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WHITE PAPER

# Ten Ways to Energize Research Organization Collaborations



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## Introduction: Energizing Research Organization Collaborations

Research collaborations that extend across organizations—universities, hospitals, independent research institutes, national labs, companies, etc.—require a certain amount of activation energy and continuing attention and management in order to maintain and increase return on investment. This is especially true if the research organizations are geographically separated from each other—for example, in different cities, states, or countries. This white paper presents 10 ways to energize research organization collaborations (Figure 1):

1. Connecting individuals
2. Facilitating flow
3. Seeding partnerships
4. Developing proposals
5. Managing the collaboration
6. Sharing decision making
7. Co-locating researchers
8. Investing at the interface
9. Broadening the collaboration
10. Coordinating major pursuits



**Figure 1: Illustration of research collaborations across diverse organizations**

These mechanisms, while not strictly linear (i.e., one necessarily coming before the other), have been utilized as a collaboration progresses over time and increases in maturity. The mechanisms are observed whether the research collaboration is interdisciplinary in nature or focused on a specific research discipline.

In addition to profiling collaboration mechanisms, a schematic framework is presented to illustrate the alignment of these mechanisms along a continuum and draw attention to one mechanism that often occupies a central role.<sup>1</sup>

## Collaboration Mechanisms: Framework

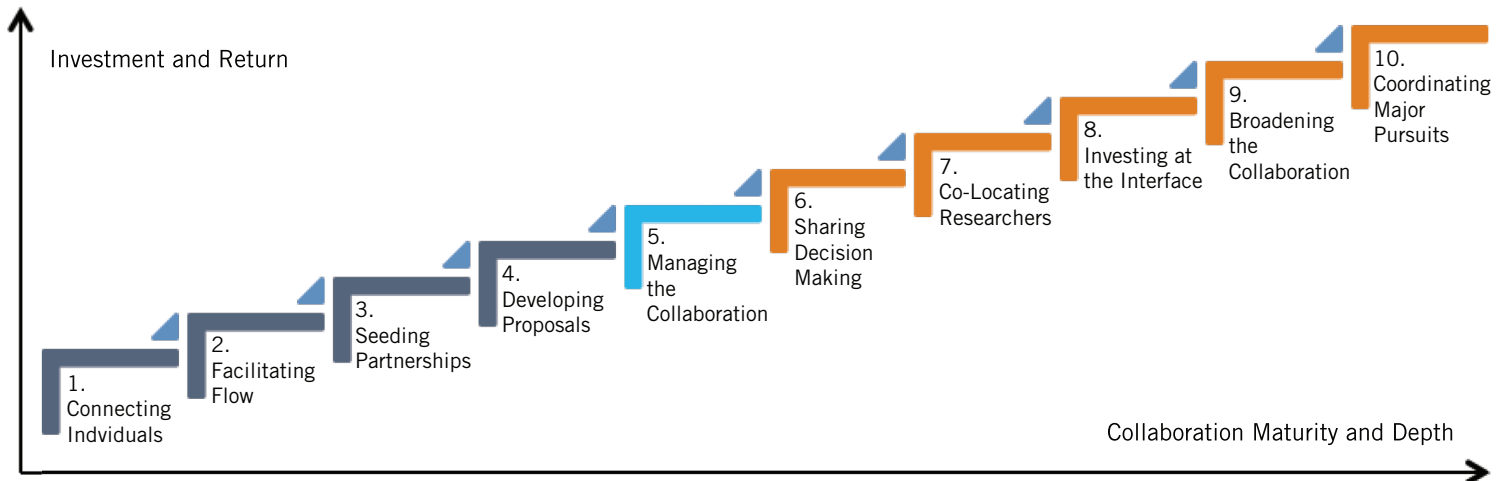
The schematic framework in Figure 2 depicts how each of the 10 mechanisms can be visualized to occupy a space defined by two axes:

- X: The maturity and depth of the collaboration (which often tracks with time)
- Y: The general level of investment required, and return expected, for the mechanism

<sup>1</sup> There are two simplifying assumptions: (i) that each organization in the collaboration maintains its own unique culture, identity, policies, procedures, incentives, and reward structures—and that the research collaboration will overlay these unique “topographical” characteristics of the organizations’ local environments, acting sometimes to make the collaboration easier and sometimes more difficult; and (ii) that these mechanisms do not include formal linkages between the organizations (e.g., joint appointments, organizational affiliations or mergers) that may, over time, emerge out of some research collaborations. While these kinds of “more covalent” bonds may benefit the organizations and are observed, the focus of this white paper is on the “more ionic” bonds that typically are established first and require energy, investment, and some degree of demonstrated success before consideration of tighter bonds.

