Administrative Assessment Exercise 2014

KTH Research Office

SELF-EVALUATION REPORT

”SUPPORT FOR EXTERNAL RESEARCH FUNDING”

Executive summary

At Research Office a process has been developed and implemented during the last years to support the external funding of KTH research. This report describes this process and attempt to show where responsibilities and decisions are taken. It also discusses service given to the faculty and administration, together with the competence at Research Office and cost in the form of personnel.

The self-evaluation has consisted of the following activities;

- An extensive mapping and description of the externally funded research (EFR) process, divided into four sub-processes – idea phase, application phase, contract phase and project phase.
- An external analysis, in which factors and changes relevant to support for external research funding are described and discussed.
- A stakeholder analysis aimed at KTH faculty. It includes a survey to 155 researchers at KTH, of whom 103 responded, interviews with 8 researchers and a meeting with an internal reference group.
- A SWOT analysis, both from the responses in the survey and interviews performed, and as a separate exercise involving the entire Research Office.
- An analysis of competence, service and cost relating to the external research funding (EFR) process.
- A comprehensive analysis, which has brought forward a number of shortcomings that need to be strengthen, as well as five suggested action points we recommend to continue further develop.

The self-evaluation shows that the process in itself is adequate in terms of being able to manage, support and deliver the relevant output. Value for money is given as the deliverables in relation to the available resources are quite high. This is also shown by the survey directed to faculty members, as the majority of those who had been in contact with Research Office would recommend the support offered.

Due to capacity shortage there is a lower level of support than optimal in some parts of the EFR process, as mandatory quality and risk assurance is prioritized in order to not lose awarded grants. To improve the support given, resources need to be allocated not just to Research Office, both also to both the Legal department and KTH Schools.

In short, our findings can be described with some key words. These are:

Vulnerability – less than 7 full time positions are managing the EFR process in which at least 450 cases go through Research Office in a year, i.e. some sort of action in one of the four phases is required from Research Office, resulting for example in approximately 250 contracts processed in a year. Key competence for certain aspects depends on a few persons, giving a process that may not be long term sustainable. Due to the high volumes, it’s necessary to prioritize mandatory aspects, which gives limited resources for giving and building strong support in non-mandatory parts. A low knowledge of KTH Delegation of Authority among KTH academy also add to a more vulnerable process, since the strain on Research Office is affected when researchers contact us very close to a deadline.

Dependency – it is hard to streamline the process and put tight time limits on the process, since all stakeholders, both internal and external, must do their part. Research Office work is, especially in the contract phase, dependent on and integrated with the delivery from the Legal department, which today has a shortage in available legal capacity jeopardizing the overall delivery. Relating to external stakeholders, the process isn’t helped by a strict time schedule if a partner does not respond in the contract phase. Research Office role is to keep pushing the process forward and handle the consequences regardless.

Awareness – there is a need of higher awareness among KTH academy of what Research Office can and must do in the process, i.e. the support available and when there is a need to go through Research Office according to KTH Delegation of Authority.

Consistency – it is increasingly important to be consistent in collaborations with partners, relating to for example KTH overall conditions for collaboration. Consistency requires that all internal stakeholders share the same understanding. The need for strategy, clear assignments and teamwork are vital.

Excellency – the self-evaluation shows that the process delivers added value and has relevant key competence. The process has therefor the potential to be expanded to facilitate the achievement of KTH strategic goals.

Expectation*s* – The KTH Strategic plan specifies goals in regards to an increased external research funding, leading to high expectations on support for expanded research activities. It is however important that the expectations are realistic based upon the resources and possibilities at hand.

Finally, this self-evaluation report has five recommendations for future actions;

- Create a map of how the support is organized on all KTH schools. This is important for both the earlier stages in the EFR process where the researchers would benefit from a clearer understanding of what support the school give, as well as in the Project phase where it would be beneficial to have a more uniform project management on all schools.

- Push for a larger extent of cooperation between both KTH Schools and Research Office as well as between the different departments within the university administration and Research Office. It could lessen the efforts needed to put in at a later stage in the ERF process when time limits are strict. This could be achieved by a more formalized distribution of responsibilities in regards to the support leading up to a signed agreement/contract.

- In order to provide more service which is not mandatory, more resources (personnel) with relevant competence would need to be allocated to Research Office.

- It is important to strengthen the legal department in regards to how many legal counsels are working with contracts. The situation of today with only 1,5 fulltime equivalent legal counsel is fragile and lead to unnecessary delays.

- Organize an internal information drive (web, seminars, school visits etc.) to inform both of when researchers **must** use Research Office and what could be offered as non-mandatory support to them.

In the end of the report, a glossary explains abbreviations used.

Contents

1 Background

KTH has over the last decades transformed into a research driven university with most funding allocated to research. In 2013 72% of total turnover was designated for research. An overwhelming part (67%) of the research funding came from external research funding. In all, the external research funding stands for 48% of the KTH total turnover. Total turnover was in numbers 4 419 MSEK.

In 2013 KTH had approximately 12 500 students and 1 900 PhD. students. A total of 4 900 persons were employed at KTH, of which 1 100 had a position connected to research; 303 professors (including visiting and adjunct prof.) and 250 associate professors (including assistant prof.).

KTH's activities are organized into 10 Schools with departments and centres. The Schools are directly subordinate to the President and are led by a Dean and a Deputy Dean. The schools administrations and organizations are not following the same template. To facilitate and stimulate multi-disciplinary research, 5 Research Platforms were established 5 years ago (Energy, ICT, Transport, Materials and Life Science Technology).

Vice President for Research has the overall responsibility of research and strategic issues/development together with the President. At his support is Research Office, a department in the university administration. Research Office has the unifying responsibility in the researcher's process of achieving externally funded research, and has the ultimate responsibility in regards to the quality and sustainability of the externally funded research contracts KTH signs[1]. Approximately 250 contracts pass Research Office on a yearly basis.

In order to develop into one of Europe's leading technical universities and a world leader in technical research, KTH has implemented two research assessment exercises (RAE 2008 and RAE2012) and one education assessment exercise (EAE2011). To further develop, KTH is now assessing the university administrative support given to the faculty. This report is a self-evaluation of the support for external research funding (one of 14 areas/processes to be assessed) in order to ensure that quality, service and cost effectiveness for the existing support is efficient. The assessment is also a mean to insure that the support is organized in the best way for the future, in order for KTH to further expand the external research funding.

1.1 Purpose and overall goals

The purpose of this self-evaluation of the process 'Support for external research funding' is to clarify and evaluate the support provided by Research Office. The report intend to:

- Visualize and clarify the process model developed over the last years, by illustrating the type of support that can be given/is given by Research Office in the different phases of external funded research.
- Clarify who is responsible at different stages in the process of acquiring external research funding.
- Analyze the support given in aspect to competence, service and cost.
- Identify possible areas for additional support and make suggestions for future priorities and actions.
- Point to relevant indicators for support of external funding, i.e. by showing the time needed for different types of support.
- Identify strengths, weaknesses, opportunities and threats in regards to KTH external research funding and the support given.
- Discuss the allocation of resources in regards to needs and expectations.

[1] In accordance with KTH Delegation of Authority, see chapter 3.3.2

- Investigate and estimate the satisfaction of services/support offered for external research funding.

Of necessity this report has become rather extensive based on the management request that the entire process ‘Support for external research funding’ should be assessed.

1.2 Delimitations

Support for achieving external research funding is limited to support provided by Research Office. However, Research Office is responsible/for several other tasks as well, such as Research Intelligence, follow-up on strategic research initiatives and indicators, administrative support for KTH research platforms, support to initiatives taken by Vice President for research as well as Vice President for international projects, strategic procurements and projects connected to research impact.

Support provided by other parts of KTH is to various degrees touched upon. A more extensive mapping and evaluation would be too extensive for the scope of this assessment.

The process descriptions on support to external research funding apply to both non-mandatory support and mandatory support where Research Office is involved in the support. In addition to this, support to externally funded research exists on a school level as well, most apparent in the project implementation phase.

Marie Skłodowska-Curie funding is at KTH considered to be funding related to education, and support directed to this program is accordingly not included.

1.3 Project set-up and activities

The self-evaluation has been performed during November 2013 – February 2014, and has included most personnel at Research Office to various degrees. The project was broken down into sub-projects with different workgroups, and a steering group involving a few key personnel was established. The project leader has organized the work and written the report with help of the steering group.

During the self-evaluation, monthly updates/meetings have taken place involving everybody at Research Office, while meetings in the steering group and the sub-project groups have occurred more regularly.

In order to investigate and estimate the satisfaction of services/support offered for external research funding, a survey to KTH faculty was implemented as well as interviews with representatives for the academy.

A half day department workshop with a full presentation of the process ‘Support to external research funding’ as described in the report, as well as a presentation of the survey was organized in mid-February. At this meeting a SWOT analysis was performed as a group activity.

An internal reference group including KTH stakeholders has been connected to the project and has had one meeting, where the external analysis and the process ‘Support to external research funding’ was described and discussed.

Information about the self-evaluation, and to some degree feedback, has also been given during KTH Research Platforms’ steering group meetings.

2 External analysis

KTH is a research driven university. More than 2/3 of its revenue is related to research and the amount has constantly increased for a long period. The research revenues relates to both a base funding from the government and to external sources where the funding is gained in competition. The latter part, including international and collaborative funding, has gained volume during many years.

In order to further increase it, it's important to give an understanding on how the funding landscape evolves, including both funding bodies and collaborating parties, and what effect this may have on KTH research portfolio as well as possible needs/adjustments to continue to be competitive the future.

In a more international world it also becomes more important for universities to consider the conditions and restrictions it has to act on, given by national laws and other regulations in place. Below is therefore shortly summarized the most relevant regulations for KTH when it comes to accessing external research funding.

2.1 Changes in the funding system

Research is more and more seen as an important growth factor for both society and industry, and the challenges society is facing are to be solved with help of research. The investments made in research have grown, as has the expectations on the outcome.

The funding bodies has gradually adapted to this changed situation, by shifting both in the requirements on performance of research and the way of organizing research. As a result, the available funding resources have increased, as has the competition.

In the big picture, the changes may be summarized to the following:

- Higher demands on results due to the economic crises, giving tougher conditions and increased risk level for the university
- More EU money, but also increased competition through increased requirements on performance
- Less money in some countries, leading to an increased competition in for example EU funding
- A trend toward larger consortia and to decentralized programs where regulations differ from case to case
- Broader topics/calls being less descriptive which increase the complexity
- More calls requiring multi-disciplinary research
- Increased focus on long term collaborations (international, industry, research institutes, ….)
- Governmental funding needed as a base for accessing other funding, instead of full funding
- Stress on innovation, impact and challenge driven research
- Internationalization is ever more important

On a project level, the changes can be seen as:

- A shift from simple decisions to negotiation on content and conditions
- Consortial collaborative research as a preferred work model
- Assessments of proposals on pre-defined criteria
- Increased need for set-up and structuring of management and procedures for tech transfer
- Impact and innovation as important parts of proposals, sometimes also for excellence research
- Larger importance of terms and conditions for the implementation of the project
- Audits and compliance becoming increasingly important parts of the fulfilment

The European framework programs for research funding has for a long time been driving the development of the rules for research funding, which gradually has been accepted and assimilated on a national base.

National financing bodies have started to follow this path the last few years, exemplified by Vinnova's 'Strategic Innovation Area' (SIO). Another trend is that certain funding bodies now requires that the universities make a pre-selection of which applications to send in, in order to raise the quality of the incoming applications as well as lower the administration for the funding body.

2.2 Collaborating parties

For industrial parties, one of the main needs to participate is to secure competence and recruitments. In the last decade, it has also become more important to get access to "early" knowledge and the desire to access and use results, driven by EU and the commission's focus on research as a mean to strengthen the European economy. The development toward a more complex and multidisciplinary knowledge base for new products further emphasizes the advantages for companies to be part of collaborative research projects.

Industrial parties are also increasingly looking for strategic partnerships with a selection of universities to concentrate their collaborations with, as a way of outsourcing non-core business research. This enables them to have more flexibility in terms of R&D, both from a cost perspective and also to get access to broader, multi-disciplinary research competence.

As a consequence of harder competition, shorter development cycles and products depending to a higher degree on cutting-edge research, industrial parties tend to be more careful and demanding in regards to content and fulfillment of research contracts. This in turn has the effect that KTH need to increase its management of quality and risk assessment of collaborative contracts.

Many collaborating parties have developed their own guidelines for participation in collaborative research, with preferred terms and conditions reflecting to a large extent business needs and development strategy. At contract negotiations this has to be taken into consideration, in order to not lose the researcher's rights.

2.3 Changes affecting external research funding

The above discussed changes in the funding system as well as among the industrial collaborating parties, lead to a larger diversity in funding and project models as well as larger complexity. This leads to an increased need for awareness of risk assessment and handling when building a research portfolio.

Figure 1. is an illustration of this diversity in funding and project models expressed as a combined risk and complexity versus different project models. Contrary to what may be expected, EU calls and projects are in many cases less complex, due to the fact that a well-developed framework with templates exist.

The figure also illustrates the tendency among funding bodies to finance large consortium and even standalone program bodies with own money but also with a tendency to create own regulations. This can be seen on both the international level (for example EIT KICs, FET Flagships and JTI's) and the national level with the newly instrument 'Strategic Innovation Area' (SIO). In these cases the requirements, organizational support and quality assurance are at a similarly high level, but are formed by each organization/structure, leading to disparities. There is also a development toward more international non-EU funding bodies (US, China, Brazil etc.) with complex bilateral and national regulation.

This demand more support and quality assurance by universities, since agreements and contracts do not follow standard format, much due to higher demands on results being able to use for the industrial parties involved.

