
Recipe VI: The 7 Cluster Gap Model
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On Strategy
& Competitiveness
10 RECIPES FOR ANALYTICAL SUCCESS

VI The 7 Cluster Gap Model

Ingredients

- ✓ *Firms*
- ✓ *Research institutions*
- ✓ *Educational institutions*
- ✓ *Capital providers*
- ✓ *Government and public bodies*
- ✓ *Outside clusters*
- ✓ *Global markets*
- ✓ *Cluster organizations*

If you still have some appetite left, let's turn to our sixth recipe: The 7 Cluster Gaps Model. The model was developed in collaboration with Dr. Göran Lindqvist and Mats Williams. The main purpose of the model is to analyze how well a cluster functions. The larger the gaps between different actors on the cluster stage – firms, research units, education institutions, capital providers, etc. – the less dynamic the cluster is, and the less innovation we can expect. Conversely, the more the innovation gaps are bridged, the more dynamism and more innovations we can expect.

The reason clusters are relevant for innovation is that when there is a critical mass in a location of a sector or industry, the different actors

can support each other, and new ideas are formed in both planned and unplanned meetings, interactions and mobility. Through interaction within the cluster, conditions are more likely to emerge that are adapted to the needs of the firms and which are conducive to innovation. Universities set up research groups that produce cutting-edge knowledge in relevant fields, and channel those findings to firms in the cluster or create spin-offs. Colleges offer specialized education programs, and graduate students cultivate skills particularly well suited to working in the cluster. Capital providers become experts in technologies and skills related to the cluster, and they can provide "smart money" by being better at assessing risks and opportunities in the cluster. Local government and public agencies learn to understand the needs of the firms and make decisions that promote the cluster, removing obstacles to progress. In all of these ways, surrounding actors support firms and entrepreneurs and make it easier for them to be innovative and competitive. Also, not least important, firms interact with other firms. Small firms interact with large firms, domestic firms interact with multinationals and so on. They engage with each other as buyers, suppliers, and technology partners, but competing firms also attract staff from each other, they imitate each other at a rapid clip, and firms in the surrounding cluster simply act as a source of inspiration to aim higher in competition and to set more ambitious goals.

Figure 1 illustrates all of these interactions in a dynamic cluster where we expect new business models, products and processes to emerge. There are five main types of actors on the cluster stage (firms, research institutions, education institutions, capital providers, government and public bodies), and between them, there are paths along which actors can interact with one another. A sixth type of actor involves different organizations for collaboration, so-called "bridge-builders". Outside the cluster, there are other clusters and global markets. One path, or perhaps rather one set of paths, runs between research organizations and firms, another between government and firms, a third between one cluster and another, and so on. In an ideal cluster, these paths are busy with traffic. People change jobs between actors, network across boundaries, bring news to others in formal and informal gatherings, cooperate with other actors, and tie the cluster together in a thousand different ways. All this traffic helps make the cluster more dynamic. Knowledge is created, spread and shared. Collaboration ensures that resources are used in the best possible way. Coordination aligns the interests and actions of different actors.

Figure 1 shows an idealized model of a cluster. This is the kind of cluster everyone wants. Unfortunately, in reality, most clusters don't look like this at all. In real clusters, communication between different kinds of actors is often massively flawed. Small firms that believe they have something new and exciting to offer have a hard time even landing a meeting with the right people at a large enterprise. Large firms searching for a new supplier are more likely to look for an established international supplier, rather than searching among the innovative SMEs located right under their nose. Policymakers often have only vaguest notions about what business really needs.

Researchers are more interested in academic publishing than commercializing their new findings. Schools formulate their curricula with little knowledge of what skills industry really needs. Entrepreneurs find it difficult to persuade banks to invest in new innovative businesses. Many businesspeople, particularly in SMEs, would laugh at the idea of approaching the local university to see if they have some skill or new technology that the firm could put to use. In some cases, a robust "commons" has never been built, and in other cases, it has been ruined through the "tragedy of the commons," where everyone is utilizing it, but no one is prepared to invest in it.