At the risk of oversimplifying, the initial collaboration mechanisms generally have lower investment requirements and return expectations, while later mechanisms generally have higher investment requirements and return expectations. Mechanism No. 5, “Managing the Collaboration,” often occupies an important central role by enabling consolidation of the gains made in early stages of the collaboration and productive movement into more advanced stages of the collaboration.

Figure 2: Schematic framework of the profiled mechanisms to energize research collaborations



## Collaboration Mechanisms: Profiles

### 1. Connecting Individuals

Collaborations between research organizations typically start with interactions between individual investigators. The investigators may have worked together at a common institution in the past. Their interactions may have resulted in joint research publications and proposals (successful or unsuccessful) for external funding.

One early mechanism for building upon and extending the collaboration between research organizations involves **Connecting Individuals**. Specific mechanisms—such as organizing open houses, workshops, retreats, and other networking events—allow individual, research-focused interactions to form and develop. These approaches can help individual investigators—from senior to junior faculty, as well as staff scientists, graduate students, and post-doctoral scholars—learn more about each other’s individual research activities and interests. While much of this can develop organically, a certain amount of energy and investment—provided by one or both of the organizations—can be helpful to get over initial patches of inertia and maintain momentum.

The investments related to this collaboration mechanism are relatively small, as are the expected near-term and measurable returns. Organizations may strive to fund a number of these efforts and then seek to reduce their energies in favor of some of the mechanisms profiled below. Still, some level of sustained attention to these kinds of activities over time often remains valuable.

## 2. Facilitating Flow

After establishing contacts and engaging in some individual collaborations, it can be productive for organizations to invest in **Facilitating Flow** (i.e., getting researchers to move between the organizations and spend time together on the ground). Graduate students and post-docs often are the preferred individuals for these sorts of collaboration mechanisms, serving as connectors and living up to their often-cited role as the “glue” that allows collaborative research to flourish.

This sort of flow can take many forms and has a number of operational considerations. The schedule of physical trips or exchanges may vary depending on the nature of the developing collaboration and scientific discipline—as well as on the specific resources made available. Lengths of stay may range from a graduate student spending a week at a collaborating laboratory to a senior research taking a short sabbatical. Proactive organizations may “map” out lab and office space and housing arrangements in an effort to facilitate the logistics around research-flow arrangements and to enhance productivity.

The investments related to this collaboration mechanism vary but can remain relatively modest. One important decision relates to how investment decision making will take place—for example, whether a formal call for proposals is broadly announced and evaluated or if more targeted, ad hoc investments are made to research teams—each presumably utilizing some form of trusted governance structure to guide investments.

## 3. Seeding Partnerships

As collaborations progress, productive outputs and outcomes may emerge on their own, and these should be monitored and encouraged. At the same time, this is often the logical time during which organizations begin to consider investing in seed grants—targeted, joint-funding programs focused on **Seeding Partnerships** between promising small teams of researchers across the institutions. A number of approaches can be pursued, including providing seed funds to encourage active collaboration between groups that have not previously collaborated. Goals of such investments may include joint publication and/or proposal submission. Funds may support investigator release time or other mechanisms that can help in generating preliminary research findings and data.

The investments related to this mechanism can range from small to moderate, and the process can range from strategic, ad hoc decisions to formal mini-proposals to specific competitions at or across the collaborating research organizations. A goal of this mechanism is to balance the desire for measurable outcomes and the willingness to take risks in seeding partnerships that may not immediately or obviously lead to external research funding. Mechanism No. 8, “Investing at the Interface,” also involves investment of seed funds to stimulate collaborative research, but with enhanced investment levels and expected returns representative of a more-developed collaboration.

## 4. Developing Proposals

As the interorganizational research collaboration matures, it is likely that joint proposals to external funding agencies (federal and non-federal) will begin to be planned, written, and submitted. Principal investigators will likely lead these efforts, but as the size and complexity of potential collaborative-funding opportunities increase, organizational leaders and administrators can play important facilitating roles. Focused investments in administratively supporting researchers **Developing Proposals** to collaborative, multi-investigator, external funding opportunities (e.g., supported by the NIH or NSF) can be very productive.

Many institutions have recently established, or are in the process of creating, so-called research development offices or functions that support complex proposal development and strengthening activities. Extending this concept across

collaborating organizations may run into some organizational or cultural barriers (real or perceived), but success in doing so will likely enhance the competitiveness of joint proposals. Fed by secured external research funding, collaborations will further grow and mature.

The investments related to this mechanism may vary depending on the specific funding opportunities that present themselves and on the existing infrastructures in place at the collaborating organizations. It may be that modest financial investments are sufficient and that the most challenging work will involve overcoming related organizational barriers.

## 5. Managing the Collaboration

Collaborations that have employed mechanisms Nos. 1 through 4 have likely progressed to a point of some collaborative maturity and depth and perhaps early success. It is also likely that some challenges—expected and unexpected—have been overcome, and the relationship may seem to be quite stable and ready for bigger and better pursuits.

However, this sense of stability is often not as robust as believed. Organizational research collaborations at this stage may begin to drift, lose focus, or dissolve. The promises of stronger linkages enabling greater research funding and outcomes often require more active management at this key point than most investigators, especially in academic environments, are used to experiencing or requiring.

At this stage, joint organizational investment in **Managing the Collaboration** can play an important role in injecting new energy into the collaboration and releasing some of the administrative burden on investigators in order to enable their focus on research as the collaboration progresses to new levels. A talented senior administrator focused on actively supporting the interorganizational collaboration—and its complex research, operational, and other elements—can act to optimize and sustain the collaboration's progress to date and help facilitate movement into future collaborative areas.

Admittedly, one of the challenges that organizations face may involve identifying—or even envisioning—someone who can productively play such a role for the collaboration. The ideal individual would likely combine scientific training with project management or consulting experiences, perhaps with specific collaboration experiences across research sectors, and an entrepreneurial drive. A diverse range of knowledge and experience would be highly desired, and a keen understanding of relevant institutional cultures (e.g., the role of strong, shared faculty governance in academia) would be a major positive. Despite this formidable job description, there are individuals who can fill such roles, and even a temporary assignment can pay dividends (e.g., a one-year investment in proactive, focused attention to supporting the research collaboration and helping it progress to the next plateau).

The investments related to this mechanism should be considered within the overall value of the collaboration—to date and in the future. While investing in a talented individual to focus a significant portion of his or her time on actively supporting the collaboration's development could represent a sizeable investment, such investments have been observed to play a differentiating role in the health and growth of collaborations.

## 6. Sharing Decision Making

As the collaboration develops, the organizations will likely benefit from some form of a joint research strategy advisory group. This type of structure can facilitate continued strategic investment in the collaboration by serving to review progress, evaluate returns on investment, or suggest new approaches to maximize the research productivity of the collaboration and the shared investments being made by the organizations. While this structure would be premature at an early collaboration stage, at a certain point its presence and active involvement can be very valuable. Assuming the research organizations



have a limited supply of resources to invest in the collaboration, by **Sharing Decision Making** these resources can be more strategically directed and utilized.

It may be appropriate for this group to identify potential researchers not yet involved in the collaboration who may serve to bolster its strength and effectiveness. An advisory group may also be helpful in creating structures and processes that facilitate collaboration while avoiding overly static research collaborations that crowd out new and novel partnerships between researchers. Depending on the organizations involved, this mechanism may or may not suggest development of a memorandum of understanding (MOU) or letter of intent (LOI) between the organizations.

The financial investments related to establishing a shared decision-making group are modest, although institutional buy-in and support may require investments in time and may experience barriers. The financial resources provided to such a group could range significantly, with some research organizations more willing to invest heavily in the collaboration given the oversight provided by such a group.

## 7. Co-Locating Researchers

As an extension of mechanism No. 2, “Facilitating Flow,” collaborations between research organizations can be energized by creating additional structure around the movement of researchers and in **Co-Locating Researchers** at one or both of the collaborating institutions. In the most structured form, researchers from one organization could occupy permanent office and lab space alongside researchers at the other organization. Formalized co-location can serve to enhance research collaboration, and the physical and operational foundations established by such efforts can ease the back-and-forth relationship of other researchers (e.g., those on sabbaticals who could occupy “hoteling” space established as part of a co-location arrangement).

The investments related to this mechanism are likely a bit more significant, especially when considering the opportunity costs of transporting researchers away from their home institutions. Additionally, by their nature, these investments are longer term than those related to many of the mechanisms profiled above. However, the expected returns of these investments are also higher. The constant proximity between researchers is expected to lead to more productive collaboration and corresponding research outputs and outcomes for both organizations.

## 8. Investing at the Interface

This mechanism is an extension of the earlier No. 3, “Seeding Partnerships.” At this collaboration stage, one can justify more significantly and formally **Investing at the Interface** between organizations. As one component, this may involve more significant joint seed-funding programs—for example, involving larger teams of investigators assembling collaborative “centers of excellence” or developing proposals to compete for major, center-scale external research funding. Another potential target of these investments might involve funding shared post-docs or graduate students between the institutions. A final example might involve the development of a unique core (or shared) research facility that would provide researchers with access to a major, expensive resource around which additional research collaborations may coalesce.

The investments related to this mechanism could range from moderate to significant (e.g., if a major core research facility is established and the organizations are honest in budgeting the costs of sustaining facility operations).

## 9. Broadening the Collaboration

This mechanism involves **Broadening the Collaboration** to extend into complementary missions beyond research. These missions might include education, patient care, economic development, or outreach to the general public. While it is likely

that some pieces of these may have been explored during the research collaboration to date, this represents a more significant and explicit focus on looking for ways to further extend the reach and productive outcomes of the collaboration.

The investments related to this mechanism will vary depending on the opportunities identified and the organizations' willingness to invest outside of the central research mission. The investment returns can be important but will likely be more difficult to measure. For example, the value of enhancing public understanding and goodwill around the organizations' collaboration, if achieved via this broadening mechanism, can be quite beneficial but also difficult to integrate into more traditional cost-benefit analyses.

## 10. Coordinating Major Pursuits

The tenth mechanism involves the collaborating organizations **Coordinating Major Pursuits** of external research funding in a concerted manner. It likely involves collaboration between parts of the organizations that haven't collaborated before (e.g., development offices). Joint strategies, targets, and plans could be developed to pursue major foundations, individual donors, or industry with proposals to fund major research-related efforts at the intersection between the organizations. Success in such pursuits requires demonstrating collaborative research history, success, and potential between the organizations. Organizational and cultural barriers will likely need to be overcome to prioritize collaborative targets ahead of those that would traditionally focus on one's own institution.

## Conclusion

Research organizations face significant challenges related to competing for external funding, talented researchers, and other important elements linked to their success. Collaborations between research organizations offer potential opportunities to leverage and nurture synergies and develop focused critical mass and targeted expertise in ways that enable the organizations to better address some challenges. This white paper has profiled potential ways that collaborations can be energized and made more productive. While other collaboration mechanisms exist, the 10 that have been identified can serve to form a schematic framework within which others can be considered.

As collaborations between research organizations evolve and mature—with some failures expected along the way as part of a natural selection—the investments made in the collaborations are also expected to change in character, focus, and magnitude. While it is unexpected that any collaboration would progress in a step-wise manner through the specific mechanisms profiled above, it is hoped that the information shared and framework sketched will serve usefully as leaders and researchers explore ways to strategically approach and manage current and future organizational collaborations.

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