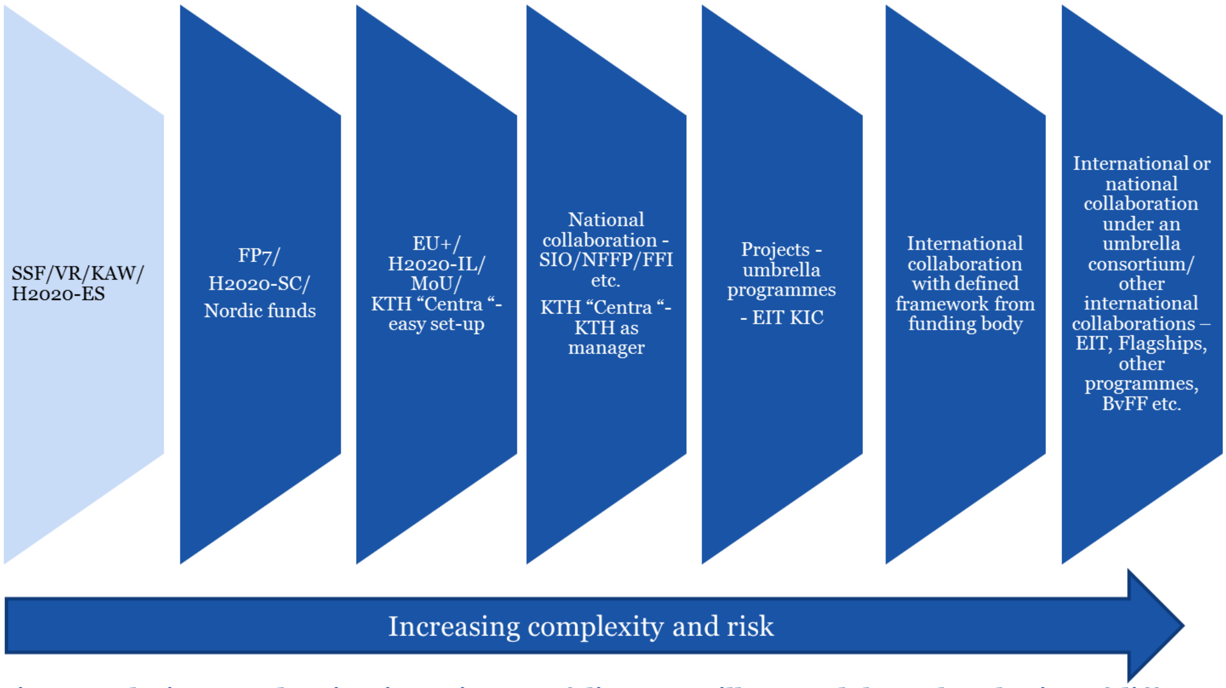

Figure 1. The increased variety in project portfolio at KTH illustrated through a plotting of different funding models to an axis of combined risk and complexity, ranging from left with lower level of combined risk and complexity to higher levels to the right. For clarity it should be noted that the representation is not connected to the TRL-levels sometimes used in new funding programs.

2.4 KTH Strategic targets relating to external research funding

KTH has developed a vision for the longer term - 'Vision 2027'[2] - as well as a strategic plan for the period 2013-2016[3] with goals set for the 4-year period, in order to be able to reach the envisioned state formulated for 2027. In general, KTH focuses on strengthening its position as one of top ten technical universities in Europe in respect both to research and education. In this text, only goals connected to research are commented on.

The strategic plan for 2013-2016 state goals and activities to increase the international funding, strengthening the partnerships with companies, public sector and research institutes as well as increasing the presence in strategic collaboration programs such as EIT KIC and national initiatives such as VINNOVA's strategic innovation areas[4]. The strategic plan also focuses on strengthening the research base at KTH, exemplified for example through ERC grants and other individual excellence grants.

KTH aim to be among the top ten universities receiving most funds from Horizon 2020 as well as to include more research funding consisting of global elements. The objectives regarding external research funding are to increase the international funding, from 311 MSEK in 2012 to 400 MSEK by 2016, and to increase the industry-funding, from 178 MSEK in 2012 to 270 MSEK by 2016. In regards to ERC, the goal is to increase the number of recipients to 20 ERC grants during the period 2013-2016 (15 ERC grants were obtained during 2009-2013).

These objectives largely rely on the responsibility of each individual researcher (via the schools and platforms). However, they need to be matched in terms of service, scope and level by both RO and the

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[2] http://www.kth.se/en/om/policies/om-vision2027
[3] http://www.kth.se/en/om/policies/utvecklingsplan
[4] http://www.vinnova.se/en/Our-acitivities/Cross-borde-co-operation/Cooperation-Programmes/Strategic-innovation-areas/

school administration in idea, application, contract and project phases. KTH is according to the Strategic Plan 'to offer its researchers first-class support for research administrative matters'.

An increased level of global research funding is strived for by establishing strategic alliances with other international universities, focusing on broad alliances that span multiple areas. Prioritized regions are the EU, US, Brazil, India, China and Southeast Asia. This implies a development towards contracts not conforming to any standards, and therefor demands extra attention.

2.5 KTH development in regards to support to external research funding

As a response to the funding bodies request on high and centralized management of formal requirements and obligations, alongside with the introduction of a new Higher Education and University act, the KTH Delegation of Authority was sharpened and clarified in 2011; a change that together with demands form external funding bodies, collaborating parties and the KTH responsibility as a public authority in itself has affected the support for external research funding at KTH.

With higher accountability and compliance demands, the need to ensure a strong competence base with experience collected from many different cases has increased and strengthened. Adding to this, sharpened demands from collaborating partners have highlighted a need for KTH to ensure sustainability in its research. This is necessary in order to secure a competitive and strong research base for future externally funded projects.

2.6 Swedish laws affecting KTH as a public university

KTH, being a governmental agency and a higher education institute (HEI) has to relate to Swedish law and other sets of rules and conditions which limits and in some cases prevent participations in collaborative research. Among these are the "Public Act" limitation and others. Below is a summary of the most important rules and conditions:

The "Public Act" stipulates that government, authorities and the parliamentary and municipal decision-making assemblies' activities as far as possible should be open. Therefore, public documents should be freely accessible by the public. There are exceptions for information exchanged with industrial parties, foreign authorities and others. However, this regulation is both strict and complex and imposes care when collaborating agreements are set up.

The professors privilege (in Swedish "Lärarundantaget") states that the researcher has the prime / original right to the intellectual property connected to a generated research result. Sweden is the only nation in Europe where this right remains. This is regulated by law but is dispositive and may be negotiated from case to case. However, at the same time the university is prevented from owning such IP on results, and therefore cannot access a complete control of the result. The professors privilege is together with the "Public Act" difficult to explain to international parties and sometimes it is necessary to create working agreements around this regulation, to enable Swedish universities to participate in certain international research collaborations.

KTH also has to consider that the main part of its research activities in collaborative research is carried out by PhD students. Regulated by Swedish law[5] a HEI has to guarantee that a PhD student can graduate, implying that results from the collaborative research projects must be able to publish. This limits the possible terms for limitations of publishing rights.

In order to avoid public monetary support to private enterprises and unfair competition, there exist both international and national legislation regulating how governmental funding can be used. This affects

[5] The Swedish Higher Education Act http://www.uhr.se/sv/Information-in-English/Laws-and-regulations/The-Swedish-Higher-Education-Act/
and the Swedish Higher Education Ordinance http://www.uhr.se/sv/Information-in-English/Laws-and-regulations/The-Higher-Education-Ordinance/

HEI's when it comes to IP regulations of publically funded collaborative research. Results may not be freely transferred to industrial parties.

Being a governmental authority, there are also restrictions in terms of liability, insurance commitments, warranty and guaranties relating to research commitments and agreements. These are regulated in a number of laws and regulations.

2.7 KTH Delegation of Authority[6]

KTH Delegation of Authority clarifies and defines who has the authority to decide in a certain matter. "To decide" implies both approving an agreement and signing a contract in this document.

In 2011 KTH up-dated its delegation of authority, partly due to changes in the Swedish Higher Education Ordinance and partly to increase transparence. A general development toward more funding connected to international collaborative research as well as more complexity in the external research funding contracts prompted a need for contracts to be handled in a more uniform way – in accordance to financier and call objectives – meaning that the delegation of authority became both stricter and more detailed. Certain decisions were also delegated to deans in order to bring the right to decide closer to the researchers, for example when contracts do not involve collaborations.

In regard to research funding and strategic research initiatives, this list briefly summarize the power of authority:

President, decides in
- Strategic matters

Vice President for research, decides in
- International (non-European) research funding contracts
- Contracts regarding strategic research initiatives
- Other matters concerning strategic research initiatives

Head of Research Office, decides in
- European funding contracts
- National collaborative research funding
- Industrial contract research above 5 MSEK

Dean for the respective school, decides in
- National direct funding contracts, not involving industrial collaboration
- Industrial contract research below 5 MSEK

For all decisions made by the President, Vice President for Research as well as Head of Research Office, the department Research Office is assigned the duty of preparing the base for decision, including coordination of negotiations/evaluations necessary to achieve a decision. In order to reach a formal decision point, tactical and strategic decisions are ongoing through the whole process, as is shown in Chapter 4.

3 Research Office current assignment

Research Office, originating as a Grants Office promoting and supporting EU funding only, has over the last years developed according to the development of KTH and overall changes in funding systems and

[6] http://intra.kth.se/regelverk/overgripande-styrning/organisation-beslutsstruktur/delegationsordning-for-kth-1.453194

collaboration, as described above. This has added responsibilities towards the schools and other central functions at KTH. In short, Research Office has three roles in regards to external funding:

- **To guarantee** the quality and sustainability of the research projects financed by external funding bodies, in accordance with KTH delegation of authority, Swedish law, KTH praxis and the overall KTH strategy.
- **To act as an intermediary** between internal KTH stakeholders, partners and funding bodies when a KTH researcher/research group apply for external research funding. In order to take the process forward, Research Office intermediate and in later stages own the process up till when the contract is signed by all partners.
- **General support/assistance** to researchers, including for example indirect support to EU project administrators employed by the schools.

By fulfilling the first and second role, Research Office can ensure good conditions for externally funded research projects and establish KTH as a reliable partner, continually improving the process, which increases the success rate and generates more externally funded research projects in the long run.

As an intermediary it's crucial to include all stakeholders, to strengthen the weakest link and have a continuous movement forward in the process of coming to a signed agreement/contract. For each research commitment, a mix of the following stakeholders is involved, with their respective opinions:

Internal stakeholders:

Researcher and Research Group	Project responsibility; e.g. content and implementation
KTH Schools (10 different)	Research planning; e.g. co- funding, HR support
Legal Department	Legal aspects for KTH commitments
Finance Office	Overall KTH financial commitment
Comm. & International Relations	Communication & Research Education => Marie Curie
KTH Business Liaison	Strategic partnerships
KTH Innovation	Research, innovation => business and commercialization
KTH Management	Strategic Research – priorities and commitments
KTH Research Platforms	Multidisciplinary and cross school boundaries

External – Collaboration partners:

Strategic Partners	8 strategic partners as of February, 2014
Project partners	> 1000 (jan 2014) clustered as ~ 5-10 in each project

External – Funding bodies:

European Growth & Development Funding	InterReg, ESPON, URBACT, ERDF, etc.
European Research Funding	Fp7, CIP, JTI, COST, etc.
European Research Agency ERA	ERC
National Research Agencies –Sweden	VR, Formas, FAS, etc.
National Agency Funding – Sweden	VINNOVA, Trafikverket, Energymyndigheten, etc.
Strategic Foundations – Sweden	SSF, MISTRA, KK-stiftelsen, etc.
Private funding bodies – Sweden	KAWallenberg, Ragnar Söderbergs Stiftelse
Industrial & regional sector	SLL, etc.
US Funds	NIH, DARPA, DHS, (NSF), US Air Force etc.
Nordic Funding	Nordiska Ministerrådet, Nordic Energy Research, Nordic Climate Foundation etc.
Other International funding	For example in Africa, Australia, China, India, Brazil

In total Research Office handle approximately 70 different funding bodies. Each one requires an understanding of:

- Mission and goal – political, societal, business), etc.
- Rules for participation (RfP), incl. funding models
- Evaluation procedure - Funder Specific
- Contractual formalities, incl. signature handling etc.

In each commitment considerations needs to be taken into account from:

- Individual researcher's interests
- KTH School and the responsibility to connect/strengthen KTH education with ongoing research
- KTH as governmental agency following national law
- KTH Management long term strategic priorities

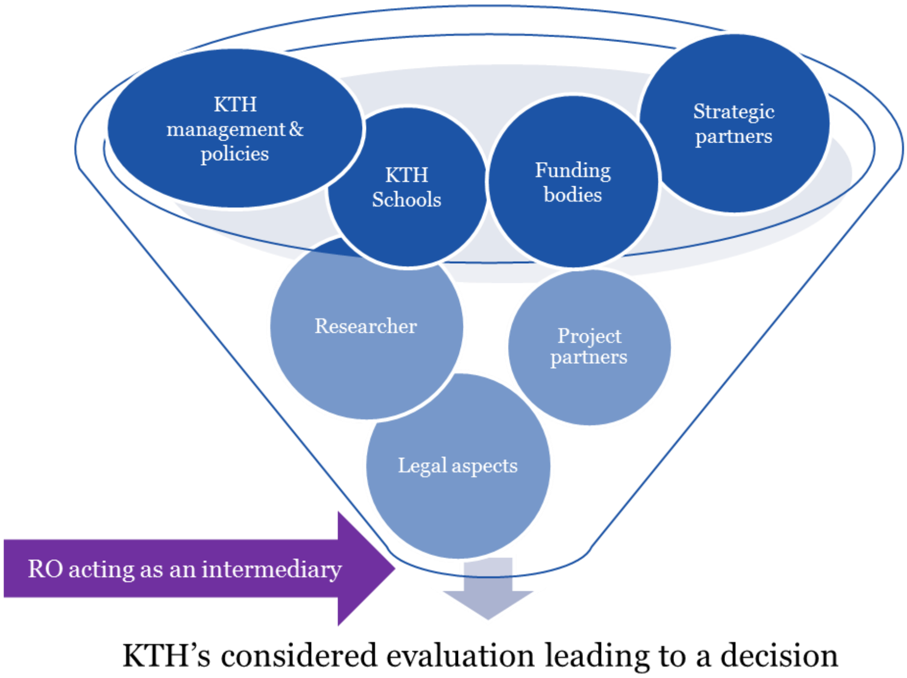

Figure 2. Being an intermediary function Research Office has no agenda of its' own, it only facilitates in accordance with KTH overall goals.

