Research and innovation projects

Necessary questions for effective collaboration

For many companies and research institutions, engaging in collaborative research and innovation with external partners is an everyday occurrence. Projects are launched with great enthusiasm and high expectations of their contribution to increasing quality, improving efficiency and the development of new solutions to complicated challenges. And yet, once the project gets started, good intentions are often forgotten. Project participants are under pressure from other duties and from shortage of resources. Suddenly a year has gone by, and the project has not progressed as expected. What happened?

There is no simple answer to that question, nor is there a simple solution to how projects can be launched quickly and effectively, so that all parties can see a continued interest in investing their resources and energy in the project. There are, however, a number of questions that we know from experience are important to ask in collaborative projects.

Innovation Fund Denmark and the Think Tank DEA have gathered some of these questions in this guide. We cannot provide the perfect recipe for a good collaborative project. We wish, however, to give future collaborators, project managers, steering groups and others a better point of departure for some of the discussions that we believe are essential to establish the trust and openness necessary for a good project. The ultimate goal is to make the most of the resources and effort invested in the many collaborative research and innovation projects undertaken by universities, companies and hospitals in Denmark.

Good luck on your ongoing and future projects!

Peter Høngaard Andersen
Director, Innovationsfonden

Stina Vrang Elias
CEO, DEA

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Experience shows that research and innovation projects are often hampered because they were not designed in the right way to begin with or because objectives and expectations remained unclear for too long. It may be that the enthusiasm over the project overshadows the need for additional clarification or concretisation. Also, factors such as work pressure and time constraints may imply that discussions about some of the difficult issues are put off, avoided or forgotten.

Along with the other project participants, part of the project manager's responsibility is to ensure that important questions are asked until they are answered in a clear, adequate and timely manner. This contributes to ensuring a good project process and that the objectives defined in the project are met.

The purpose of this guide is to list a number of questions which every project manager ought, ideally, to ask and discuss with the other project participants. This guide can hopefully strengthen the prerequisites for better collaboration and, thus, better results in research and innovation projects. Even if some of the questions may seem intuitive, perhaps even trite, experience shows that they are often not addressed sufficiently or at the right time in the project process.

The guide summarises and condenses relevant insights and recommendations from previous analyses, guidelines, etc. The knowledge thus gained has then been developed further through 21 qualitative interviews with participants in various types of research and innovation projects.

The guide focuses on formal, contractual research and innovation collaborations where public and/ or private parties join forces to finance and seek external funding for common projects. Such parties are often higher education institutions and business enterprises, but may also involve GTS institutes, government research institutions, public authorities, hospitals and other relevant organisations.

The question guide regularly makes references to parties or collaborative partners by which are meant the organisations (private as well as public) participating in the project. The terms project participants and project workers refer to the individuals working on the actual project.

The guide will only to a limited extent refer to the continued efforts needed to implement or develop the results from research and innovation projects once the formal collaboration is concluded. Likewise, the actual drafting of agreements and the legal negatiations in that respect will only be alluded to, as this topic has been addressed more thoroughly in other guides. The intention behind this guide is to provide a concise starting point for important discussions in the project, while at the same time making references to other, relevant guides and publications that can be consulted for more in-depth knowledge.

INTERVIEWEES

The interviewees in this guide have been selected based on their prior research and innovation project experience, including their experience in project management. They represent research and innovation intensive businesses from a variety of sectors, Danish universities and other publicly funded organisations.

- **Brian Vinter**, Professor, University of Copenhagen
- **Claus Byskov**, Senior Manager, LM Wind Power Blades
- **Dorthe Kjerkegaard**, Innovation Consultant, Region Syddanmark
- **Dorthe Kusk**, Head of Department, Region Syddanmark
- **Else Marie Agger**, Director, Statens Serum Institut
- **Eva Sørensen**, Professor, Roskilde University
- **Gert Frølund Petersen**, Professor, University of Aalborg
- **Hanne Everland**, Director GRD, Coloplast A/S
- **Jacob Buur**, Professor, Syddansk Universitet
- **Jane Lindedam**, Platform Manager, BIOVALUE SPIR, University of Copenhagen
- **Jesper Bryde-Jacobsen**, Managing Director, BIOPRO
- **Jonatan Kutchinsky**, CEO, SimpLight ApS
- **Jørgen Arendt Jensen**, Professor, the Technical University of Denmark
- **Kristian Almstrup**, Senior Scientist, the University Hospital of Copenhagen
- **Lars Thøgersen**, CEO, CPH Inventures A/S
- **Lasse Leick**, Group Leader External Projects, NKT Photonics A/S
- **Mads Bennedsen**, Senior Scientist, Chr. Hansen A/S
- **Niels Bjørn-Andersen**, Professor, Copenhagen Business School
- **Ole Zoffmann Andersen**, Biomedical Surface Specialist, Elos Medtech Pinol A/S
- **Søren Rud Keiding**, Professor, University of Aarhus
- **Ulrich Quaade**, Head of R&D, Amminex Emissions Technology A/S

The guide has been prepared by DEA in cooperation with Innovation Fund Denmark and is structured around a series of key themes that need to be discussed as a point of departure for the collaboration and themes that ought to be discussed on an ongoing basis. The guide covers four project phases: pre-project phase, start-up phase, project process and project completion.