It is not difficult to understand that these connections will not just happen spontaneously. After all, the different types of actors have different roles to play in society. Universities are supposed to do research, not to serve as R&D departments of companies. Policymakers have responsibilities that go far beyond serving companies with whatever they require. Education organizations have many other stakeholders besides firms to attend to. And firms are in business to make a profit for themselves, not to provide altruistic support to each

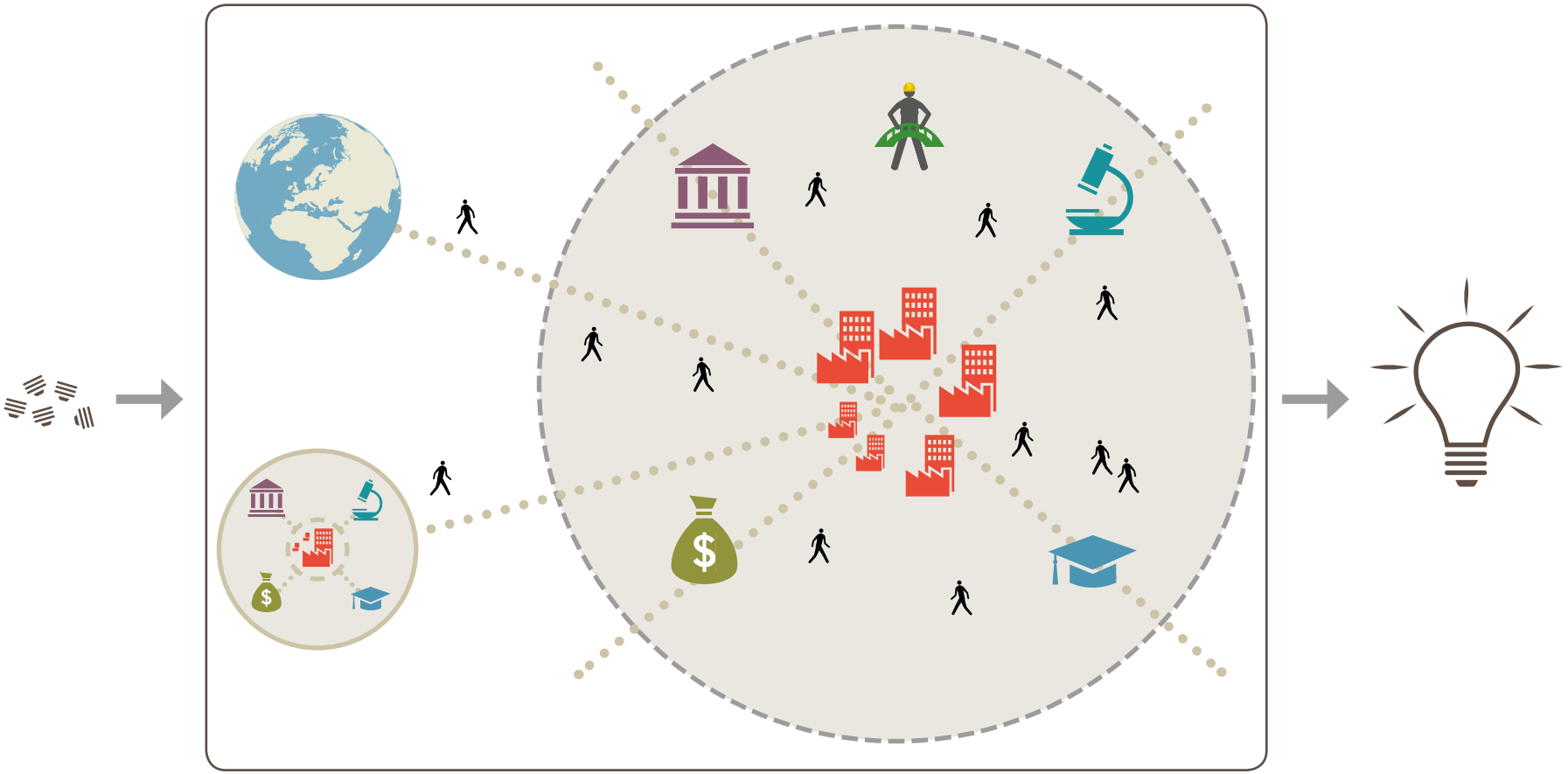


Figure 1. A Dynamic Cluster With Intense Interaction Across Actors

other. Even so, with some additional effort put into coordination and collaboration, major benefits could be reaped.

In other words, more often than not, clusters in reality do not live up to the potential that cluster theory grants them. Clusters possess tremendous potential, but in many cases, this potential remains largely untapped. At first, these immense missed opportunities may seem hard to accept. If the world is a place that is constantly moving towards an ideal equilibrium, i.e., a state of efficiently used resources, it seems unlikely that these kind of gross misalignments could endure. After all, why would clusters not make the best possible use of the potential they enjoy? Why should these possible benefits remain untapped, when all that is needed is a little interaction?