The EFR process continues of both mandatory and non-mandatory part. The mandatory part are reflected in the funding bodies' RfP, KTH's Delegation of Authority and partners ToP. In short the mandatory parts all include some sort of formal statement, pledge or commitment, which cannot be retracted or changed later on. Only one part of the ERF process, the idea phase is purely non-mandatory. All other phases have to varying degree mandatory parts.

Non-Mandatory services are reflected in RO's own defined 'non-scientific' support such as:

- Information regarding funding bodies; incl. work programs, call info, RfP etc.
- Support the researcher to develop his/her idea into an application, incl. skill of funding bodies support system
- Partner search – networking and background info taken from Research Office
- Special support to coordinators
- Building external research application skill and competence
- Budgeting, cost-reporting and other financial issues
- School support – research administration, reporting & financial issues

The ERF process as a whole is also dependent on:

- Coordination of strategic issues, such as Centra, EIT KIC's InnoEnergy and ICT Labs
- Support to multi-disciplinary initiatives, both inside and outside of the 5 Research Platforms existing at KTH
- Webb support

4 The KTH process for externally funded research (EFR)

The procedure to identify potential funding, achieve an accepted application, establish the conditions for implementation of the research project follows a general process with distinctive phases. The process as it is described is below referred to as the external funding research process, or the "EFR" process, which is built up of four phases.

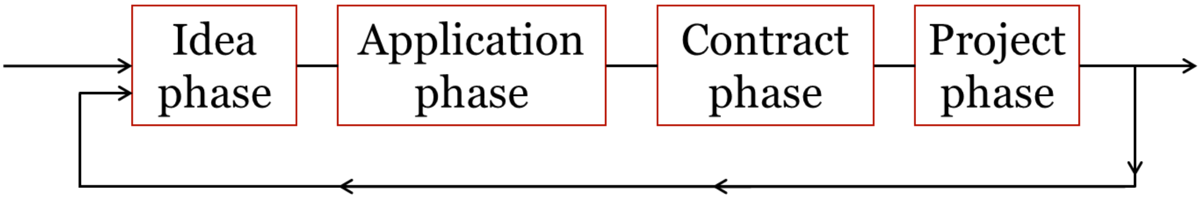

Figure 3. ***The continuous process of external research funding***

The different phases in the process interact in many ways, further described below. Each process outcome also affects the next round of new cases/projects to be processed, as the outcome both in form of research achievements as well as the experiences building in the support process affects the position and possibilities for KTH in new collaboration projects and opportunities.

An idea, application, project or initiative which exists and is processed within one of the four phases, requesting or requiring some sort of action by Research Offoce, is in this document referred to as a "case".

All externally funded research goes through these four phases, each with their own sub-processes. But for some types of externally funded research there are additional processes, in this document referred to as add-on processes. This applies to establishment of research initiatives as centras and research funding where the funding body requires that a pre-selection is done by the university. More funding bodies are expected to use Application Priority processes in the near future. Figure 4 illustrates how the "add on" process relates to the overall process.

Most funding bodies has a system requiring one contact point for general updates and information related to their calls, updates of the organization of the grantee (i.e. KTH) or if special issues arise that need attention. This service also includes central reporting and a control function, which some funding bodies require as a condition to apply or receive funding.

This "point of contact assignment" is relevant during all four phases of the EFR process. Worth to mention is that even if KTH only has one project financed by a financier, full registration and compliance of KTH as an organization may be needed on a yearly basis.

Below is further discussed the activities and support Research Office provides for the different phases.

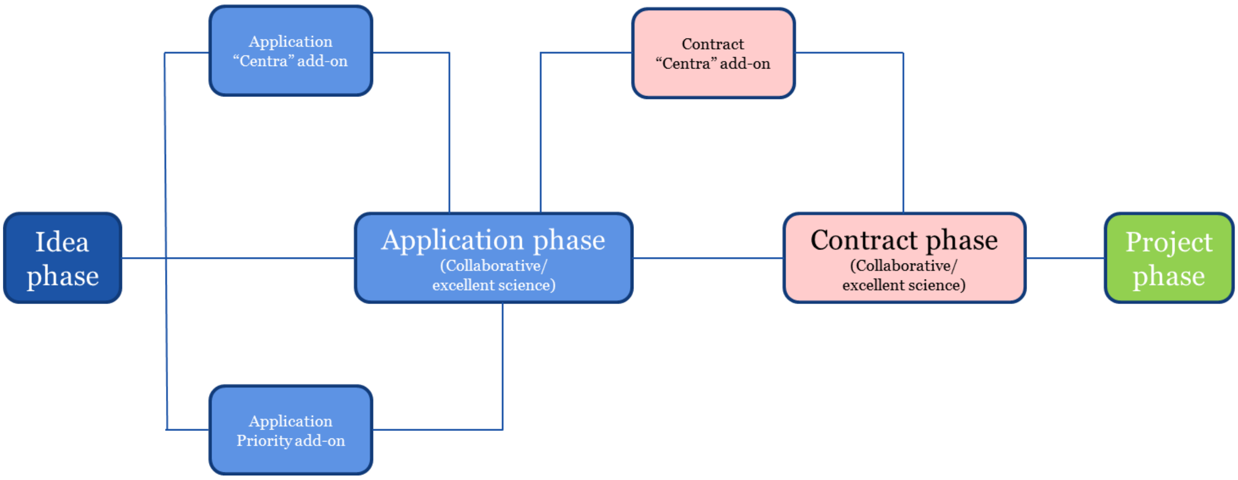

Figure 4. The EFR process including "add-on" processes.

4.1 Idea phase – not mandatory

In the idea phase a research idea is further developed and matched toward potential funding opportunities. Research Office support is defined by guiding, educating and coaching the researchers, see figure 5. Depending on which type of case it concerns, different actions/tasks are applicable. The actions in the Idea phase are not to be seen as a process. They consist of services aimed at helping researchers to get to the starting point of writing an application or services required by different financiers in order for KTH researchers to be able to apply to the funding bodies calls.

Most of Research Office' services in the Idea phase are performed through group education sessions, via initiatives as "Future faculties" as well as through the platforms, etc. Individual counseling is sometimes provided, depending on available resources at Research Office.

4.1.1 Actions in the Idea phase

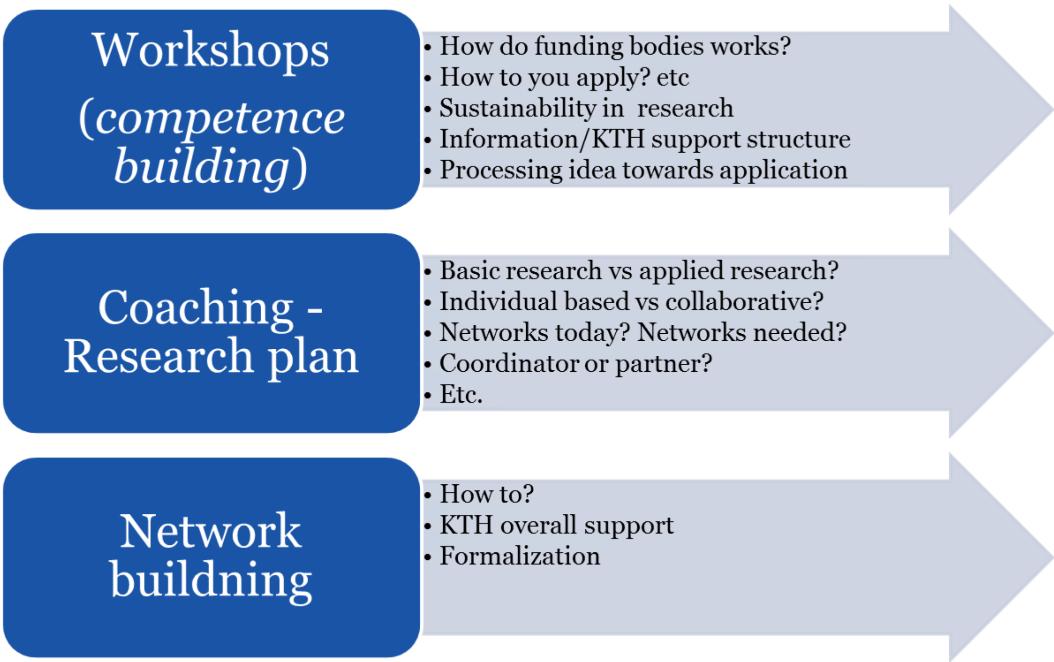

Figure 5. Actions in the Idea phase.

Workshops – arranged as part of 'Future faculty' and 'Sustainable scientist' series, platform workshops, etc. In the workshops the themes below are covered, in different ways depending on the workshop's set-up.

General information KTH procedures - Information concerning general procedures at KTH, both on school and central level, to ensure that the researcher knows what to expect and what is required by him/her in the future.

Responsible party: Research Office and school administration.

Coaching to define a research plan – For success in EFR projects it is essential that the researcher has a long-term plan for his/her external funding to ensure a suitable, sustainable and less vulnerable funding situation for the research area/group. In order to ensure this a general understanding of the objectives behind external funded research is needed.

Responsible party: Researcher (Research Office advises/coaches)
*Decision*s are made by the researcher him/herself. If needed Research Office provides advice and coaching, information concerning KTH prioritization and support mechanisms, i.e. the Research Platforms and Schools.

Coaching to develop a funding strategy – Present a profile of the different funding bodies and their characteristics (objectives, formality level, rules for participation etc). What kind of research can be funded? What kind of network is needed? Information about support tools (i.e Research Professional, important webpages etc.).

Responsible party: Researcher (RO advises/coaches)
Decisions: if needed, decisions are made by the researcher. RO only provides information whether the idea is within KTH's mission - any decisions in regards to this are made by the school dean.

Ensure understanding of sustainable research opportunities – Advice and explain to researchers how their current research background affects future possibilities in order to ensure that it is accessible/"clean". Advice and information on how background and foreground is managed in collaborative research projects.

Responsible party: RO (and indirectly the researcher)

Network building and formalization - Support, quality assurance and risk management if general collaboration concerning ideas is to be formalized in NDA, MoU, LoI etc already at the idea phase. Please see contract phase for more details concerning this process as all contracts follow a similar procedure. During the idea phase coaching concerning formulation of general purpose/background is sometimes needed, if not already clearly specified.

Responsible party: RO and researcher
Decisions: in accordance with KTH Delegation of Authority

4.2 Application phase- partly non-mandatory, partly mandatory

The application phase starts once a specific call is identified and decided upon by the researcher and work starts to formulate applications and rigging needed project constellations. However, depending on which type of case it concerns, different parts of the support provided in this phase are applicable.

The need for formal approval from KTH based upon requirements from the funding bodies as well as on expectations on intent declarations from potential parties has become more frequent. This has increased the need for quality assurance and risk management in this phase, together with supportive actions from RO and the schools.

A number of funding bodies have also regulations that require some sort of involvement from KTH during this phase, and among other things Research Office has here a role as Official contact point towards funding bodies. If for instance the researcher is applying to an international funding body which has not funded any project where KTH has been a partner before, Research Office provides the necessary administrative work to make it possible for KTH to apply to a call from that funding body. In addition formal approvals need to be handled.

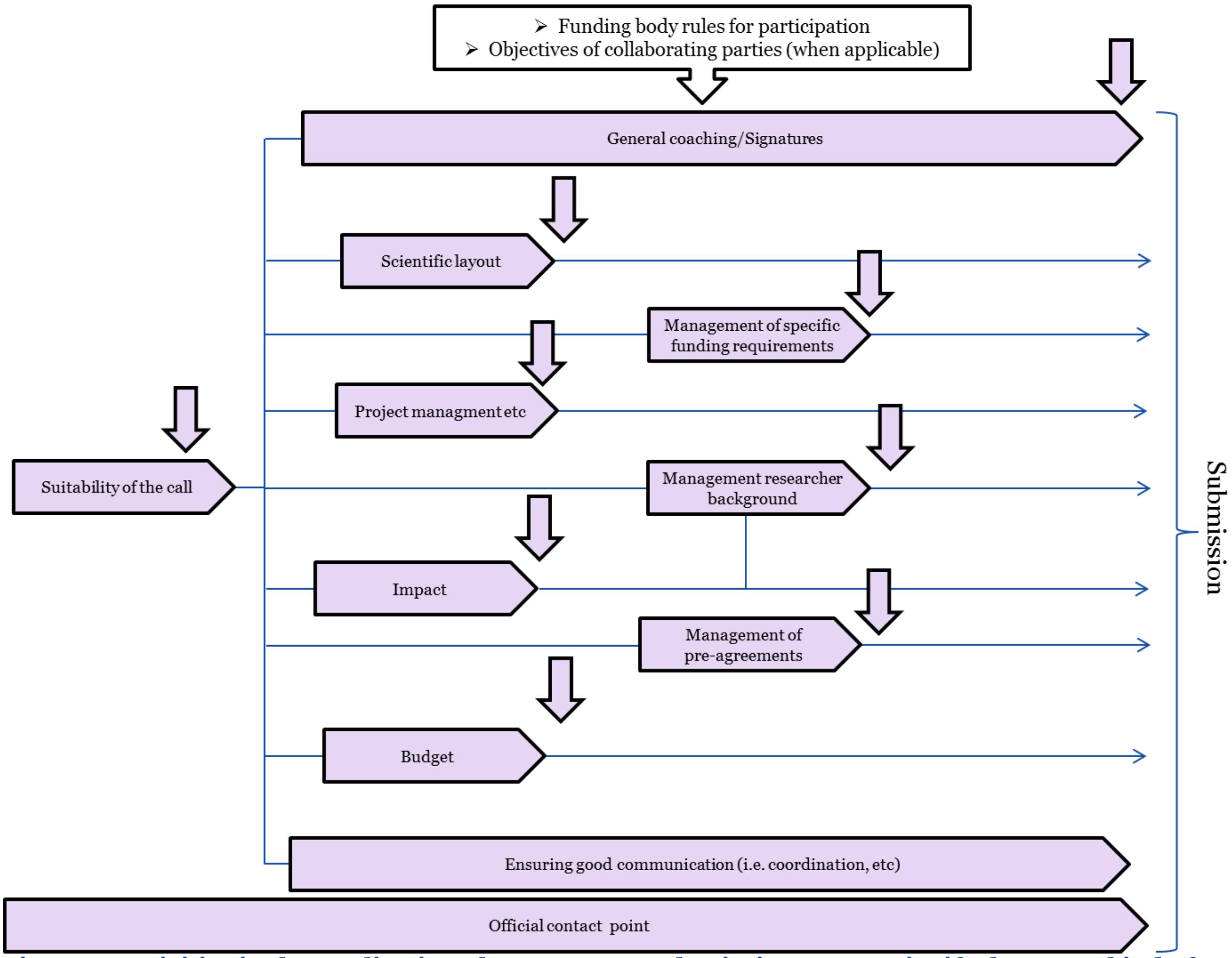

Figure 6. Activities in the Application phase. Downward pointing arrows signify that some kind of decision is needed in order to move on. Please see "decision" in the descriptions below for further information.