1. What is the background for the project? Does everyone agree about the problem which the project aims to solve? And why is collaboration the right approach to solve it?

2. What are the objectives and success criteria for the project? And what will the project participants have gained, individually and in the aggregate, once the project has been completed?
The collaborative partners in the project do not necessarily take a similar view on what the (overall) objective is or what specific results they hope to have achieved once the project is complete. Objectives and success criteria are closely connected with the individual partners' expectations as to what should actually be done with the final product or results of the project (see more details under "Post-collaboration deliberations"). It is vital to get to the bottom of what is the objective of the project, generally as well as for each individual project participant, to ensure their continued commitment (see more details under "Matching of expectations, interests and ambitions").

3. What are the project results to be used for?
Each of the collaborative partners should consider from the very beginning what they wish to do with the project results. Not least since the work to be done will rarely be finished once the research and innovation project is completed. See more details under "Post-collaboration deliberations".

4. What concrete part deliveries are needed to meet the objectives?
Precise, measurable milestones during the project process are essential, not least since they allow the project management to assess the status of the project and, if required, make any adjustments prompted by unforeseen events. Also, part deliveries may contribute to ensuring that the collaborative partners achieve useful, short-term results, motivating them to carry on the effort to achieve the project objectives (see more details under "Committed project participants"). At the same time, the collaborative partners should bear in mind that since the project may not necessarily develop as expected, milestones may need to be reconsidered on the way (see more details under "Flexible collaboration".

5. Have the underlying prerequisites for the project been pressure-tested – or is a feasibility study or a pilot project needed?
Often, a project rests, partly or entirely, on ideas or previously developed results and models that have not been tested at the right scale or under the right circumstances. In such cases, it is important to minimise the risk relating to the project by pressure-testing its prerequisites before embarking on the journey.

- If no pressure test has been performed: what type of feasibility or proof-of-concept study or pilot project is needed and who is to carry it through?

- How to finance the pressure test? Can it be integrated into the project application, allowing the project to be modified, if necessary, or even discontinued if the required or expected results do not occur? Or should the pressure test be financed through own funds or other, external funds – and in that case which?

6. Who ensures progress when funds are applied for?
The effort to seek external funding for research and innovation projects is a long haul involving many costly hours to be spent – and still there is no guarantee that a project grant will be obtained. The task of ensuring progress should be undertaken by the partner organisation that has most at stake in relation to the project.

7. Is every collaborative partners' contribution to the project both relevant and significant?

Experience shows that projects where one or more parties fail(s) to make a relevant and significant contribution are at risk of encountering collaboration difficulties and lack of progress. This may, for instance, be the case if a collaborative partner participates only: a) to accommodate a request from a potential funding provider with a view to increasing the chance of obtaining funding; b) to accommodate a request from one of the other collaborative partners; or c) because historic collaboration is carried on in a new project, even if the project does in fact call for different competences and new collaborative partners.

8. What persons should represent the organisations participating in the project?

People decide if the project becomes a success or a failure. It should therefore be considered what competences the project workers should have. For instance, what is their decision-making power in their own organisation? And can the person in question build a bridge and navigate in the cross field between the cultures in, say, business enterprises, knowledge institutions and public administrations?

- **Is there a basis for inviting other partner organisations from the consortium to participate in job interviews?** Formally speaking, every partner organisation is responsible for recruiting its own project participants. But, inviting other collaborative partners to participate in job interviews could be a sign of trust. Not least in recognition of the fact that the project participants must be functional in the project.

9. How highly prioritized is the project by management in the partner organisations?

The collaborative partners' commitment is key to the success of the project. That commitment is usually strengthened if management in each partner organisation has a clear strategy for how it expects the outcome of the project to play a role in the organisation's activities, strategy and other R&D activities. Similarly, management's commitment will typically be reflected in the resources (money or hours) allocated to the project by the organisation. It is difficult to imagine project participants committing to a project if management shows no interest.

10. What role should PhD students play, if any, in the consortium?

Many research and innovation projects have chosen, for various reasons, to involve PhD students as project workers. But if the project requires a high degree of adaptability or if its focus is highly application-orientated, it should be considered if a PhD student will be the most suitable project resource. PhD students are studying for a research degree and must therefore attend to a number of tasks besides research, for instance attend courses and give lectures. Their possibilities of changing sides during their studies are limited if, for instance, the focus of the collaboration changes direction (see more details under "Flexible collaboration").

The right collaborative partners depend on the objective of the project

Large partnerships such as platforms, networks or consortia, which comprise a higher number of partners, may make sense if the objective of the project is to pursue more explorative, scanning projects, unite players crosswise of the industry or a value chain or develop innovation-promoting legislation, regulations and standards. However, large projects are rarely suited for carrying through actual technological or product development projects. First, because expectations or requirements as to involvement of a large number of players make the collaboration more complex and increase coordination costs. Second, because more players make it more difficult to enter into a clear and satisfactory agreement on intellectual property rights (IPR).