The answer lies in the fact that interaction between agents is not such an easy thing to do. If all it would take were a simple phone call from one person to another, then clusters would surely be a lot more efficient. But in reality, there are a thousand reasons why that phone call never takes place. The policymaker doesn't pick up the phone, because she doesn't expect to hear any deep insights from the industry about what they really need. If the college teacher talks to the business world, it is about finding placement positions for the students or arranging recruitment fairs, but certainly not discussing the curriculum. The businessman has no idea what the researchers at the university are doing; he probably doesn't know their names, and he certainly doesn't know within what departments they are organized. The researcher might want to see her latest discovery turned into a successful commercial innovation, but she knows that her career depends on publishing papers, and it will in no way be furthered by interacting with businesspeople; in fact, it will be hampered. And if, by chance, the businessman and researcher happen to meet and discuss each other's work, they would soon find that they speak different languages and have different mindsets, almost as if they were living in different worlds – and they are.

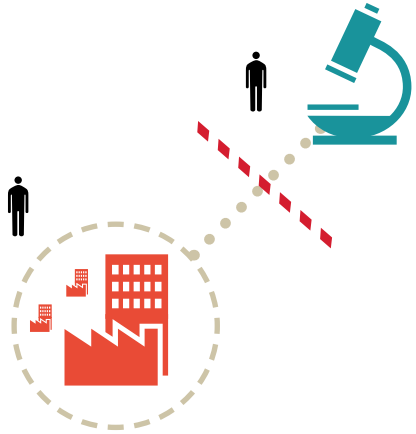
What this all means is that there are obstacles to interaction, such as lack of trust and limited knowledge across actor boundaries. Obstacles make it difficult for actors to communicate with each other, to initiate collaboration, and to diffuse knowledge. Figure 2 gives a list of such obstacles.

It is obstacles like these that prevent the research world from spreading its new knowledge to the business world, and which discourage policymakers from seeking advice from businesspeople. Obstacles make traffic slow and awkward where it should be rapid and easy. Obstacles isolate systems when they should be connected. In short, obstacles create gaps where there should be paths. The picture of the cluster that we contemplated above, with its wide paths and its intense traffic, is not what we often see. Real-life clusters have obstacles, much like the rivers and streams that a path has to cross.

These gaps, which are quite persistent, have significant implications for innovation and competitiveness. It means that clusters, despite their great potential for dynamic interaction between actors, often only exploit a small share of this potential. People do not make the most of the possibilities found around them because they simply lack knowledge about the opportunities that are nearby; they lack the networks to utilize them; they fail to initiate collaboration they would benefit from; and they fail to coordinate their actions with others. In short, people and organizations often lack a commons. Without a lush commons, clusters will suffer from knowledge failures, network failures and cooperation failures, leading to innovation failures.

In summary, there are seven cluster gaps separating the seven major types of actors (not including bridge-building organizations for collaboration):

1. The Firm-to-Firm gap barring interaction among firms in the cluster, such as between SMEs and large firms (domestic or units of multinational firms)
2. The Firm-to-Research gap barring interaction between firms and research organizations and laboratories within and outside of universities
3. The Firm-to-Education gap barring interaction between firms and education organizations



Weak interaction across cluster actors:

- ❑ Poor knowledge
- ❑ Sparse networks across
- ❑ Lack of common "language"
- ❑ No understanding of norms and attitudes
- ❑ Low trust
- ❑ Negative incentives to collaborate

Strong interaction across cluster actors:

- ❑ Good knowledge
- ❑ Dense networks
- ❑ Common "language"
- ❑ Understanding of norms and attitudes
- ❑ High trust
- ❑ Positive incentives to collaborate

Figure 2. Drivers of Interaction Across Actors in Clusters: A Checklist

Your own notes:

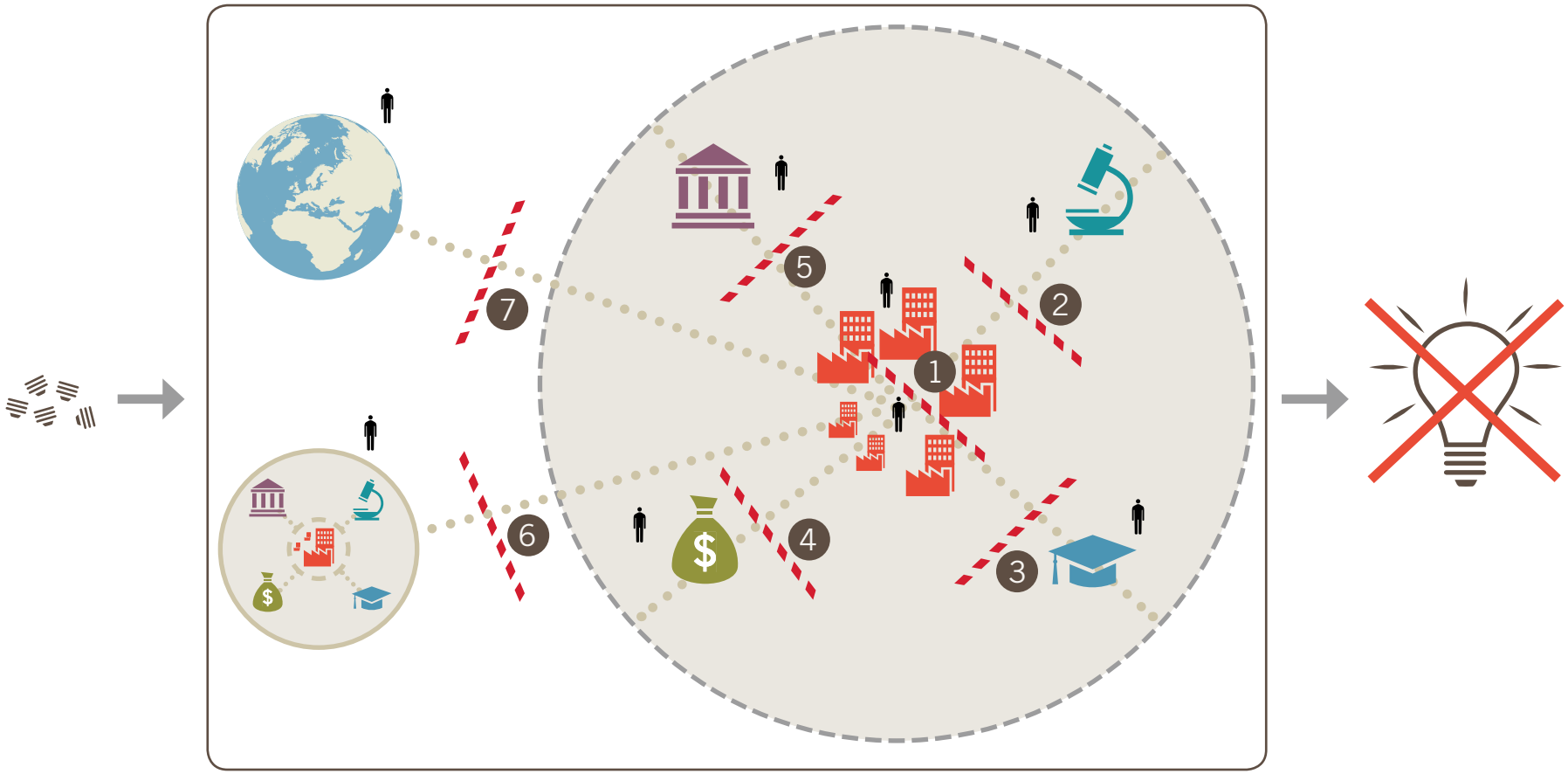


Figure 3. A Static Cluster With Limited Interaction Between Actors

4. The Firm-to-Capital gap barring interaction between firms and capital providers
5. The Firm-to-Public actors gap barring interaction between firms and government and various public bodies
6. The Firm-to-Cluster gap barring interaction with firms in other clusters
7. The Firm-to-Global Market gap barring interaction with global markets and value chains

Public support and other collective action can help to overcome knowledge failures, networking failures and cooperation failures, and this is where cluster organizations come into play[39]. Cluster organizations, financed through both public and private means, can bring different types of actors together and correct for some of these failures. They connect business with academia, education with industry, and large firms with small firms. They do this by providing activities and meeting places where common issues can be discussed and acted on jointly. They help the different actors overcome the obstacles and start talking to each other. In doing so, they get the traffic moving along the paths.

One could say that a critical mission for cluster organizations is to strengthen the identity of the cluster and building a "commons" (meeting places, forums, platforms).[40] Here, individuals, representing different actors within clusters – large and small firms, research organizations, education institutes, capital providers and various public organizations – can meet, exchange information and ideas, and engage in resource mobility and collaboration. Just as successful firms in well-developed institutional settings engage in competition in efficient markets, in parallel, they engage in interaction and collaboration in dynamic clusters. One can certainly imagine knowledge spillovers (e.g., through labor mobility) without any direct contacts between clustered firms and organizations, but a commons can provide paths and bridges, which in turn will lead to higher levels of spillovers. In addition to building a commons, cluster organizations often involve themselves in initiating a wide range of both innovation and business development projects across the seven cluster gaps, thus supporting enhanced intra-cluster traffic.