4.2.1 Actions in the application phase

In figure 6 are illustrated the activities in this phase, relating to a number of different considerations and factors that needs to addressed in, to achieve competitive applications. Below are further detailed the activities taking place in the Application phase.

Suitability of the call - RO provides advice concerning the suitability of the call in regards to ideas, funding body objectives etc.

Responsible party: Researcher (advice by Research Office)
Decision: The researcher makes the final decision. If a formal requirement by the funding body is needed in order to submit the application, a decision is made in accordance with KTH Delegation of Authority in parallel with a formal approval from the school dean. The researcher is advised to inform its school regarding his/her plans to apply early on in the process.

Coaching of the application (applies to the non-scientific parts)

- ***Scientific layout*** - Even though Research Office do not provide support of the scientific parts of the application RO provides support to the researcher in regards to its layout based on the funding body's requirements; Are all issues answered, are the objective clear, is the state of the art clearly stated? Time schedules? Milestones? Gender equality? Research Office also recommends the researcher to ask a colleague, either within the consortia (if applicable) or within its research group, for a peer review. This part is mainly applicable when KTH is coordinator. For individual grants this part includes an offer to receive "interview coaching" by/via Research Office, when applicable.

Responsible party: Researcher (Research Office advices)
Decision: Researcher/PI and School dean for ensuring that the application is in accordance with the scientific vision/goals of the school.

- ***Project management, structure/governance*** - What is suitable? Does KTH have sufficient influence in KTH relevant parts? What is possible in regards to KTH? Research Office supports by advising on how a project can be structured, managed and what a project needs in terms of management in order to be suitable and fulfill the funding body's requirements. Is the consortia suitable/ applicable based on the call? Give advice based on experience of which management structure works and what does not work. Gender equality? Research Office can provide examples and coaching in the writing process. No "ghost writing" is provided.

  Responsible party; Researcher (Research Office for check of pre-conditions of the funding body and KTH)
  Decisions: Researcher and/or Reseach Office if formal approval is needed from KTH. Research Office checks that the management structure is within KTH possibilities based upon praxis/terms for participation and suitability (see contract phase). Formal decisions are seldom required and a collaborative approach between Research Office and the researcher is usually sufficient. If KTH is a partner this part become much more formal and can require a formal decision in accordance with KTH Delegation of Authority.

- ***Impact, exploitation, disseminatio***n - What is suitable? What is possible in regards to KTH? RO advises on how a project impact can be constructed and described, IP/IPR strategy, technology transfer strategy/management, deliverables, dissemination, publications etc. Research Office can provide examples and coaches the writing process. No "ghost writing" is provided. Are background listing and management needed at this level due to funding body rules? Is an introduction of specific mechanism for managing the 'professors privileges' needed in the application? If so, Research Office gives advice.

  Responsible party: Researcher (Research Office for check)
  Decisions: Researcher and/or Research Office if formal approval is need from KTH. Research Office provides check that the impact is structured so its within KTH possibilities based upon praxis/terms for participation and suitability (see contract phase). Formal decisions are usually not require and a collaborative approach between Research Office and the researcher to find suitable re-wording is usually sufficient.

- ***Budget/financial advice*** - Are the resources allocated in a suitable way? Does it follow the funding body's requirements? KTH requirements?

  Responsible party: School financial manager and researcher (Research Office provides support regarding funding rules of participation). Research Office ensures that in the cases when a KTH formal commitment is required, the school dean has been informed and have approved the application and its budget (the approval signify that the school have the necessary resources to manage, comply and co-fund the project).
  Decision: School dean, through giving school approval.

General review/coaching and signature – Is the application unified, i.e. is there a "line of argument", do all parts connect/come together? Does it comply with the funding body's rules for participation? Ensure that everything required is in place; signature of application, partner declaration, letter of recommendation etc. When KTH is coordinator this also includes contacts with partners .

Responsible party: Research Office in collaboration with researcher and school administration, when formal approval from KTH is needed by the funding body.
Decision: In accordance with KTH Delegation of Authority

Management of specific funding requirements - Some funding bodies has broader requirements in the application phase, adding to the requirements in the application. For example financial conflict of interest (certificate might be needed), education required by PIs, ethical approval/certifications etc. Non-compliance here can in some cases block KTH as a whole, not just a specific application/project.

Responsible party: Research Office, with assistance of the researcher and school administration
Decision: In accordance with KTH Delegation of Authority and the specification(s) made by the funding body.

Management of the researcher background in the application – When creating an application, issues connected to the background information to be introduced are sometimes needed to clarify, specify and manage in order to ensure that KTH will be able to comply with funding regulation once an applications is approved for funding. Research Office provides advice on tactics /strategy in regards to this.

Responsible party: Researcher (Research Office advises)

Management of pre-agreements/intents –follows the same procedure as in contract phase, in relevant parts (NDA:s, pre-consortia agreement, letter of intent, statement of intent etc.).

Ensuring a good communication- Research Office coordinate/assist to facilitate that all stakeholders are addressed/informed based upon their needs/interests during the whole phase. Stakeholders are school deans, school administration, researcher, external parties, funding bodies. This part is mostly applicable when KTH is coordinating the application/project.

Responsible party: Research Office/Researcher

4.2.2 Centra “add on” – in the application phase

The development and content of a concept description for a centra is similar in many aspect to that of a project application. However in parallel to eventual external funding requirements, the internal KTH regulation requires additional management according to Internal Centra policy[7], to cater for their needs. The additional management is referred to as a centra add-on support in the application phase.

Centras are supportive to external research funding in different ways. Different reasons for setting up centra include external funding bodies and/or collaboration partners approaching KTH to set up a centra at KTH in order to administer and manage research financed by an external funder. Other centres are set up to consolidate KTH competences in a wider research area, in order to develop interdisciplinary and excellence, as to attract external research financers/collaboration partners and also to be more competitive in coming external calls. The first example would in the EFR process picture (Fig. 4) be closer to the end of the application phase, while the later example would be drawn closer to the idea phase.

Research Office support is to a large extent similar to the support for a “pure” project application, even though the end result is different. It consist of support in the conceptualization of the centre, easiest described as support in a) formulating the idea, overarching issues and the approach the centre will be based on decribed in the operational plan, b) provide support with budget, and c) provide advice/support with set up of centre management and regular evaluations. A centre set up to consolidate and develop a strong KTH research area will in a later stage require more coordination and general coaching when funding bodies and collaboration partners are brought in, while a centre initiated by financiers and/or collaborative partners needs more coordination and general coaching already in the conceptualization.

[7] KTH Centra policy, http://intra.kth.se/polopoly_fs/1.117965!/Menu/general/column-content/attachment/Centraregler_f%C3%B6rslag%2020090901.pdf

Setting up a centre and the support needed for this is many times not very different from writing an application for a large project with subprojects, but differs in regards to this being an “extra step” – the platform from which research projects will emerge. Scientific layout, centre management, impact and budget will also have slightly different demands due to KTH centre policy.

The centra add-on support for the application stage ends with a finalized concept description written and accepted by all parties.

Responsible party: Prospected centra director/host school. Research Office for quality check.
Decisions: in accordance with KTH Delegation of Authority and KTH Centra policy.

4.2.3 Application Priority “add-on” – in the application phase

Some funding bodies require the applying university/organization to select and prioritize a specified number of projects. In order to do that KTH has a pre-proposal process where researchers wanting to apply to the call has to supply a pre-proposal consisting of a brief project idea to an internal priority group consisting of selected KTH faculty members, elected by the Faculty Council. To some extent, Research Office provide coaching. An evaluation and recommendation of which pre-proposals can go ahead and write applications for the call is performed by an internal priority group based on scientific grounds. Research Office administer and support the process, and to some extent coach pre-proposals.

Responsible party: Faculty Council and Research Office
Decisions: President (upon the recommendation from the KTH Priority group)

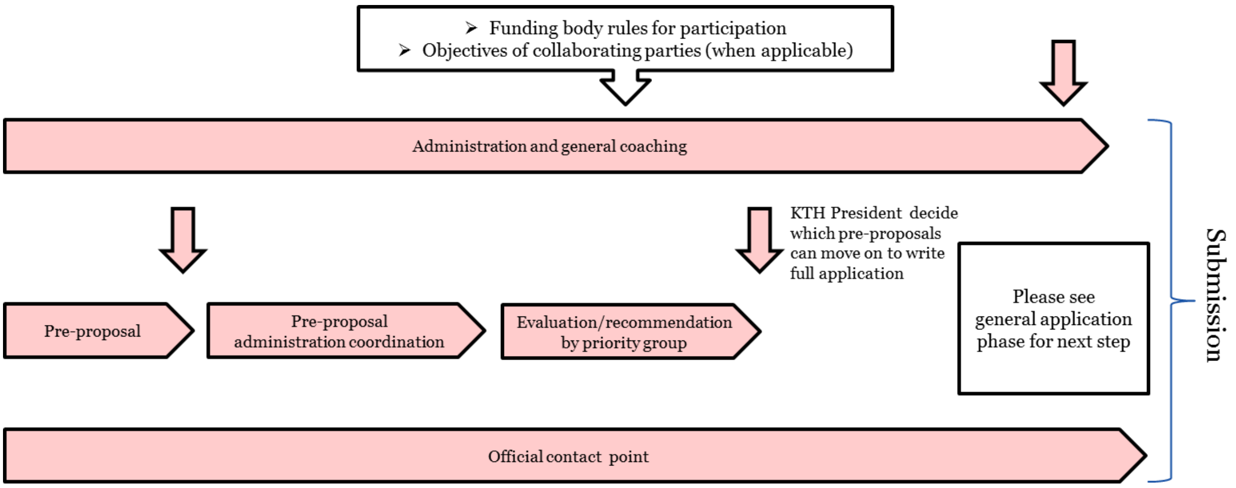

Figure 7. Activities in the Application Priority”add-on”

4.3 Contract phase (mandatory)

When an application is approved, sometimes after re-negotiation and adjustments, the work starts to finalize the funding contract setting the terms and conditions for the implementation of the project. Other formalities might as well be needed. The contract phase is the last part of the pre-award section, i.e. the grant is not formally awarded until all different contracts are signed.

For funding bodies and project types as defined in the KTH delegation of authority, Research office are assigned to quality assure the process as well as the outcome of the contract negotiation.

4.3.1 Actions in the Contract phase

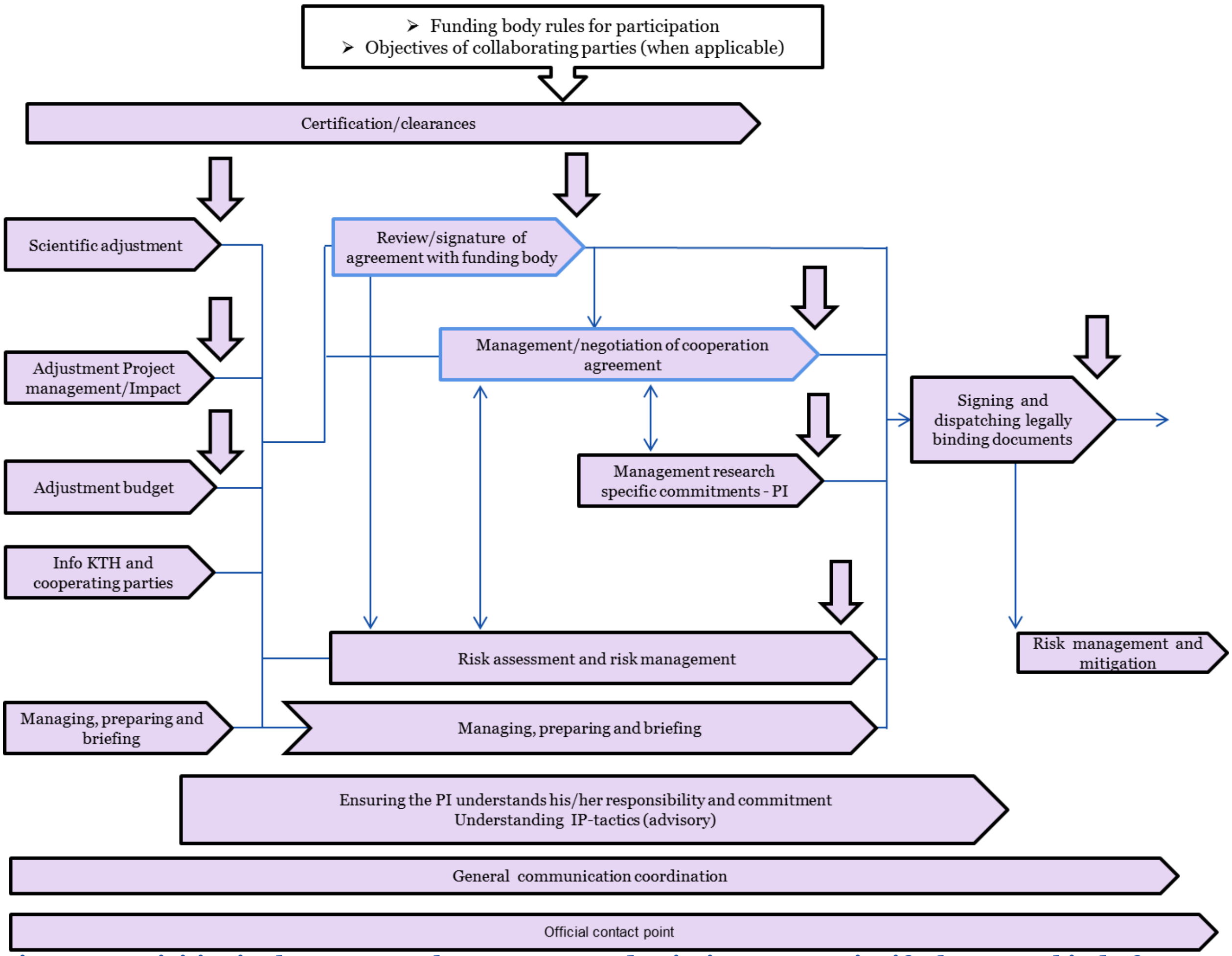

Figure 8. Activities in the contract phase. Downward pointing arrows signify that some kind of decision is needed in order to move on.

Figure 8 illustrates the activities in this phase, relating to a number of different considerations and factors that need to be addressed, to achieve a quality assured project contract.

When a project is awarded funding, the approved project enters into a formalization process where negotiation takes place with the funding body. If KTH is prime beneficiary, KTH is the leader in this process and (when applicable) negotiate on "behalf" of eventual partners. When KTH is not coordinating the project KTH negotiate with-the designated coordinator. Aspects that are to be managed (varies depending on funding bodies):

Management/negotiating with the funding body

Scientific adjustment, based upon founding body decisions.

Responsible party: Researcher (Research Office advices)
Decision: Researcher/PI- School dean for ensuring the project is in accordance with the scientific vision/goals of the school (if formal approval was necessary in the application phase this part might not be applicable)

Changes in management, project planning, impact management based upon funding body decisions

Responsible party; Researcher (Research Office for check that negotiation freedom concerning issues to be dealt with in the collaboration agreement remains- not applicable for non –collaborative awards)

Decisions: Researcher and/or Research Office in regards to aspects that affects the negotiation of the CA, in accordance with KTH Delegation of Authority.

Adjustment of budget based upon funding body decision. This part affects all the other parts.

Responsible party, School financial manager and researcher (Research Office provides advise if needed). RO ensures the school dean has been informed and have approved the revised budget through written confirmation (the approval means that the school also ensure that it have the necessary recourse to manage, comply and co-fund the project).
Decision: School dean via “school approval”

Information concerning KTH and cooperating parties (when KTH is prime /coordinating beneficiary)- a number of formalia information, certificates, or statements are requested by most funding bodies and needs to be registered and reported before a grant can be awarded.

Responsible party: School Administration (support and verification via Research Office), when KTH is coordinating the project. Research Office supports in coordinating this process with partners.
Decision: not applicable

Acceptance/signature of agreement with funding bod**y**- most funding bodies require a formal acceptance from grantee, either in terms of a grant agreement or some sort of an approval of conditions. Depending on funding body negotiation of a legal and/or business nature can sometimes be necessary, such negotiations follows similar lines as those of the consortium/cooperation agreement (please see below).

Responsible Party: Research Office in cooperation with school administration, researcher and if need legal department.
Decision: Research Office (in accordance with KTH Delegation of Authority) in communication with school dean if specific issues affect the school more than on an expected standard level.

Management and negotiation of collaborative /individual agreements

Management and negotiation of collaborative /individual agreements necessary in order to fulfill the obligation towards the funding body, as well as the interests and needs from KTH and collaborating parties (when applicable). The agreements usually have six aspects, further elaborated on below. These parts are all included and mixed in the agreement and needs to be managed, reviewed and negotiated. Below follows a summary of these KTH aspects and the process as a whole.

Public authority aspects - this aspect constitute of ensuring that KTH as a public authority is in compliance in regards to applicable laws in all of its cooperation/agreements.
KTH legal department is responsible to provide relevant counseling.

Business aspect - a number of issues affect KTH’s business aspect such its ranking, relations to external parties, and the public’s view of KTH, suitability in its research.
Research Office is representing KTH management/policies etc.

Project aspect - suitability in regards to funding body requirements, project organization, project set-up, i.e. cost effectively and functionality in the agreement, an important aspect in order to reduce KTHs risk.
Research Office provides relevant counseling.

Strategic aspect - KTH management have certain goals/ambitions concerning where to keep a high profile, this is manifested in number of policies and strategies. Certain research areas with higher risk for example can have a high strategic value based upon the KTH profile (clarified in decisions by the KTH management/policies).

Research Office is representing KTH management/policies etc.

Researcher's aspect - as a result of the "Professors privilege" the researcher has a separate perspective that needs to be ensured, primarily in regard to compensation and use (including publication) of results. This perspectives does not necessarily coincide with KTHs business, political or legal interest.

School aspect - school objectives to be managed at school level, school resources.

All these aspects are to be taken into consideration in the negotiation and the final agreement and form part of the overall risk assessment, necessary for the decision maker in order to make an informed decision. In the agreements this is handled in the following exemplified parts:

- *Project content* (see above)
- *Governance/management/responsibilities* - primary a business (incl project) /strategic aspect for KTH and a question of suitability in regards to the project , legal requirements relates to ensuring KTHs influence and security to independently agree to issues that affect KTH as a governmental agency
- *Reporting/financial management* - primarily business (incl project) and project/school specific aspects
- *Publication/dissemination* - primarily a business, strategic, and research project specific aspect, legal aspect comes in from a primary wording perspective as legal text is used
- *Background management* - business, strategic, research project specific aspects and public authority aspect all comes into play
- *Results/foreground management* - business, strategic, research project specific aspects and public authority aspect all comes into play
- *Information transfer/confidentiality* - public authority and research project specific aspects
- *Liability and arbitration* - business and public authority aspect primarily

The above mentioned list is applicable in varied degree to all types of legally binding agreements mention/referred to in other parts of the EFR process.

Decision: Research Office (according to KTH Delegation of Authority) based upon praxis/ KTH terms for participation that comes from KTH Mission, KTH policy, KTH management decisions and legal requirements, in communication with the school dean and researcher for the aspects relating to their specific interests.

Management of researcher specific commitments and issues (due to Professors privilege) - Due to the Swedish legislation of the professors privilege a so called "researcher agreement" need to be set-up and signed in every externally funded project that includes/involves background and foreground (IP/IPR) in some aspects. Connected to this, other issues such as conflict of interests of different kinds also needs to be investigated/managed.

Responsible party: Research Office manages this primary in regards to the PI. For co-researchers the school administration together with the PI (researcher) manages this.
Decisions: jointly between school dean and the decision maker officially signing/ensuring the commitment against funding bodies/collaborating parties, in accordance with KTH Delegation of Authority.

Other issues, certifications, clearances - for some research areas and some funding bodies certain authorizations and certifications are needed, as is the case sometimes in military research where export and security declarations might be needed, as well as ethical certifications asked for by the funding body in certain types of research.

Responsible party: Researcher and Research Office
Decisions: partly not applicable (decided in accordance with applicable legislation, funding regulations and in accordance with KTH Delegation of Authority (if needed)

Ensuring that the PI-researcher understands his/her responsibility and commitment - Much of the above mentioned documents require an in depth understanding of quite a large number of parallel regulations/agreements etc. Research Office supports the researcher in this as it is an important part of risk management and increases the success of the project as well as saves time for the researcher.

Responsible party: Research Office

Understanding IP tactics - as a result of the contract phase an important step is informing and advising the researchers on ways to manage and handle his/her IP depending on the terms of the contract, this part is closely connected to the previous point on ensuring that the research understand that commitment itself.

Responsible party: Research Office (advisory role and responsibility)

Agreement approval and signature

Risk assessment and risk management/mitigation to reduce the risk - All externally funded projects and collaborations includes a certain amount of risk based upon the commitment and responsibility that KTH commits to in each case. The risk depends on a variety of issues such as research area, TRL level, the experience of the researcher, eventual CoI by the researchers, school resources and experience of a particular funding instrument/collaboration type, the content of the agreement(s) as a whole, the involved collaborating parties (when applicable), funding body, funding instrument, etc.

As a public university subject to intense competition, risk needs to be managed in order to ensure the compliance with KTHs commitments, KTH mission and the ambitions of KTH management. Depending on the risks that are identified, internal or external mechanisms can be used to manage, mitigate and reduce that risk, for example by implementing special routines, education, contractual regulations, control mechanisms, management instruments etc.

Responsible party: Research Office
Decisions: in accordance with KTH Delegation of Authority

Managing, preparing and briefing -The officer at Research Office is responsible for reporting, preparing/drafting and briefing the decision maker as the Research Office officer is the only person that is involved and provides expertise in the whole phase. This briefing shall include the whole process and give both positive and negative feedback and assess the consequences and risks involved within each case. This includes among other things to:

- Develop proper basis for decisions, considering the pros and cons as well as implications and risk connected to different decision alternatives.
- Present the different choices/options available to the decision maker and state the reasons for the proposed decision.

Responsible party: Research Office (with input from legal department, researcher, school dean, school administration).

Signing and expediting of legally binding documents - closely connected to the managing and briefing procedure.

Responsible party: Research Office (see above) when the decision maker is the Director of Research office, Vice President for research or KTH President and the signed document concerns research funding.
Decision: In accordance with KTH Delegation of Authority.

General communication coordination between school, researcher, UF departments, external partners and funding bodies

Responsible party: Research Office

4.3.2 Centra Contract “add-on” process

Management of Centra establishing procedure - parallel to the process of managing and negotiation of a centra agreement, similar to that process of a collaborative agreement specified above, an special procedure concerning the formal establishing of a centra also is to be add. This includes the formal decision and management process at KTH, including KTH internal co-funding and the formal decision by the President.

Responsible party: Centra director and Research Office
Decision: according to KTH Delegation of Authority

4.4 Project phase (partly mandatory)

In this phase Research Office focuses on assisting in eventual project specific needs and general issues generated from those, in contrast to the other phases the different service is not as chronological as those in the other phases, the support is more regular/consistent during the project cycle.

4.4.1 Actions within the Project phase

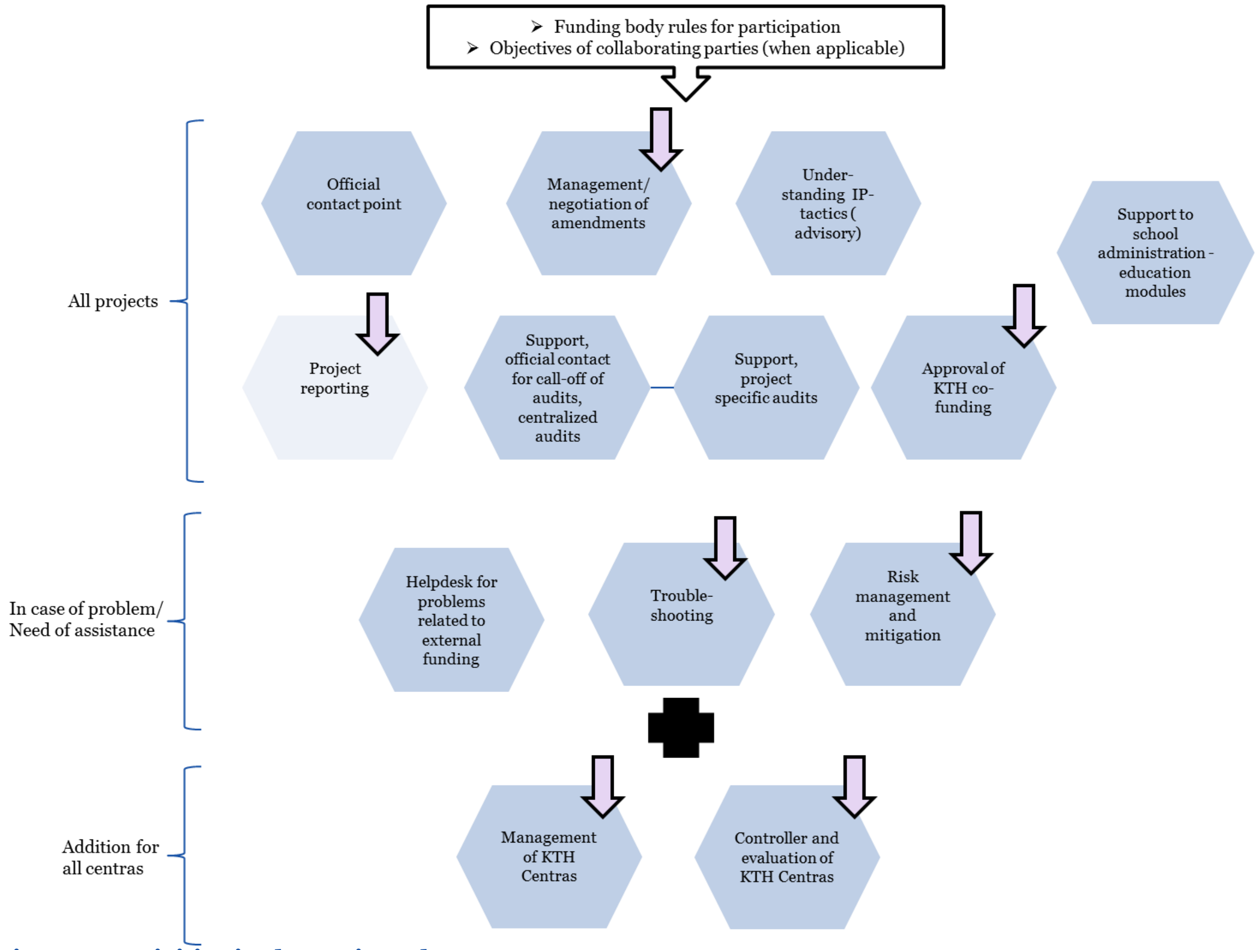

Figure 9. Activities in the project phase

Support and official contact for "call-off" point for audits - This function and performance under this action is largely dependent on the regulation of the funding bodies and varies accordingly. Some funding bodies require project specific audits other requires audits on an organizational level. Regardless of regulation Research Office provides support and monitors the activities in regards to the framework contracts with the assigned auditing firms.

Responsible party: Schools for the performance in regards to relevant projects (support by Research Office). Research Office when overall organizational auditing is required (i.e. A-133 US funds, when applicable).
Decision: not applicable

Project reporting - Most funding bodies require both final report and a number of mid-term reports, both in terms of financial issues and scientific reports. Some funding bodies also require specific reports on for example impact and dissemination etc.

Responsible party: Researcher and school financial manager (Research Office provides advice if need)
Decision: School dean

Management of amendment with funding body, collaborating party, additional collaborating parties or associated parties -Many of the amendments that occur during a project phase is formalities driven due to the funding body regulations. Some funding bodies also have yearly standardized amendments that require management and review. Occasionally amendments leads to new or changes in KTH commitment, the process then follows the same principle as listed in the contract phase.

Responsible party: Research Office in collaboration with school administration and researcher (if needed with support from legal department)
Decisions: In accordance with KTH Delegation of Authority

Support to school administration - Research Office provide yearly education modules for financial manager at school level for budgeting, management, and reporting on school level (supporting quality assurance and risk management and mitigation at school level).

Responsible party: Research Office

Helpdesk for other problems related to external funding - Support/coaching, investigation, and education/information etc.

Responsible party: Research Office depending on the problem

Understanding IP –tactics - As a result of the contract phase and the development during the project phase information and advice on ways to manage and handle IP in practice is sometimes needed and is close connected to the outcome of the contract phase.

Responsible party: Research Office and researcher
Decision: Researcher (within the scope of the contract)

Trouble-shooting and resolving activities - If a problem arises related to external funding, for example with funding bodies or collaborating parties etc. Research Office preforms trouble-shooting activities as far as possible, such as investigations, set-up of routines, mediation, mitigation, re-negotiation etc.

Responsible party: depends on issue in collaboration with Research Office

Approval of KTH co-funding- In accordance with the President decisions KTH co-funds all EU funded project up to a rate of 20% of the approved and received EU funds.

Responsible party: Research Office

Decision: Research Office in accordance with President decision

Controller and risk reduction/mitigation for KTH compliance- as result of the changing funding and collaboration climate the importance of compliance to different commitments is increasing in importance in order to ensure that KTH is continued eligible to apply for funding and in applicable cases is a preferred partner. This service includes risk analysis, intelligence analysis, education, strategy and support/coordination of routine build-up.

Responsible party: Research Office
Decisions: not applicable

General communication coordination between school, researcher, UF departments, external partners and funding bodies.

Responsible party: Research Office
Decisions: not applicable

Management, controller and evaluation of KTH Centras – The KTH centra requires continuous formalities management, due to changes that arise under the lifetime of a centra, for example concerning board members.

Responsible party: Research Office
Decisions: In accordance with KTH Delegation of Authority

Controller and evaluation of KTH Centras – According to the KTH Centra policy all centra is also to be evaluated regularly, a process which is to be coordinated from Research Office.

Responsible party: Research Office
Decisions: In accordance with KTH Delegation of Authority

4.5 Implementation of process and decisions taken

As exemplified by the descriptions of phases earlier, the EFR process is never following a foreseeable path. Instead it’s depending on different questions and problems arising in all cases and that all stakeholders, internal as well as external, respond and perform their part. Research Office pushes the process forward, step by step, and make sure it never get upholstered. If there’s a stop in the process due to for example lack of personnel at other departments, Research Office need to cover the shortage in order to keep the time limits set by the funding bodies, or otherwise the funding will not be achieved.

During the progress of the EFR-process, decisions are made constantly / gradually concerning both further actions to be made in the process like submitting a proposal; as well as concerning the content of the project and the term and conditions for its implementations. In section XX is further discussed the different stakeholders being part in the EFR-process, and these stakeholders have all influence on the decisions made during the progress of process.

Below is shortly discussed how the negotiation of this decisions interact and influence the overall outcome of the process. And a couple of typical types of outcome are discussed.

In the idea phase, no “hard” decisions are made. But in this phase there might be a binding up of for instance term and conditions for the implementation, in the early discussion that might go on between possible consortium members.

Once entering the application phase, the decision for selection of specific call is made, with some relevance for the school. In defining the application, decisions needs to be made in project set-up, management and strategies for impact, which may have considerable effect on the chances for the application be approved. Finally decision to move forward with an application is made by the researcher and the school. Depending on the funding body's formal requirements, formal commitments might be required, at this point. Partners might in the same way expect statement of intent or NDA:s to be signed.

As the application phase is solely depended on a sharp deadline, possibly to quality assure and support and are dependent on when in time someone becomes aware of the application. Formal requirements need regardless to be secured if an application is to be submitted at all

However, the critical process phases from a time as well as a decision making aspect, is the contract phase. In this phase may the proposed application be re-negotiated and the terms and conditions for its implementation are negotiated and decided upon.

Research office has responsibility for the proper finalization of the process, for the project types and funding bodies defined through KTH delegation of authority. This, provided Research office is within reasonable time frames involved in the process by the project owner/researcher. Research office provision in the process is highly integrated and dependent by the provision from KTH legal department. The outcome in this phase depends also to a large extent on the performance of the other stakeholders, such as the researcher and the school management as well as external collaborating parties and occasionally the funding bodies.

As the outcome of the EFR process in this phase largely depend on several different parties, the process does not necessarily follow a foreseeable path or time frame. The process could be upheld simply because one collaborating party for example does not respond within a given deadline.

To illustrate typical cases of outcome of the process in the contract negotiation phase, four different more or less typical types of outcome are plotted in Figure 10.

> Type 1 (green): This type represents a reasonably simple and straight forward case and may take about 3 months to finalize. Due to higher and more complex requirements among funding bodies and external stakeholders, this type become more and more unusual. It represents about 10-20 % of the cases handled.
>
> Type 2 (blue): This type represents a relatively common case, for instance involving standard EU FP7 medium sized consortia, with KTH as one of few university partners and the other partners being industry. The contract and decision process may take between 3-12 months to finalize. This type represents about 50-70 % of the cases handled.
>
> Type 3 (brown): This type is not that frequent, but do exist on a more regular base. The process may proceed on more than 12 months. Often this is due to relativity complex funding bodies requirements and set-ups with many parallel process and agreements that needs to be in place and synchronized. Typical examples are Clean sky, Joint Undertaking art 187 program. This type represents about 10-20 % of the cases handled.
>
> Type 4 (grey): This type is relatively uncommon but does exist. The negotiations are here never finalized but are ongoing on an irregular basis and sometimes the project is initiated. This is usually true for collaborations that do not have an external funding body with formal requirements of a contractual character and where some part is unexperienced of the needs of a strong and functioning collaboration. This type represents less than 5 % of the cases handled.

In all of the types defined above, it sometimes becomes necessary for a strategic decision and the case is lifted to the highest management level at KTH. According to statistics analyzed for the period August 2012- July 2013 approximately 5 % of all cases running through Research Office required a strategic decision on this level. In the figure this is illustrated with a red star in type 3, however this may occur in all of the types. An additional 5 % were lifted by other parties at KTH, due to primarily misconceptions concerning the contractual phase and its needs and requirements.

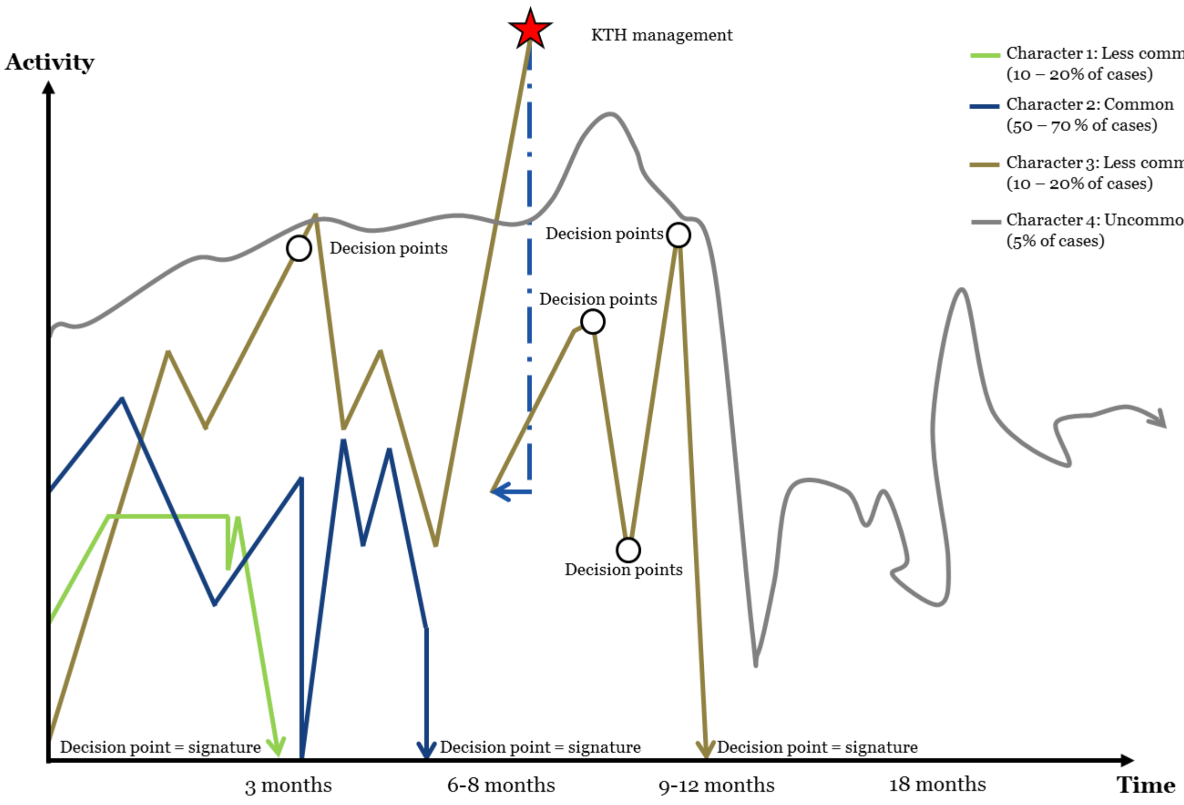

Figure 10. Illustration of typical outcome of the EFR-process in the contract phase. The cases are further explained in the text above.

5 Service provided, competence and cost

The general process described in chapter 4 is implemented and coordinated by Research office at KTH. However, service and management is also provided by other actors and stakeholders in the EFR process. This chapter describes the service provided by Research Office, related to the competence required to fulfil this service as well as the cost for it. Research Office does as earlier mentioned have other areas of activities related to the overall mission, but these activities are excluded from the discussion below.

Service is understood as how much support Research Office is able to give in the different phases a researcher goes through in order to achieve a successful externally financed research project, as well as service to the school management and administration. In regards to competence, only the competence within Research Office is discussed although the implementation of the EFR process of course is dependent on relevant competence for all stakeholders. Cost is defined as full time equivalent personnel.

5.1 Service level today

Idea phase

The required competence exists today within RO, but since it's concentrated to a limited number of key personnel, the service level is restricted to what is given at educational seminars.

RO has consciously decided not to provide matchmaking of calls for specific research groups. This is first of all due to our experience of successful research groups, which normally do not request external support in identifying relevant funding calls. These groups are instead characterized by a large capability to match the individuals/group research profile towards funding opportunities. Secondly, to be successful in matching specific competence, each specific research field need to be covered. Given the spread of research at KTH, this implies an extensive need of different competences, which is not available today. Instead, Research Office has focused on support that give researchers a general understanding of funding bodies, which is more cost effective resource wise than matching specific calls for each individual research group.

Application phase

The required competence exists today within RO, however limited to a low number of key personnel. This affects the service given, meaning that resources has to be prioritized to mandatory/more vital/high risk parts of the Research Office services.

Research Office service level for different types of cases is listed below:

Vetenskapsrådet (Swedish research council): service of mandatory parts, management of recommendation letter.

KAWallenberg foundation (private foundation): Management of internal priority process. Interview support for Wallenberg Fellows.

EU research program (FP7,): full service level is given to cases where KTH coordinates the project or for example due to financial issues. For ERC applications interview support is included.

EU + programs (art. 185, art. 187 – for example Clean Sky, Interreg, structural funds, etc.): limited service. Special coordination support and financial advisory expertise is not provided.

National collaboration programs: same level of service as for EU+.

US funding bodies: limited service mostly focused on mandatory parts (please see above) some feedback/advise is provided pending on time to deadline

Other international (non-EU or US) funding bodies: limited service focused primarily on mandatory issues.

Centra: full service is mandatory and given. However, due to limited recourses it may take longer time than necessary to finalize the establishment of a centra when all time until the contract is in place is included.

Contract phase

Research office process, in collaboration with the legal department, approximately 250 contract annually. Roughly about 3 full time positions are involved in this processing at Research office with the support of 1,5 full time equivalent personnel at the legal department.

The contract phase is the most crucial phase to provide quality assurance in, since contracts needs to be finalized within the time and content frames set for each case. The quality assurance given in this phase is mandatory within the limitations set by the delegation of authority, implying that support has to be provided. Therefore key personnel are channelized to this phase, making sure to provide the support needed. It is important to note though, that the service outcome in this phase depends to a large extent also on the performance of other stakeholders, such as KTH legal department, the researcher and the school management but also on external collaborating parties and occasionally the funding bodies.

As the outcome in this phase largely depend on other parties, RO cannot beforehand estimate or control the time needed to complete this phase. Nor is it in this evaluation, possible to fully evaluate the over-all performance or capability to meet expectations on time efficiency. The process could be upheld simply because one collaborating party for example does not respond within a given deadline.

Project phase

Research Office service level at the project phase varies depending on case types, but helpdesk, trouble shouting and risk management is always available to the researchers and school administration as is service addressing formal requirements from funding bodies, as amendments and audits.

In regards to EU funding, special educational seminars and support are available from Research Office to support the school administration. Approximately 2 educational seminars a year are hold to EU-administrators at all KTH schools on how to handle and manage FP7/H2020. Support to the school administration on a regular basis in regards to projects implementation with other funding regulations is not provided by Research Office, due to lack of resources. The schools have organized their administration and service in different ways and it varies in how much support the projects get.

In general, compliance and controller functions need to be further developed and secured at KTH if the external funding in a long term perspective are to increase, as larger quantities and a more diverse funding climate also require a higher level of compliance in order to maintain the risk level. For instance, Research Office does not have resources to perform the audits required by US research funding bodies. If the US funding base would increase, more resources would be needed in order to ensure compliance from a KTH perspective.

According to KTH centra policy, annual evaluations/reviews of the KTH centras should be made by Research Office. Due to lack of resource this is not possible for Research Office to administer. Currently a 0,5 full time equivalent manage all work connected to centras, and available resources has to be concentrated to support in the conceptualization of new centres, support in the contract phase and support in centra management as for example change of board members.

5.2 Research Office deliverables

Approximately at least 450 (august 2012-juli 2013) cases go through Research Office in a year, i.e some sort of action in one of the four phases is required from Research Office. This flow results in approximately 250 contract processed in a year, where 200 of those has an international collaborative aspect. On any given day approximately 70-100 cases are open in some aspect at Research Office.

Out of the approximately 70 funding bodies that are managed, the European Research program is one of the larger ones, accounting for 25-30 % of the cases. Resulting in between 2007-2012 218 projects, (44 are KTH coordinated), constituting approximately 100 million €, i.e. almost 1 billion SEK[8]. During 2013 approximately 10 new FP7 coordinators where managed, receiving the special EU coordinating support. It should be mentioned that of those KTH coordinators that opted for Research Office' special support, all

[8] Vinnova report, approved fund until Oct 2012- two call periods where then remain in FP7

received high evaluation scores on the non-scientific parts (i.e. Impact and Implementation and management; averaging on 4,5-5, out of 5).

In 2013 KTH participated in 3 out of 5 approved Strategic Innovation areas on the national level, and for example approximately 10 FFI projects were approved and negotiated. Two Application Priority processes for the KAW foundation where made, for Project and Academy Fellow (grants to young researchers). For each priority process, 20-30 applications were processed in the first priority stage resulting in a maximum nomination for Projects, i.e. 7 nominates and for Academy Fellows maximum 10 nominates. Application and interview support (Academy Fellows only) is offered to all KTH applicants. Five KTH nominees for Academy fellows where selected for interviews, of which 4 were approved, giving a success rate of 40%.

Around 45 KTH Centres are on a yearly bases actively running at KTH requiring regular central management via Research Office including when possible, evaluating discussions. Approximately 5 new Centers are established each year.

In 2013/14 Research Office has also entered into 4 long-term overall strategic discussions on pre-conditions with key industry collaborating parties, in order to find long-term practical agreements and code of conduct. A process that have only started but so far has resulted in two provisional code of conducts, reducing time to signature for those to a “Type 1”- implementation and decision procedure (see Figure 10). These informal discussions are carried out complementary to the overall Strategic partnership efforts.

On a yearly basis Research Office preforms a number of seminars and workshops for PhD students (PhD –S), Future Faculty (FF) and the faculty in general (F), see below:

- How to apply:
    - Form research councils and national foundations -VR, KAW etc (level A)- (PhD-S, FF, F)
    - Funding bodies for collaborative research (National and international, incl Vinnova, EM, EU) (level B) (FF, F)
    - For collaborative international research outside of EU (US) (level C) (F)
    - *For collaborative International research (worldwide) (level C)- currently not available dependent on resource*

- Target info in collaboration with Funding bodies etc (EU, EU-ERC, FORMAS EM mfl)- (F)

- Targeted info of a specific funding body for a target group- *dependent on resource*

- Interview support/feedback- for preparation when invited to interviews ERC and KAW academy fellows. (FF, F)

Seminars and competences building for school administration are also given at least twice a year.

- How to manage and administrate:
    - *EU Research project*
    - *National/international- currently not available dependent on resource*

5.3 Value added

In the internal reference group, a question was raised on identifying the value added achieved by the implementation of the EFR process. Being a process were its legitimacy to a large extent comes from requirements set by funding organizations; the way of designing, implementing and focusing the process of course is set by the individual university, by KTH.

The value added in the EFR process, can be identified on several levels.

It has both a direct effect for the individuals involved, as well as an indirect effect as the existence and implementation/use of the process affects or add to the approach and overall thinking/way of behaving.

Direct value adding and effect:

- The researcher may achieve a more competitive proposal
- KTH may achieve a more similar and repetitive content in and term and conditions for its external funding
- KTH may in it's external collaboration *either* decrease the overall risk exposure *or* balance an actually increased in risk exposure due to necessary harder conditions with a compensated handling of this exposure
- KTH may increase its flexibility in responding on changes in funding calls, giving a more sustainable research funding.

In-direct value adding:

- The implementation of the process influence and directly develop relationships with external d collaborating parties
- It also influence and add on the establishment of the image/picture external parties and collaborators have of KTH as a university.

5.4 Competence

In order to provide all services described in 4.1 – Idea phase, the following competences and knowledge are required:

- General understanding of a researchers situation/position at a University – i.e. experience for supporting research at project levels
- Technology readiness level knowledge - so as to support coaching in both research strategy and funding strategy
- Understanding of funding opportunities
- Knowledge of the different funding bodies; regulation, rules for participation, and understanding of their objectives etc.
- Understanding of needs/requirements for sustainable research – IPR, Publications etc.
- Knowledge of project management
- Network building/collaborative knowledge
- Knowledge of KTH goals and objectives, intentions/strategy of KTH management
- Knowledge of how the different KTH schools and Research Platforms function/roles/support
- Knowledge of KTH terms for participation- please see contracts phase for further information

Additional competences needed to provide all services described in the Application phase:

- Experience/understanding of collaborative mechanisms
- Economy/project budgeting
- Impact- result management in practice
- Innovation process
- Dissemination
- Publication policy
- Knowledge of implications of Technology Readiness Level- ensuring funding bodies interests, researcher interests, industry party interests and their impact on project set-up
- Understanding the impact of legal issues and their connectivity to project practices
- Knowledge of the KTH individual researcher or group situation and experience at KTH
- Knowledge of KTH Centra regulation

Additional competences needed to provide all services described in the Contract phase:

- Experience/understanding of collaborative mechanisms
- Negotiations capabilities/skills
- Understanding of needs/requirements for a sustainable research – IPR, Publications etc.
- Knowledge and understanding of industry needs and objectives (Swedish and international, large and SME)

- Knowledge and understanding of foreign universities, institutes etc. needs and interests
- Knowledge of the different schools' (and research platforms) administrative set up and support
- KTH as a public authority – knowledge of the laws, needs, procedures, etc. in accordance to this

Additional competences needed to provide all services described in the Project phase:

As the project phase includes help-desk function and trouble-shooting, the competence needed includes almost all types of competence already listed in the other phases as well as a knowledge in how to structure evaluations/audits that are enforced on projects/programs (such as EIT KIC for example).

All required competences specified in the different phases exist today within RO.

5.5 Cost

A cost estimation is made on the cost for the aggregated service provided as described above.

The entire EFR process at RO is today staffed on a level of 6.8 fulltime positions, distributed over the following functions

- 0,5 Decision and strategy management
- 0.5 Work management, periodization, internal coaching, and conformity assurance
- 0,8 Financial advice, Support and quality assurance of ERC, management of KTH co-funding (for EU funded projects)
- 0,5 KTH competes building- educations and information
- 1,0 EU FP7/H2020 support and quality assurance of KTH coordinators
- 0,5 Centra support and quality assurance (incl. risk assessment and management)
- 2,5 Support and quality assurance (incl. risk assessment and management) for all types of cases

In total RO includes 14.3 positions today, however the other 7,3 positions are not directly connected to the EFR process and are connected to for example research Intelligence, coordination of strategic projects (SRA, EIT InnoEnergy, Platforms etc).

6 Stakeholder Analysis - faculty

The stakeholder analysis for KTH faculty includes a survey and a set of interviews. The survey was performed in December 2013 while the interviews were performed in January 2014.

6.1 Survey

The survey was sent to 155 research active personnel at KTH. The selection was based on a set of 1097 persons from different KTH Schools and different positions and the final set consisted of 5 randomly selected individuals from each position[9] at each school (where applicable).

The questionnaire consisted of 18 questions related to the EFR and RO's obligations, activities, interactions and general visibility. Not all questions were answered by all respondents due to the setup of the questions were a certain answer triggered a following question or skipped one or several questions. Most of the questions were yes/no or graded insufficient to excellent with the possibility to explain or comment in fields connected to the question or set of questions. The questionnaire was available in both Swedish and English.

Throughout the questionnaire the questions followed the topics:

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[9] Includes professors, associate professors, senior lecturers, assistant lecturers, senior researchers and scientists.

• Information on KTH Research Office and questions related to what is known about the units services.
• Questions related to the support received from KTH Research Office and the researchers' opinion of the support.

Of the 155 respondents who received the survey 103 people responded (66%), which can be considered a good response rate. The main findings were:

- 48% are aware of the responsibilities RO has due to KTH delegation of authority to assure the quality and risks of KTH commitments and quality of performance management.
- 42% responded that they are aware that RO is responsible for KTH being able to meet and fulfil funding bodies demands and requirements.
- 37% acknowledges that they are aware that RO together with the individual ensures to keep the right to publish and continue research on research findings and results.
- 57% are aware that RO is the formal contact with external funding bodies such as the EU, US and other international funding agencies and some national funding agencies.
- 49% are aware that RO ensures quality in ERC applications.
- 45% of the respondents are aware that RO coordinates filings and the priority group for KAW applications.
- 19% know for sure when they need to contact the Research Office while 43% sort of knows when to contact RO.
- 53 individuals (approximately 50%) of the respondents have been in contact with RO while 43 people have been supported.
- Of those who have been in contact with RO 58% would recommend a colleague to contact RO while only 7% would not recommend to contact RO.
- In general several individuals did not know that RO exists and what its objectives are. This was also reflected in the comments.
- On the negative side some persons commented on bad experience when contacting RO and that the interactions are very time consuming and bureaucratic while some commented that RO provides far to general support and would like more individual support in the EFR process. This however only reflects some individuals and no conclusions can be drawn.

The 43 persons who received support from RO was asked the following questions:
"How is the support you get from the Research Office within:

a) information and support regarding external financing of projects
b) support for the development of research applications
c) support for Coordinators of EU funded or national applications/projects
d) administrative support through your school (eg funding issues , budgeting , financial reporting)."

The responses show a large variation on how many of the respondents who have used the different kinds of support offered. Thus it is therefore difficult to draw any conclusions. To gain more insight as to why the respondents answered in a certain way and based on some comments in the free text fields, the survey was followed up with nine interviews.

6.1.1 Interviews

Nine researchers were selected for interviews, and eight interviews were conducted (one was unable to attend). The sample was based on the answers given by respondents in order to get both negative and positive respondents as well as weighing in school, position and gender.

Each interview took an hour, with two or three persons from RO attending. Seven of those interviewed are professors, including one dean and two heads of department. The other two interviewed are assistant professors. All of the interviewed persons have different background in regards to apply for external funding and to be partners in collaboration projects.

In the interviews they were asked to further develop their responses in the survey. At the end of the interview they were asked to say what services they would like RO to offer, and how they would recommend RO to reach out to the researchers in order to gain visibility and increased presence.

Recurring opinions are:

- Would like to have more information from RO about current calls - preferably within their specific research area. This is particularly asked in regard to EU calls, which are seen as more difficult to monitor than national calls.

- RO has much to contribute in terms of knowledge of the various funding bodies. An example: "*excellence* does not always go together with *strategically important* and it's hard to know how to position yourself when you write an application. To raise the odds one must know the financier."

- More support on partner search. There should be a potential to improve the odds of your application to be granted by finding the best possible collaboration partners, but often it's just a coincidence (based on who knows who) that decides which partners you choose.

- Since RO is a neutral intermediary, working for all of KTH, RO add much to the success of the process and project.

- Respondents who have answered the support is acceptable instead of good were generally not unhappy with the support they had received, but wanted more support.

- Those who had received help with ERC were content with the support they had received.

- How the support for external research funding is constructed is not entirely clear to researchers. For example there is a misconception that they have been in contact with RO when they apply for Marie Curie (which is handled by another function at the university administration).

6.2 Internal reference group

An internal reference group was established to receive input from representatives from different stakeholders of the process. Main questions were

- Is the external analysis and process description relevant and correct?
- Is the implementation of the process adequate?

Members invited to the reference group were school deans, administrative heads on school, research leaders and industry representatives.

One half-day reference group meeting was held. Due to a number of last minute cancellations only half of the reference group could attend. For some of those not attending, comments have been collected by other means. At the meeting, Research Office presented in short:

- External and internal changes
- Research Office role and activities, in relation to external changes,
- The overall work process.

The reference group gave input on the presentation of the process as well as on the self-evaluation process.

Their comments in summary:

- We need to demonstrate that we add value to the user. For example; we provide opportunities to increase the researcher's external financing and/or career opportunities. We need to find a way to show and measure that we create value, both qualitatively and quantitatively
- Divide the process flows in simple and complex flows, which also specifies the flow time depending on the complexity.
- Produce a “tips and tricks” list for the stakeholders on what they need to consider depending on the requested support
- Try to show how much of the budget is spent on different tasks, and to measure the result.
- Try to find the bottlenecks and their impact on the flow.

7 Internal analysis and conclusions

Research Office is still a relatively small unit. However, its assignment and the expectations from the central KTH management has increased during the last years.

The internal analysis consist of a SWOT analysis and conclusions drawn from the responses in the survey and the interviews conducted, as well as from the meetings organized within the frame of the self-evaluation, both internally within Research Office and with the internal reference group.

7.1 SWOT analysis

A SWOT analysis has been performed as a Research Office teamwork exercise, where all personnel took part in a one and a half hour long brainstorming session. The outcome from this meeting was futher processed by the AAE RO Steering group and is concretized below.

Strengths	Weaknesses
Relevant competence and experience relating to external research funding is high at RO. The ERF process is flexible and can easily be adjusted in regards to different issues/new funding bodies that need to be addressed. Research Office is overall up to date on changes occurring in the larger external research funding landscape, and their consequences. Research Office is an intermediate and neutral actor, giving credibility to act and manage the process. KTH is a strong research university with large external research funding. The internal experience at KTH in regards to writing successful applications could be harvested. Research Office has the freedom to respond to new needs in relation to funding bodies’ demands, i.e. build relevant and up to date	Research Office’ mission, mandate and role is not known at all KTH schools and administration. • Discrepancies in expectations on what RO can and cannot give support to. • Lack of knowledge of when it’s mandatory to contact Research Office, leading to involvement of Research Office in a late stage of the process, which causes strain and more work. There is HR shortage at Research Office, the legal department and at some KTH schools. • Support is not always possible to give in non-mandatory parts, or is not given to the extent as could be given. • Dependency on legal resource, limited to 1,5 legal counsel at the legal department, creates delays due to congestion. • Communication in regards to calls,

<table>
<tr><td>processes.

The non-mandatory support is appreciated by the researchers that have received it.</td><td>information and support to schools on updated website etc. cannot be performed fully, giving an unclear “packaging” of what support/service RO can give.
No backup resources are available, giving an unstable support level.
A varying degree of support and information at school levels gives different capabilities to manage external funded research.
Unclear view of the different departments assignments and responsibilities, sometimes leads to unnecessary work when issues need to be readdressed or corrected.</td></tr>
<tr><th>Opportunities</th><th>Threats</th></tr>
<tr><td>Support to a higher number of applications would improve the rate of approved research applications.

The support and quality assurance can be improved if RO come into the process at an earlier stage

The support could be improved if RO could to build up stronger competence in the administration at the different KTH schools.

A stronger intern communication of the EFR process, RO assignment and calls would improve the possibility to support more researchers in regard of external funding, on a basic level.</td><td>Contracts have gained importance for externally funded research, as a mean to strictly set up the conditions and rules applying for a certain project/centra etc. Compliance paragraphs in contracts keep getting stricter as well. Consequently, the risk for a university to get sued is assessed to be higher in the future and the need for contract quality and risk assessment is judged to rise.
Contracts have gained importance for externally funded research. Compliance paragraphs in contracts are getting stricter => the risk for a university to get sued increases => need for increased quality and risk assessment/management in in all phases.

A low level of support in non-mandatory parts of the EFR process risks resulting in researcher movement to other, university providing more service.

Researchers may choose to not use RO if the support cannot be given, taking an unreasonable long time due to delays or congestions.

Lack of HR leads to, focus on extinguishing fires, rather than a consequent support in all phases.</td></tr>
</table>

7.2 Internal analysis

During the course of this assessment some key words can be defined, symbolizing both the difficulties and potential in the EFR process;

- Vulnerability

- Dependency
- Awareness
- Consistency
- Excellency
- Expectations

Vulnerability

The ERF process at KTH is today vulnerable. This is due to time restrictions caused by short deadlines and lack of awareness of the support and mandatory regulations in place at KTH. Furthermore, there exists a shortage of personnel with needed key competence. The nature of the external funding landscape and the different aspects in the EFR process require persons that are both broad generalists but have the capability to still be specialist in their respective fields and high social capacity in order to interact with all stakeholders. With the more or less only 6.8 fulltime positions managing the ERF process at Research Office, a minor change in staffing may constitute serious loss of competence. This also implies a need for hard priorities on mandatory aspects and little possibilities to give and build strong support in the earlier and later parts of the EFR process. A more sustainable capacity for support would pay off both in terms of better applications as well as creating possibilities to be able to take higher risks in the contractual relations by ensuring a strong and secure project implementation.

Dependency

The EFR process builds to a large extent on that each party do and can do its own part in the process. If one party does not deliver, Research Office has to handle the consequences regardless in order to move forward.

Especially in the contract phase, but to some extent also in the other process phases, the work by Research Office is dependent and integrated with the delivery from the Legal department. It is essential that the capacity and work models are linked and matched to each other. Today a shortage can be noted in available legal capacity, which sometimes jeopardizes the overall delivery in the process. An extensive work is ongoing to slim and match the processes, but there is a bottom line capacity problem.

The differences in capacity, awareness and competence in different School administrations causes an unclarity in the share of work and responsibilities between and within the schools (multi-disciplinary research project requires more cross school collaborations). It's important to assure that budgeting and economical support and compliance activities get necessary resources on all School if KTH external funding is to increase. Research Office and other central units are directly dependent on this capacity being available on the Schools. Capacity issues leads to risks involving that funded projects either are turned down or risk compliancy problems, that in worst case could "black-list" KTH at funding body.

Awareness:

The increased influence from university management on decisions taken have gradually evolved during the last decade, reflected in for instance an increased power for the school deans and the up-dated KTH Delegation of Authority. The work model, where not only EU funding but more or less all external funding is quality assured in a more structured and assigned way, has been in place for more or less three years. It naturally takes time to anchor such a shift in a large decentralized organization, such as KTH. The process get its legitimacy very much dependent on the requirements set by funding organizations, but is dependent on knowledge, acceptance and respect for the work model internally at KTH, at different levels in the organization. The work to anchor and spread knowledge on the KTH Delegation of Authority and the EFR process has to continue.

Consistency

With an increasingly complex funding environment, the need for KTH to be consistent concerning its external collaborations increases. Funding bodies and collaborating parties need to know in advance KTH overall conditions for collaboration. Excellence in funding management, non-scientific issues, compliance and terms for participation is equally important in order to build strong, stable and sustainable relations.

Actions and work from one of the most highly ranked technical universities shows that success in terms of both research and innovation is also closely connected to clarity and consistency in these issues[10].

Consistency is created not just by a transparent EFR process where all parts can and have the capacity to perform their part; it also requires that all internal stakeholders share the same understanding. The actions of today will affect the outcome and possibilities of tomorrow. The need for strategy, clear assignments and teamwork are vital.

Excellence
The handling of the high volumes in the process, with a high degree of flexibility and commitment due to the ever-changing funding landscape, indicates that the process is efficient, delivering added value and has relevant key competence. The process has therefor the potential to be expanded to facilitate the achievement of KTH strategic goals.

Expectations
The KTH Strategic plan specifies goals in regards to an increased external research funding, leading to high expectations on support for expanded research activities. These expectations are shared by the internal stakeholder as well, shown in the survey performed as well as in interviews. It is however important that the expectations are realistic based upon the resources and possibilities at hand. This self-evaluation indicates that the expectations expressed, even though well justified, may not in all aspects be realistic unless changes are made.

7.3 Conclusions

This self-evaluation has not only described the EFR process, it has also described and shown the connections between the different actors in the process as well as identifying where and how decisions are made. It has proven that the EFR process in itself is adequate in terms of being able to manage, support and deliver the relevant output. The ERF process is up-to-date and follows the tendency in the external research funding business where competition, excellence and consistency is vital also in regards to the non-scientific aspects of research funding.

It can also be concluded that support competence is strong but partly limited to a few key persons, creating a capacity issue which in itself affects the service level. Despite this, value for money is given as the deliverables in relation to the available resources are quite high. This is also shown by the survey directed to faculty members, as the majority of those who had been in contact with Research Office would recommend the support offered.

Due to capacity shortage there is a lower level of support than optimal in some parts of the EFR process, as mandatory quality and risk assurance is prioritized in order to not lose awarded grants. To improve the support given, resources need to be allocated not just to Research Office, both also to both the Legal department and KTH Schools.

7.4 Suggested action points

In accordance with the internal analysis and conclusions, it is recommended to:

- Create a map of how the support is organized on all KTH schools. This is important for both the earlier stages in the EFR process where the researchers would benefit from a clearer understanding of what support the school give, as well as in the Project phase where it would be beneficial to have a more uniform project management on all schools.

- Push for a larger extent of cooperation between both KTH Schools and Research Office as well as between the different departments within the university administration and Research Office. It

[10] MIT

could lessen the efforts needed to put in at a later stage in the ERF process when time limits are strict. This could be achieved by a more formalized distribution of responsibilities in regards to the support leading up to a signed agreement/contract.

- In order to provide more service which is not mandatory, more resources (personnel) with relevant competence would need to be allocated to Research Office.
- It is important to strengthen the legal department in regards to how many legal counsels are working with contracts. The situation of today with only 1,5 fulltime equivalent legal counsel is fragile and lead to unnecessary delays.
- Organize an internal information drive (web, seminars, school visits etc.) to inform both of when researchers **must** use Research Office and what could be offered as non-mandatory support to them.

8 Analysis of the self-evaluation process

The self-evaluation has been rewarding in many aspects, given us the opportunity to map and describe the EFR process in a structured and consistent way. It is apparent thought that the work demanded more resources than available, which has had the effect that much overtime hours had to be put in. Research Office has not the margins to set aside personnel to work designated to a larger extent on projects not in line with the core business.

The work by necessity had to be delimited having the effect that support given at School level as well as by other departments is not fully covered. If possible, it had been an advantage to include this support.

A reflection from this self-evaluation is that the internal reference group could have been set up and organized in a different way. To have an efficient internal reference group, we chose the members among deans and high administrative persons and it was very difficult to gather this group, due to time restraints for all parties.

The methods chosen, including the survey, interviews and SWOT proved to be adequate and efficient.

In all, the self-evaluation has given a valuable result and has included the whole department.

Glossary

AAE – Administrative Assessment Exercise 2014. An extensive assessment exercise covering KTH's university administration being performed under 2014, of which RO is one function being assessed.

CA – Consortium Agreement

CoI – Conflict of Interest

EAE 2011 – Education Assessment Exercise 2011. An extensive assessment exercise covering all of KTH's education that was performed in 2011.

EARMA - European Association of Research Managers and Administrators

EFR – The KTH process for support to Externally Funded Research. A simplified model consisting of the four phases Idea, Application, Contract and Project. Described at length in chapter 4.

GA – Grant Agreement

GFP – Grant Preparation Form

HEI – Higher Education Institute

IP – Intellectual Property

IPR – Intellectual Property Rights

LoI – Letter of Intent

MoU – Memorandum of Understanding

NDA – Non-Disclosure Agreement

NCP – National contact point

RAE2012 – Research Assessment Exercise 2011. An extensive assessment exercise covering all of KTH's research that was performed in 2012

RfP – Rules for participation

TRL– Technology readiness level

Definitions

Case – an idea/initiative or project that exists within one of the four phases of EFR and is requesting or requiring some sort of action by KTH RO at some point.

KTH centra – Competence centres located at KTH. They might be part of a KTH department, not necessarily, but still conduct research on their own. Most of the centres maintain close connections with industry and are funded over a long term perspective.

KTH Delegation of Authority – Please see chapter 3.3.2.

Research Professional – An online tool for finding funding opportunities.

The professors privilege (in Swedish “lärarundantaget”) – Swedish law that regulates (although dispositive and can be negotiated) that the researcher has the prime/original right to the intellectual property connected to a generated research result.

The public act – Swedish law that stipulates that government, authorities and the parliamentary and municipal decision-making assemblies’ activities as far as possible should be open.

Funding Bodies Referred to in the Report

Formas - The Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, http://www.formas.se/en/

Forte (formerly named FAS) – Swedish Research Council for Health, Working Life and Welfare, http://www.forte.se/en/

KAW – Knut and Alice Wallenberg Foundation, https://www.wallenberg.com/kaw/en

MISTRA – The Swedish foundation for strategic environmental research, http://www.mistra.org/en/mistra.html

SSF (Stiftelsen för Strategisk Forskning) – Swedish Foundation for Strategic Research, http://www.stratresearch.se/en/

VINNOVA –Swedish Governmental Agency for Innovation Systems (Sweden’s innovation agency), http://www.vinnova.se/en/

VR (Vetenskapsrådet) – The Swedish Research Council, http://www.vr.se/inenglish.html

Specific research programmes mentioned in the report

BVFF (Bana Väg För Framtiden) - BVFF is an industry programme for research, development and innovations in road and railway construction and maintenance, http://bvff.se/web/page.aspx?sid=9221

EIT KICs - The European Institute of Innovation and Technology (EIT) Knowledge and Innovation Communities (KICs), http://eit.europa.eu/

FFI (Fordonsstrategisk Forskning och Innovation) – Strategic Vehicle Research and Innovation. A research programme under VINNOVA. http://www.vinnova.se/en/FFI---Strategic-Vehicle-Research-and-Innovation/

NFFP (Nationella Flygtekniska Forsknings Programmet) – National Aviation Engineering Research Programme. A research programme under VINNOVA. http://www.vinnova.se/en/Our-acitivities/Cross-borde-co-operation/Cooperation-Programmes/National-Aviation-Engineering-Research-Programme/

SIO (Strategiska innovationsområden) – Strategic innovation areas. A joint venture between VINNOVA, Formas and the Swedish Energy Agency with the purpose to “create conditions for international competitiveness as well as to find sustainable solutions to global challenges for societies”, http://www.vinnova.se/en/Our-acitivities/Cross-borde-co-operation/Cooperation-Programmes/Strategic-innovation-areas/

SRA (Strategiska forskningsområden) – Strategic research areas. An initiative launched by the Swedish government in 2009 for funding 20 research areas, specified as being of great importance, where the funding is distributed directly to the HEI instead of being distributed by funding bodies.
http://www.vr.se/inenglish/shortcuts/strategicresearchareas.html