There may, on the other hand, be a need for fewer participants in more focused projects whose purpose is to generate specific knowledge, solve identified problems or test promising materials or technologies. The advantages of a smaller number of partners are increased control over the composition of the partnership and the substance of the project; lower complexity and coordination costs; and the fact that smaller fora make it easier to protect and agree on the IPR involved in the project. In these cases, expectations or requirements as to involvement of specific types of players or activities may, to a higher degree, imply that projects (either because they are forced to include them or because they seek to live up to requirements from a potential funding provider) include partners who are not "natural" or who are not deeply committed. Such a situation can easily lead to "artificial" or even schizophrenic projects suffering from lack of focus and progress, often resulting in a steep fall in the participants' interest and commitment.

The two types of measures should be seen as archetypes at each end of the spectrum with many compromises. See more details in DEA and DI, Fra forskning til innovation - om virksomheders brug af erhvervsrettede forsknings- og innovationsordninger.

11. Is the objective of the project clear during the IPR negotiations?
If the legal negotiations do not start clearly from the objective of the project, there may be a risk that the IPR negotiations become disconnected from the project partners' interests in the project, unfavourably affecting the purpose of the negotiations. The objective of the project should not be overshadowed by the legal and financial concerns on which the legal adviser will focus.

12. How long time has been allocated to IPR negotiations?
It takes time to agree on the distribution of IPR in a research and innovation collaboration project. At worst, negotiations have taken up to two years to conclude. This is a risk one should bear in mind when considering when to initiate negotiations on the distribution of IPR. One thing to also consider in this connection is that, in 2015, Innovationsfonden – as one example of a funding provider – has made it a condition for providing funding that a signed investment agreement, including an IPR distribution clause, exists no later than approx. two months after Innovationsfonden has agreed to grant funds.

13. What is the expected project value? On what computations is the expected value based? And how is the ownership to the expected results to be distributed among the collaborative partners? Experience shows that collaborative partners often disagree very much when it comes to the value of the expected outcome of the project. In case of disagreement over the expected value, the IPR negotiations will be characterised by misunderstandings and be at risk of dragging on or, at worst, end in failure. Several different valuation methods exist, cf. Danske Universiteter, «Aftaler om forskningssamarbejde – vejen gennem den gode forhandling», and Dansk Industri and Rektorkollegiet, Kontakter, kontrakter og kodeks.

14. Is a confidentiality agreement required?
Confidentiality among the collaborative partners is essential to the ongoing and informal knowledge sharing during the project process, and such confidentiality is based on a trustful relationship among the partners (see more details under "Knowledge sharing"). Furthermore, it should be considered if a more formal confidentiality agreement is required. On the one hand, the collaboration may lay open commercial secrets which, e.g., corporate partners will, quite naturally, wish to keep secret. On the other hand, researchers will have an interest in publishing the results of a research and innovation project. A confidentiality agreement may address these two conflicting interests by, e.g., specifying when knowledge can be published outside of the collaboration.

Relevant guides on IPR negotiations

Conducting negotiations over how to distribute the IPR in the project is a both necessary and demanding element of the collaboration and will only be mentioned in general terms in this guide. More details on IPR negotiations may be found in Danske Universiteter, «Aftaler om forskningssamarbejde – vejen gennem den gode forhandling» and Dansk Industri and Rektorkollegiet, Kontakter, kontrakter og kodeks.

There is often a need for continued collaboration or dialogue between the collaborators even after the research and innovation project ends. But when project funds run out, the financial incentive for collaboration often ceases as well. This incentive, however, can be sustained through the distribution of IPR.

Several collaborative partners in research and innovation projects find that the need for dialogue and collaboration goes beyond the project concerned, for instance when the project results – e.g. new technology – are to be transformed into products to be marketed. But once there are no more project funds, the parties do no longer have a financial interest in or the resources required to carry on the efforts to develop a product that is ready for market. However, Elos Medtech Pinol A/S, the Danish Technological Institute and iNANO at the University of Aarhus found a solution to this in the distribution of IPR.

"A carrot is needed to continue the collaboration", says Ole Zoffman Andersen from Elos Medtech Pinol A/S. "That's why we agreed to distribute IPR in such a manner that we own the patent and, thus, have an interest in developing and marketing the product. The University of Aarhus has the licence rights to the knowledge they bring to the product, meaning that it will be entitled to royalties once we begin to sell the product. We have agreed on a benchmark implying that the better the technology which the University of Aarhus has contributed to developing works, the higher royalties will it get. Last, but not least, the Danish Technological Institute owns the production rights, even if we have the option of taking them over in return for a lump sum in case we wish to move the production activities elsewhere. In that way, the IPR distribution has given all parties to the project an interest in following the matter through – all the way to when the product enters the market."

Elos Medtech Pinol A/S has subsequently used the IPR model in two projects: a new collaboration with the University of Aarhus and the Danish Technological Institute and an innovation consortium where the three parties have invited Neurodan A/S, InMold A/S, Arla and the University of Malmö on board.

The IPR model is slightly more complex in the innovation consortium, which involves both a higher number of partners and less focus on product development. Here, the model with patent ownership, licence rights and production rights is not described using the names of the project partners, but as the desired distribution of roles in case the collaboration holds interesting patents. To ensure that all parties have equal possibilities of assessing the patent potential of the ideas generated in the project, it has furthermore been agreed in writing that all ideas meant for patenting or requests to suspend the development of ideas must be presented to the steering group in its capacity as the ultimate authority in respect of the project.

Source: Interview with Ole Zoffmann Andersen, PhD, Biomedical Surface Specialist, Elos Medtech Pinol A/S

15. Who has the strategic responsibility for the overall development of the project? And how often should meetings be held to discuss the overall strategic direction of the project?
The strategic and overall responsibility rests with the project steering group, which includes very senior executives representing each of the collaborative partners and, in some cases, the provider of funding. The steering group is not involved in the day-to-day project management, but its members should relate to and actively decide on any adjustments or changes of the objective of the project, its economy, overall direction, project participants and project manager.

16. How is the day-to-day management to be organised? And, if management consists of more persons than the project manager, how often should the management team meet?
In many research and innovation projects, the day-to-day management is organised in smaller work packages with each its work package manager, who refers to the project manager.

17. Who is the right project manager?
It should be considered whether there is a need to employ a project manager on a full-time basis or if the task can be undertaken parallel with the project manager's other tasks in his or her own organisation. It is also important that the project manager is not only assessed based on his or her technical competences. S/he should also be a good judge of how to lead the collaborative partners at a human level. All in all: a person who knows about technical as well as human leadership. The right project manager understands and respects the diverse interests at stake in a research and innovation project and is able to set a framework that fosters good relations between the collaborative partners. And not least: the right project manager must undertake the important task of ensuring that the participants put the project above their own interests.

18. Who should be responsibility for the administrative project management?
As technical management and administrative management are two different things, it could make good sense to split up these two tasks in those instances where the obvious technical project manager does not have the resources required for budget management and other administrative tasks. Large business enterprises and research institutions carrying through research and innovation projects on a regular basis often have more experience with and more resources allocated to budget management, reporting, etc. than small businesses.

Research and innovation projects can be very different and yet have clear characteristics in common, when it comes to the organisation of project management. Below follows a suggestion of what the main pillars of the project management model are.

The overall objective, the type of collaboration and the number of collaborative partners in research and innovation projects may be basically different. None the less, in his capacity as project manager in former and present projects, the CEO of SimpLight Aps has one project management model only. Thus, he has applied this model to projects involving as few as three partner organisations.

Specifically, the model is centered around four guiding elements: the steering group and the day-to-day management presented by the project manager, the work package managers and the management team. Ideally, the steering group members are separated from the day-to-day management, but in practice there may be overlaps.

The steering group is the board of directors in relation to the project, and its members do not interfere in the day-to-day project management. Steering group members do not necessarily work on the project, but they need to take a position on the direction of the project and its economy, and then they must have decision-making power within their own organisation with respect to resource allocation (both in terms of staff and financially) and IPR exploitation. The latter is particularly important, since further IPR negotiations may become relevant during the project process – e.g. if the project takes a new, and unexpected, turn – and in such a situation the steering group needs to have decision-making powers to ensure that negotiations do not drag on or the steering group is contradicted by their own superiors. Ideally, the steering group should consist of a very senior corporate executive and, for instance, heads of university departments. The steering group should meet twice a year and as required in case critical situations occur. Members are authorised to discharge the project manager.

The project manager is the CEO of the project and the one half of the day-to-day project management team. The project manager is the unifying figure who fosters a common spirit and coordinates the project and the individual work packages. The project manager has a broad idea of the day-to-day management, communicates with all parties involved and identifies any adjustments needed in the projects. Also, it is the project manager who schedules meetings in the management team as well as meetings involving all project workers, e.g. major workshops. Formally speaking, the project manager has not much of a say when it comes to the work package leaders, but s/he needs to be good at exercising "soft" power: for instance making the work package leaders deliver as promised – and on time. The project manager can take any conflicts with the work package leaders to the steering group as the superior authority in the project. In practice, Jonatan has had good experience replacing the work package leaders in a good spirit and in a close dialogue with them, since the reason has often been that they did not have the time needed to act as leader.

The work package leaders are the other half of the day-to-day project management team. Research and innovation projects often consist of several, small part projects – work packages – each of which is headed by a work package leader. These are leaders who work on the project and who, in practice, decide what is to happen with the collaboration between the project workers involved in each individual work package.

The day-to-day management team – the project manager and the work package leaders – meet at least once a month. Not all parties in the project are necessarily represented through a work package leader. According to Jonatan Kutchinsky, it is therefore vital that all parties are allowed to send a representative to meetings in the management team and that everyone receives minutes of such meetings.

Source: Interview with Jonatan Kutchinsky, PhD, CEO of SimpLight ApS

19. What motivates project participants to take part in the project? What exactly do they expect to achieve?

Matching expectations is key in the idea and project development phase. But it is also important to balance expectations on an ongoing basis throughout the project process, as developments do not always take the project in the expected direction. The project manager has co-responsibility when it comes to finding out and bringing to light the participants' expectations, as all project workers cannot be expected to be sufficiently conscious or certain about their own expectations.

20. Are the project objectives and success criteria – on the whole and for every project participant – sufficiently clear?

Specific (part) deliveries are important to ensure that the project participants stick to the project objectives and success criteria. At the same time, it sometimes happens that focus on the overall objectives of the project is overshadowed by an explicit discussion of the individual project participants' expectations. If some of the participants' expectations are unclear and/or are not fulfilled, this may adversely affect their commitment – and thus the project as such. The challenge here is to create a common interest in the overall outcome the project, while at the same time making allowance for a few project participants' separate goals. Without having a common project in mind, the collaboration will fall apart, and every participant may end up pursuing its own project.

21. Have the project workers attuned their motivation for the collaboration and the expected outcome of the project with their management?

Attuning expectations and interest in the project is not only key in relation to the project workers, but very much so also in relation to their senior management. The latter is important to ensure that the individual partner organisation commits to the project and delivers to the project.

22. When has the task been solved well enough?

In research and innovation projects, there are often different perceptions of how much time is needed to solve the tasks well enough and how flexible the collaborative partners should be in relation to the milestones in the project and in relation to supplying high-quality products. In many cases, the different perception of time is due to different levels of ambitions in relation to the project.

What typically motivates participants in research and innovation projects?

In the past few years, DEA has identified various motives among business enterprises, university researchers and public authorities for participating in research and innovation projects. Below is a brief outline of these three partner types' primary motives.

Business enterprises

Business enterprises participate in publicly funded FUI projects to strengthen their innovation development opportunities. Most see innovation as something that takes place internally in the firm once a project is complete. A good result from a project needs not be a prototype of a product – it could just as well be new know-how, a semi-manufactured product, a method to arrive at a product or merely the opportunity to test a technology or an idea. Collaboration projects allow business enterprises to undertake more, larger or more ambitious projects that they would be able to on their own. Due to the public gearing of its investment, the entity can invest in more long-term and risky projects. Last, but not least, such collaboration is of importance to the entity's recruitment of university candidates and in relation to its possibility of branding itself as an active player in the research and innovation environment.

Universities

University researchers first and foremost collaborate with the non-academic sector based on the expectation that such collaboration will have a positive impact on the quality of their research and education programmes. In addition, researchers' most important drivers for collaboration are the access to additional funding of their research, development and refinement of ideas for new research as well as access to research facilities, expertise, material, etc.

Public authorities

For public authorities, the collaboration with business enterprises and knowledge institutions is mostly about becoming better at making use of public investments. The purpose of innovation collaboration is to develop and rethink public solutions where the public sector gets access to new technology and know-how that may contribute to addressing the major and complex challenges in society.

Source: DEA and DI, Fra forskning til innovation - om virksomheders brug af erhvervsrettede forsknings- og innovationsordninger; DEA, University Researchers' Collaboration with Industry and the Public Sector; DEA, Kommuner som innovationsmotorer - om innovationssamarbejdet mellem kommuner, virksomheder og videninstitutioner.

23. How highly prioritised is the project in the individual partner organisation?
Committed project participants create better results. The need to have committed participants stems from, e.g., the fact that the project manager often lacks formal managerial authority vis-à-vis the employees and resources from the parties to the collaboration project and, therefore, needs to rely on committed project participants to ensure progress and results. A project manager can make an effort to foster a team spirit in the project (see below) and should therefore pay attention to which partner organisations seem to give the project high priority and which partners seem to require extra attention and motivation in order to deliver to the project. Commitment is reflected in, among other factors, the following:

- Does management of the partner organisations have a clear strategy for what the outcome of the project is expected to bring to the other business and research and development activities of the organisation? The clearer the strategy, the more is at stake for the partner organisation in relation to ensuring deliverables.

- How many resources have the partners allocated to the project? Including the seniority and the influence of the employees involved in the project and, not least, the funds or internal hours invested in the project by the partner organisation.

- How close is the project to the individual partners' core R&D areas and business? Project workers in research and innovation projects are very much persons who are motivated by having their professionalism stimulated. All things being equal, this increases their commitment in the project. Similarly, management of the partner organisation in question will be more inclined to back up the project if it is in line with the organisation's core R&D areas and business.

- How early are the collaborative partners involved in the project? Those partners who have contributed to forming the project from the very start of the idea development phase will typically be more committed. If you are involved at the eleventh hour of the funding application process, you will most likely end up listening to others and not contributing much to the actual project.

24. How can the project manager foster a team spirit and keep up the participants' commitment?
It is essential to secure the participants' commitment in the collaboration to a clear, common goal in which all participants have an interest and which they commit to pursue. The project manager should also pay attention to how the individual participants' interests and expectations are accommodated on an ongoing basis during the project process – not only when the project is complete.

- Are social activities needed in the project? The "social glue" in the project is key to ensuring confidence between the parties so that they will approach one another and develop ideas without bias. Only if feeling confident will the project workers commit themselves and bring know-how and technologies to the common project. You need to be confident that the other participants will not steal your ideas and that they fulfil their roles and keep agreements. Openness is needed for the partners' individual know-how to truly cross-pollinate. This is why good social relations between the project participants are of essence.

Tools to keep up commitment

DEA's interviews with project managers and participants in research and innovation collaborations point to a number of tools that can help keep up commitment:

A project structure involving regular reporting and meetings. Keeping the participants to their promises will make them feel more obliged to deliver. You could call it a kind of "friendly whipping". Regular meetings and reporting become a show window for the participants' effort and an opportunity for reminding them of their contribution to the project as well as for ongoing mentoring and idea development.

Binding collaboration involving at least two parties. The individual project workers need to keep each other up to the mark – without involving management. Here, it is of utmost importance to foster a professional dialogue between the project participants, committing them to deliver optimum quality and making them feel accountable if they do not deliver, as promised, to the other participants. A binding a mutually committing collaboration requires at least two different partner organisations, e.g. in the form of work package groups crosswise of the organisations.

Competitions within the project. One interviewee pointed to an example where the steering group had felt very strongly about motivation. This resulted in an internal competition among the project participants where they – in groups each consisting of two participants from at least two different partner organisations – were to provide input on how to respond to a given challenge.

Visualisation of successes. The project manager should remember to visualise, on an ongoing basis, the successes and results of the partnership. Also once the project is complete should successes be celebrated, as several good collaboration projects will be carried on in new constellations or sow the seeds of new projects going forward.

Ongoing honouring of interests. As mentioned above, the project manager needs to be aware of how the individual participants' interests and expectations are accommodated during the project, e.g. by regularly talking to the researchers about what they can publish from the project and by talking to the business enterprises about what short-term results they can reap and display during the project process.

To a large extent, the key to motivation is engaging project participants around the overall objective of the project. But motivation is also about holding them to their milestones by way of a friendly whip.

It may prove a challenge to ensure ongoing development and keeping the project workers motivated in research and innovation projects which often span several years and whose objective may easily seem remote. To Kristian Almstrup, senior research scientist at the University Hospital of Copenhagen, it is essential to keep the project participants up to the mark by way of a friendly whip:

"Often the wiseheads who are involved in the projects have got a lot on their plate already. I have found it very useful to stick to a somewhat rigid reporting and meeting structure to so to speak maintain 'a burning platform' under the project participants. In the current project with a relatively high number of partners, a meeting is held every other month for all project workers and steering group members. In this big group, which includes management representatives from the partner organisations, we ask in a friendly manner what the work package members have achieved since the last meeting. Having their effort exhibited in front of everyone puts pressure on the individual project participants. In fact, I think that kind of friendly whipping is essential to ensuring progression in a research and innovation project. "

Kristian Almstrup further emphasises that it is important that the milestones in the project are administered respecting the fact that the project may change direction and deviate from the expected development.

"As project manager, I am very open to the fact that changes may take place during the process. For instance, results differing from the originally anticipated results may be presented at our joint meeting every second month. We formulate a number of milestones when we draft a project application. If all of those milestones are reached, the innovation project has not been a good one. After five years, the world does not look the way it did when we worded the application, and changes should be made, affecting the outcome of the project. But the project workers must be able to argue for such changes."

Source: Interview with Kristian Almstrup, senior research scientist at the University Hospital of Copenhagen

25. Is there any flexibility in terms of the milestones and part deliveries in the project?

On the one hand, it is necessary to set up clear milestones and part deliveries in the project plan, not least to make it clear when the project deviates from expectations. On the other hand, the project partners should be realistic in their expectations, as, e.g., 5-year plans in an uncertain research and innovation project rarely come true in practice.

26. Who takes the consequences if a project changes direction?

Projects may lose their legitimacy if the partnership can no longer deliver on the objective or if the way the project develops makes some of the partners superfluous. This is often manifested in that it turns out that it is impossible to produce the expected results, that new know-how makes other routes more interesting or that research and commercial interests in the project move in different directions. From the very start, the ultimate project management – typically the steering group – ought to realise that the project may change direction and technical focus. It is up to them to assess if the success criteria underlying the project should be re-negotiated, if the resources should be re-allocated within the project and if the composition of partners ought to be changed. Also, they should ask themselves if those in charge are in fact ready to discontinue the project or replace collaborative partners where this is the last resort? Many interests may be at work, making such action complicated – such as the wish to maintain good relations to collaborative partners with a view to future collaboration. In addition, the project manager ought to make a good deal of diplomatic effort, have the ability to "sell" the new direction to the project workers and, not least, show respect for the prize which the various partners pursue and may, potentially, lose if the project changes direction. The alternative to flexibility when the project changes direction is that the project, in its original form, is dissolved and carried on without any common objective and with considerably less commitment from the project participants concerned – or that the collaboration/ project is discontinued altogether.

27. Are the project partners committed?

In a good collaboration where the partners are motivated by a real, common goal, most partners will often have an interest in adapting the project plan in case the project takes an unexpected turn. Many project managers try to respond to unexpected developments by focusing on building value and bringing a team spirit into the project. They may do so by motivating the participants around the common project and fostering respect for the differences in interest in the project.

28. Where is it particularly important to foster confidential exchanges of ideas and knowledge?
It is important to bear in mind that much of the benefit from partnerships is derived from more informal sharing of knowledge. An atmosphere of openness among the participants is of essence. It is about teaching individuals who are deeply embedded in their particular discipline to share, exploit and discuss "half-baked" ideas. And it is about being confident that the collaboration is a forum where you are allowed to discuss any ideas – no matter how immature they may seem.

29. How may the meeting form further knowledge sharing?
Physical meetings are key to close collaboration although they are seldom the only forum in which knowledge is shared. Physical meetings are about building relations, professionally as well as socially, but they do not necessarily involve all project workers every time. In many projects, the project participants are placed in various geographical locations. The challenge in relation to sharing knowledge between them is to avoid the situation that they just do what they would have done – regardless of whether they had been involved in the process or not. See examples of different meeting frameworks on the next page.

30. Would it be relevant to the project to involve users?
Many project managers emphasise that early involvement of end users may contribute to tightening up the issue(s) in the project, targeting the project development and specifying the final outcome/produce. Some further stress that active involvement of users from the very beginning of the idea and project development phase – and before the technology suppliers are contacted as project partners – is essential to create radically new and innovative solutions.

Meeting framework for purposes of knowledge sharing

DEA's interview with project managers and participants in research and innovation projects points to a number of different types of meetings that set a good framework for knowledge sharing:

Kick-off event. Once the project application has borne fruit in the form of external funding and the project is to begin for real, getting off to a positive start is enormously important. The purpose of a kick-off event is to ensure common focus in the project, inspire curiosity in relation to the various collaborative partners' contributions and, not least, build up social relations – three factors greatly contributing to laying the foundation for knowledge sharing in the project.

Overnight course/seminar. In continuation of the kick-off event, overnight courses or seminars may be arranged for the entire consortium to set new milestones for the coming year and maintain the social relations. What matters here is to remove the project participants from their normal sphere and allow them to immerse in specific issues in an otherwise busy environment.

Work group/package meetings. The participants may need – especially in major projects – to gather in smaller work groups for purposes of the work packages (part deliveries), allowing of more concentrated work. As not all specific discussions may be equally relevant to all project workers, consideration should also be made for the participants' full appointment books.

Informal meetings. Several project managers find it important to meet with the participants in an informal setting, e.g. on a one-to-one basis. In that way the project manager can make sure that each individual participant is part of the project and is not just left to his or her own devices.

Presentations as focused knowledge sharing. It can pose a challenge that certain participants may not wish to share all knowledge with the other participants, for instance trade secrets. Even though the partners may choose how much information about their core business activities they wish to reveal during presentations, etc., they need to present their ongoing results to the other project participants. Topical presentations give the participants something specific to discuss at meetings and are a good point of departure for knowledge sharing.

Virtual meetings. Many stress the need to meet face-to-face in the process. However, most knowledge sharing will, in practice, take place virtually, e.g. via e-mail correspondence, Skype meetings, blogs which only the project participants can access, and on-line project management tools such as Atlassian Confluence, a tool that facilitates communication and sharing of information.

Exchange of employees. Some project leaders have had good experience making work stations available to other project workers, allowing of day-to-day, multi-disciplinary cross-pollination where the good ideas are generated, discussed and further developed in a spontaneous fashion.

Fieldwork. Some project managers send junior staff or PhD students out in the field to work with the project participants. The purpose is to forestall isolation of certain project partners.

User involvement can be essential for formulating and sharpening the goals of a project. In the project CLIPS, however, extensive user involvement also became a strong driving force for achieving these goals.

In the CLIPS - Collaborative Innovation in the Public Sector project, there was a strong desire from the very start to involve the users of the project results in the efforts to develop methods to organise and lead the innovation project between citizens, the public administration, politicians, interest organisations and private enterprises. Over the four-year project period (2009-2013), goals were to improve the service and rethink policies in the public sector.

The collaboration between Roskilde Universitet, the University of Copenhagen, CBS, the University of Aalborg, Professionshøjskolen Metropol, Center for Offentlig Kompetenceudvikling, FTF and Konsulenthuset Dacapo A/S was launched at a conference allowing the collaborative partners to brand themselves, communicate their role in the project and, not least, involve users in the issues inherent in the project.

The conference gave rise to a great deal of interest, a number of networks and specific collaboration inquiries from the approx. 300 participants, who reflected the users of the project – from the public to the private sector. In several instances, the inquiries led to concrete agreements to the effect that CLIPS could use them as the case examples which the project was to study over the next years. In that way, the conference greatly impacted the final results of the project.

The conference had another, considerable impact on the collaboration between the parties in the project. The overwhelming interest from the surrounding world and the subsequent user involvement became a huge motivating factor for the project workers in terms of creating results and delivering as promised to the users.

”People would write and call to ask how far we had progressed and when we would have more results,” says Eva Sørensen, project manager and professor at RUC.

Eva Sørensen decided, in response to the great interest displayed by the surrounding world, to hire a communication officer who was to establish – and help the project workers maintain – a project website. A great effort had to be made to keep in contact with the users as well as keep them up to the mark. On the other hand, this effort contributed to maintaining the parties' motivation in the project and its results.

Source: Interview with Eva Sørensen, professor at Roskilde Universitet

Visualising a project idea can be of great help in guiding knowledge exchange about project goals. Visualisation epitomises the physical constraints within which the project needs to develop new knowledge.

Exploiting knowledge on a cross-disciplinary basis in public and private organisations is the great idea behind innovation projects. Knowledge should be brought into play – but how to do so? In the intelligent baggage trolley project, visualisation is an important tool.

This project was born out of the vision of a more efficient and less frustrating security check in airports. The point of departure was airport passengers' wish for a more flexible start on their journey.

After several large user studies and observations, CPH Inventures chose to focus on further developing the hand baggage trolley most often available in airports. Plans were to develop an intelligent trolley which could, as a personal assistant, provide the passenger with all types of relevant information such as gate number, commute to the gate, delays and directional information. In addition, it should be possible to scan the trolley – and the passenger's belongings – in the security check, meaning that the passenger would no longer have to place clothes and bags on a conveyor belt and, only a few minutes after, have to gather everything again at the other end of the belt after the roentgen scanning procedure.

This whole idea called for development of a new roentgen technology, and CPH Inventures entered into collaboration with, among other parties, the Technical University of Denmark (DTU), which was to be in charge of developing the new roentgen scanner. But in that process, a need emerged to draw on a vast number of other competences in the partnership, and CPH Inventures laid down the framework for a cross-disciplinary collaboration project.

"In CPH Inventures, we work with industrial design and business development – putting people first – and we sensed quite early on that the researchers behind the roentgen technology, quite naturally, imagined the intelligent baggage trolley primarily based on the optimal conditions under which the roentgen scanner is working", explains Lars Thøgersen, one of the business developers in the project and CEO of CPH Inventures. "From the researchers' perspective, the optimum construction would be a huge one – a functional, architectural and pricing concept that would be a very big challenge and most likely not realisable".

CPH Inventures has designed and visualised the trolley based on insight into travellers' wish for a flexible departure, airports' operational needs, the manufacturer's room for maneuvre and production costs, with particular focus on the perceived relevance and value that could be created for each individual traveller. While developing the trolley, CPH Inventures joined forces with a number of analysis and IT firms, Wayfinding experts and the commercial departments in several airports – some of which are today partners in the project. On the basis of the visualisation, it became much easier for all parties to take a position on a vast number of defined issues relating to passengers, staff and the very different infrastructure in various airports.

The visualisation brought the collaborative partners' knowledge in play crosswise of disciplines, resulting in a number of physical requirements in relation to the baggage trolley and the roentgen scanner on which the researchers behind the roentgen technology and the rest of the consortium could agree and work to achieve.

Source: Interview with Lars Thøgersen, CEO of CPH Inventures A/S

31. What is to happen with the final results?

The individual partner organisations should consider from the very beginning of the idea development phase what they want to do with the final project results. Not least since the work is seldom complete once the research and innovation collaboration has finished. How to make use of the project results ought to be a recurring issue whenever the steering group discusses the progress and results of the project. The researchers, for instance, need to publish the results, and the public authorities need to implement the results and/or the experience gained from the collaboration in the organisation. Business enterprises often need to make extensive development efforts a couple of years, or even longer, after the project to translate the results into concrete, marketable products. And afterwards, they may need to enter into a dialogue with the partners. The further processing of results after project completion may require an ongoing dialogue with the collaborative partners. A business enterprise definitely needs to consider additional recruitment during the project process, since the ensuing product development could come to nothing at all if the enterprise no longer possesses the right competences to draw on from the collaboration.

32. What is to happen with the partnership?

In some cases, one collaboration project opens up for ideas for another. If you have spent time and energy to get a good collaboration up and running, it will be obvious to consider if the ground for another partnership has in fact already been prepared. Some collaborative partners therefore choose to end their collaboration by generating ideas for potential, new projects. For many partners, the collaboration is furthermore a solid platform on which to assess potential candidates whom it might be interesting to recruit later on. The question is if it is vital to ensure continuity or stick to the momentum when it comes to further project collaboration?

33. What is to happen with the experience gained from the collaboration?

Many project managers gain experiences from one project to another without such knowledge being accumulated by their workplace, meaning that the organisation will lose valuable experience/know-how once the experienced project managers are no longer employed. A great effort is required to pick up on and accumulate the experience gained from the innovation collaboration and to integrate the results that may benefit the entire organisation. Research and innovation collaboration experience is an important lesson when it comes to strengthening the organisation's capacity for innovation.

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