Modern society is characterized by thick webs of institutions. While cluster organizations are a rather new phenomenon, there are many other organizations for collaboration acting as bridge-builders, such as science parks and incubators (see figure).

More than 3,000 years ago, Confucius offered this advice about collaboration[41]:

"Wishing to be established oneself, he assists others to be established"

There is something to it.

Sector	Single gap	Many gaps
Generally across sectors	· Applied Research Institutes · Innovation offices	· Science Parks · Incubators and Accelerators · Co-working Spaces
Specific sector	· Niche Incubators (e.g. ICT, Life Science) · Test Beds · Demonstrators	· Cluster organizations

Figure 5. Different Types of Bridge Builders

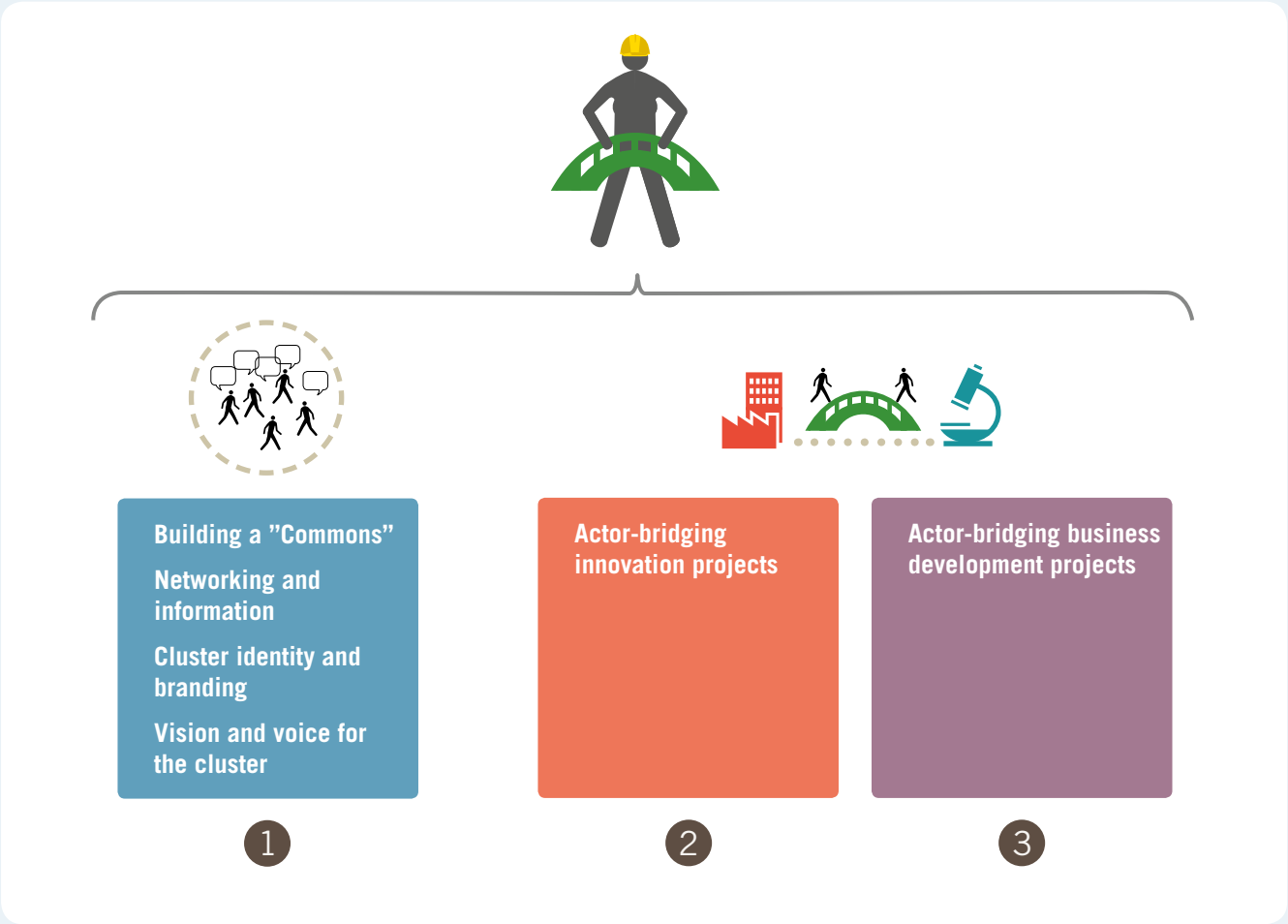


Figure 4. Cluster Organizations as Bridge Builders

Your own notes: