took pride in what they were doing. They seemed to be impressed with the quality of our research and the academic level,” says Prof. Björn Birgisson.

He is originally from Iceland, but has spent many years in USA and worked at University of Florida prior to moving to Sweden in 2007. One of the reasons for Prof. Birgisson to choose KTH was that he saw potential to build a world leading programme in Highway and Railway Engineering.

“We have the support to do that, both at KTH and within Sweden at large. But we need the right strategic planning and to follow that up with the right tactical actions. Three things are important for KTH to be able to take a place among the best in Europe; a clear vision, mission and a target,” says Prof. Björn Birgisson

Like many others - internally at KTH and among the experts - he praises the organization team at KTH coordinating the RAE and the expert review week.

Professor Björn Hårsman, Head of the KTH School of Architecture and the Built Environment, coordinated one of the more heterogeneous research fields, “Architecture, Built Environment and Management”.

“This is one of the best strategic research initiatives that KTH has taken in a long time. It is a tremendous benefit for us to get support like this to evaluate the work we do. Furthermore, it is important and completely necessary if KTH want to develop and be among the best in Europe,” says Prof. Hårsman.

The work of implementing the results from the review week in the KTH School of Architecture and the Built Environment’s development plan started immediately after the summer holiday, when Prof. Hårsman gathered the involved research leaders to discuss the Panel Experts’ report.

“I count on and hope that we will benefit a lot from this research evaluation,” he says.

The composition of the Panels

The composition of the expert Panels was a very important and challenging task when planning the Review Week. The RAE team worked hard to recruit a mix of high standard international experts from both industry and academy – both highly experienced and young, upcoming researcher leaders were recruited. The team also wanted a gender balance. Moreover, at least one of the members needed to have knowledge of the Swedish academic and funding system.

One of the experienced research leaders recruited was Professor Ulrich Blum, President of the Halle Institute for Economic Research in Germany. He was a member of the Panel reviewing

Architecture, Built Environment and Management, a research field where the Unit of Assessments were very different in size, amount of education undertaken and external funding.

“It was a very well put together, internationally broad Panel group. I think we did a good job, and did it in a positive and sympathetic mode. The evaluation process itself was hard work due to considerable variance between the different fields of research in our Panel; what “research” means and what approaches you use vary in this field,” says Prof. Blum.

He thinks it was interesting to see that the more research oriented a group is, the easier it is for that group to establish a focus. When a group is involved more in education, their research agenda is much more diverse.

“This is always a dilemma, where to work hardest. We evaluated the research side, but you cannot look at that without taking the education side in to account too. This is an important message for the next time KTH does this exercise,” he adds.

Prof. Blum has experience of being on the other side of the table. Having done similar research reviews twice at the Halle Institute, he knows that they can also be a valuable networking exercise leading to new collaborations.

“You have been inside and know the comparative advantages and the research profile of the university. I now know from my institutional perspective where I will seek additional cooperation with KTH. I think if this is the result of an evaluation, it has also been rewarding for the poor guy who did the work,” he laughs.

Dr. Ingrid Reineck, Manager Coating Technologies at Sandvik Tooling, was an industry member of the “Applied Physics and Medical Technology Panel”. As well as being the industry representative on the Panel, she was the only woman.

“It was a very interesting and high-quality Panel group which consisted of senior researchers, all of them professors and head of institutions or facilities. Although diversity should be encouraged in general, I did not really miss not having younger members or more women in the Panel. The most important thing was that the experts had accurate competence and weight,” she says.

Deputy president Tuula Teeri is satisfied with the quality of the experts work and she believes that KTH will have many opportunities to use their advice. The next step is the implementation of the evaluation findings in the KTH strategy and work plans. In the near future, Tuula Teeri would like to see KTH focusing on four broad research themes; materials, energy, information- and communication technology, as well as medical technology and life sciences.

The unwritten secret about research evaluations is that they are only as good as the institution implementing it. As Prof. Howard Bussey puts it,

“I think this first time will be the most useful for KTH. I will caution the KTH management to wait maybe around ten years before they do it again. Things move slowly in big institutions, even when you want them to move more quickly”.

Susanne Rosén