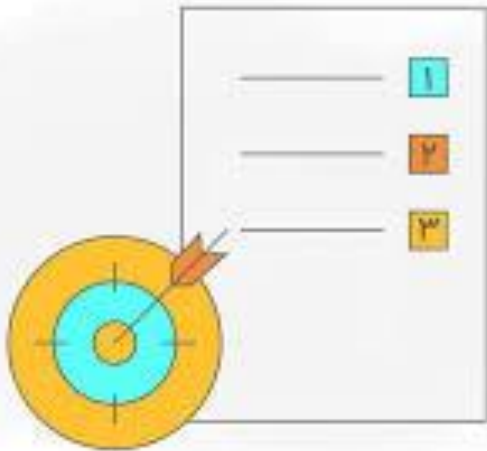# Organizing Product Development Activities

استاد گرامی: آقای دکترگودرزی

دانشجو: مریم شالیکار

In the definition of case structures, there are two opposites of organizational design

- One criterion adopts a process view and focuses on communication flows, stipulating that organizational proximity between actors should depend on the strength of the information flow between them.

- The other criterion adopts a "functional view", and stresses that resources with similar skills and jobs should be located in the same organizational unit, since this will lead to greater specialization and efficiency in the allocation of work.

Table 1. Similarities and differences between innovation and other corporate activities

	Similarities with innovation activities	Differences from innovation activities
Research	Objects being discussed are technically similar, as are the language and methods being used Both activities are highly knowledge-intensive	The purpose is different (i.e., producing abstract versus commercially useful knowledge) Research is based on explicit and formalized protocols and knowledge, and tends to specialization, while innovation tends toward multidisciplinary Both use abstract languages, such as mathematics, but innovation makes a more extensive use of representations of concrete artifacts (e.g., technical drawings, prototypes, etc.) Most researchers work for non-profit institutions that grant freedom to perform research within a wider scientific community. These communities (or "invisible colleges") set research agendas and use conferences and journals to promote the field, and to appraise the scientific merit research results and individuals. Conversely, innovation is not as free and tends to occur within boundaries of hierarchical and for-profit organizations
Administrative and business-support activities	Both are highly information-intensive. Incremental innovation activities are often significantly repetitive	In administrative activities, knowledge is incorporated into codified processes, and actors are supposed to simply follow them Innovation activities are knowledge intensive and more unpredictable than administrative ones, with respect to duration and outcome
Production activities	These activities share the focus on obtaining concrete artifacts	Innovation activities have the goal of producing knowledge allowing the production of goods and services. Conversely, production activities can be seen as "users" of such knowledge

The Role of Literature and Formalized Knowledge

Somewhat surprisingly, when one observes engineers and designers involved in development work, the picture changes significantly. As Allen discovered, literature has a very limited role as a basis for action and as a source of knowledge. When observing a sample of projects, he found that nearly 70 % of solutions to technical problems were sourced from personal contacts, either from peers and colleagues, or from customers. Only around 20 % of the solutions were derived from literature, with the rest undefined.

The Role of Interpersonal Communication

Fig.1 The impact of external communication on project success
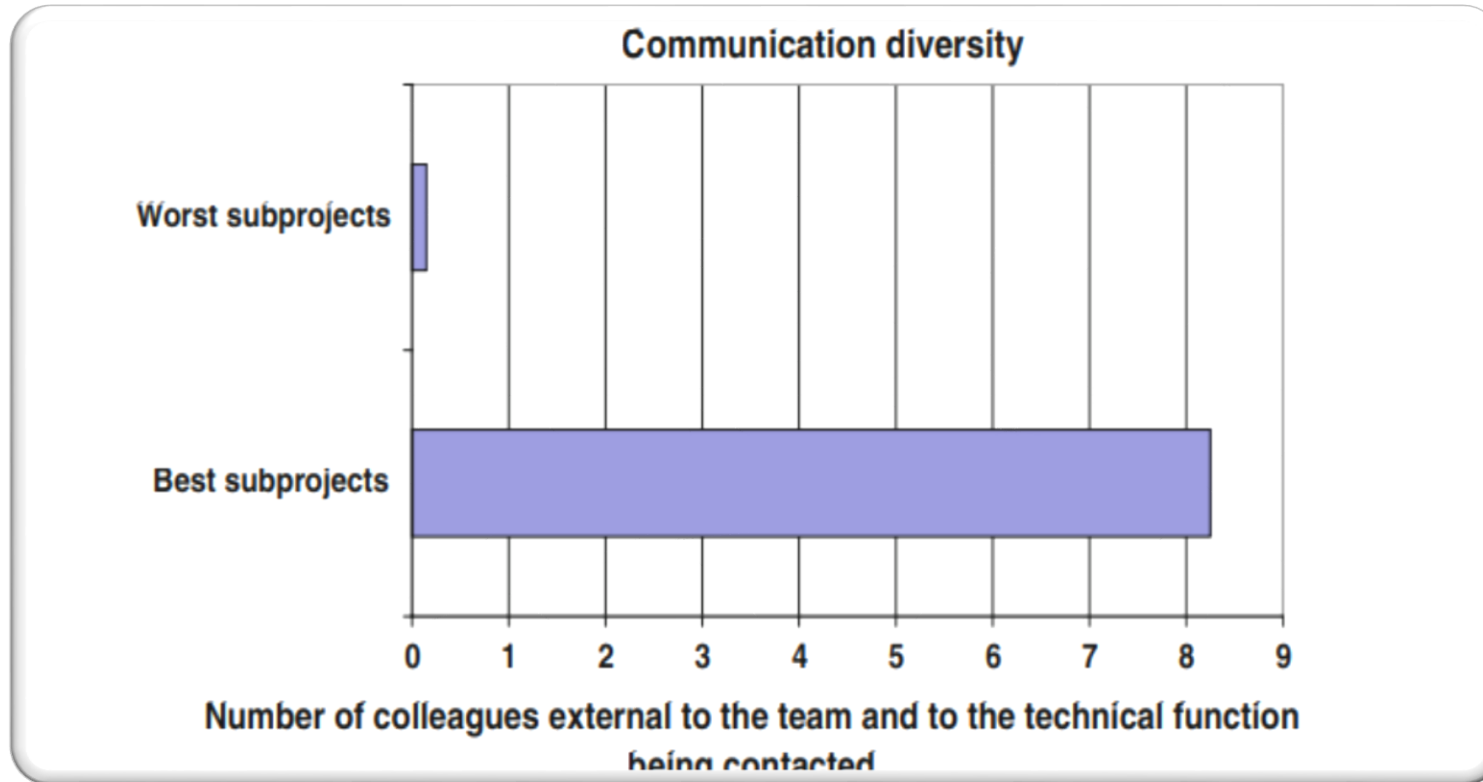
One key element of Allen's research was the documentation and analysis of "communication acts" between people involved in innovation activities.

The Role of Technological Gatekeepers

Gatekeepers are a very peculiar organizational actor.
gatekeeping is not a job but, rather, a role whose recognition is purely informal.
It is therefore quite surprising to discover that technical organizations include a few people (usually around 5–8 %) who are highly critical to the functioning of innovation processes, but that their very existence and their activity occur in an informal way.
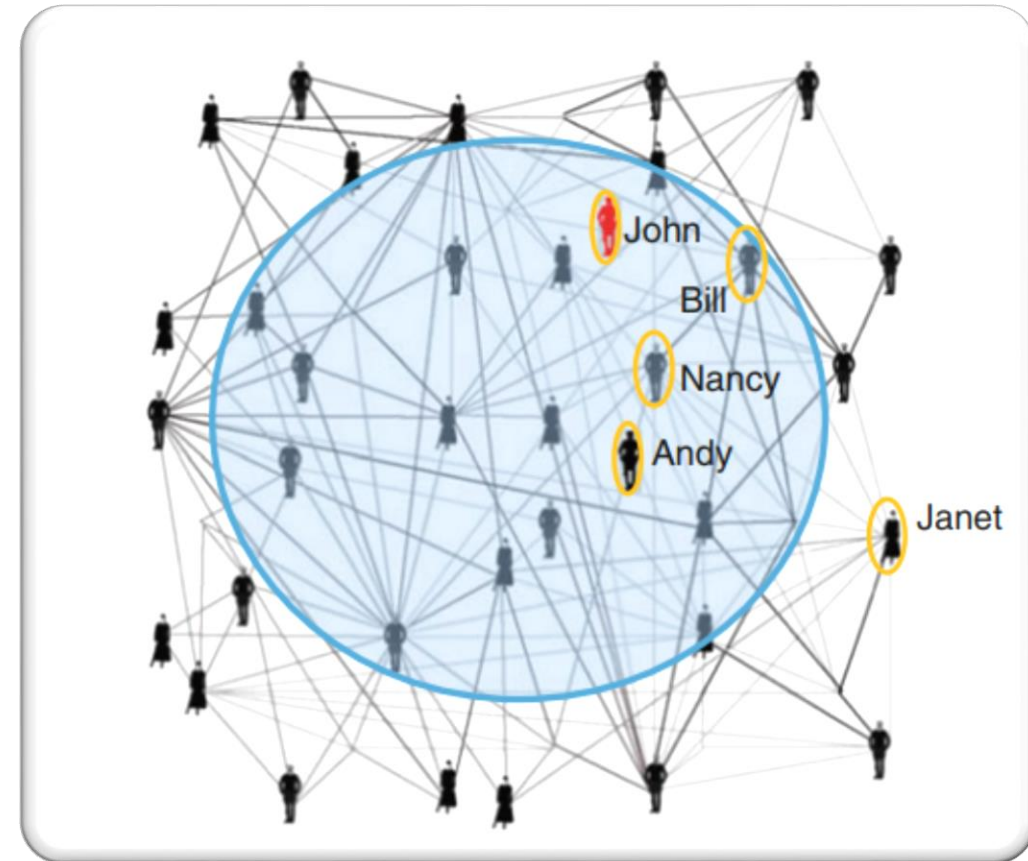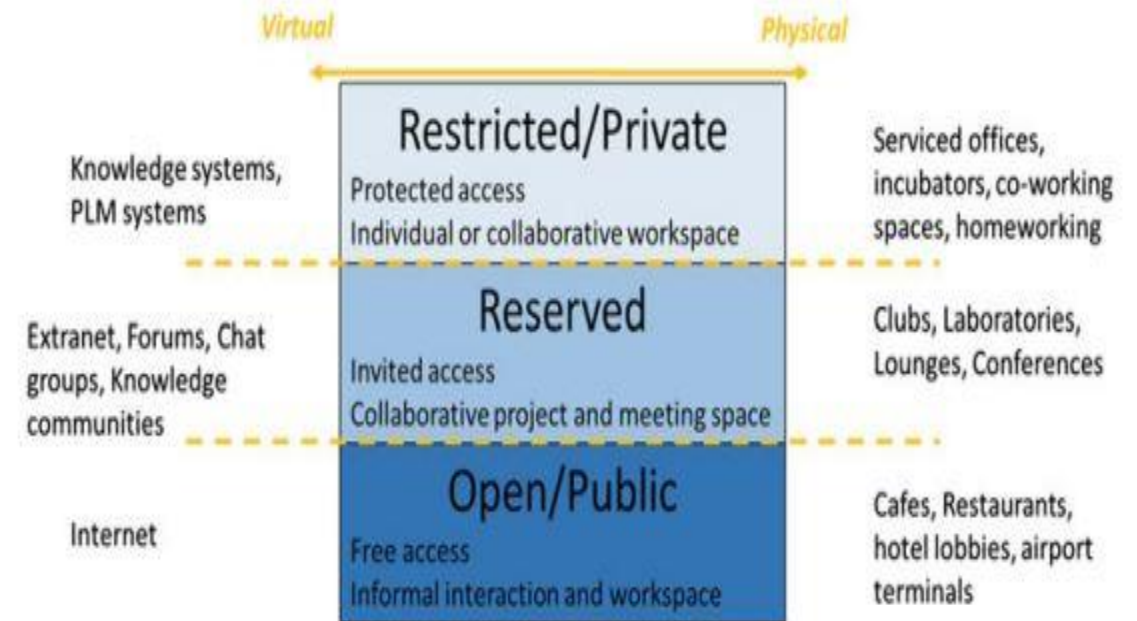
The Role of Innovators

Gatekeepers, as described above, are technical problem solvers who therefore are key actors in innovation processes. However, they are not, stricto sensu, innovators themselves. If we consider an innovator to be a person capable of matching a market need and opportunity with a technical solution, this latter role appears to be quite wider and more strategic than that of the gatekeeper.
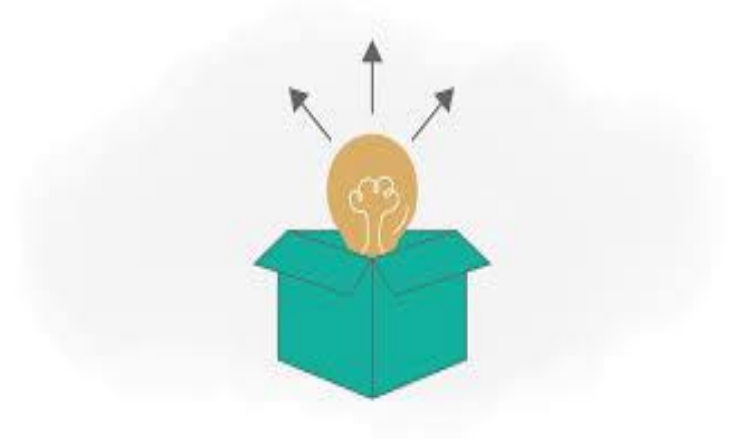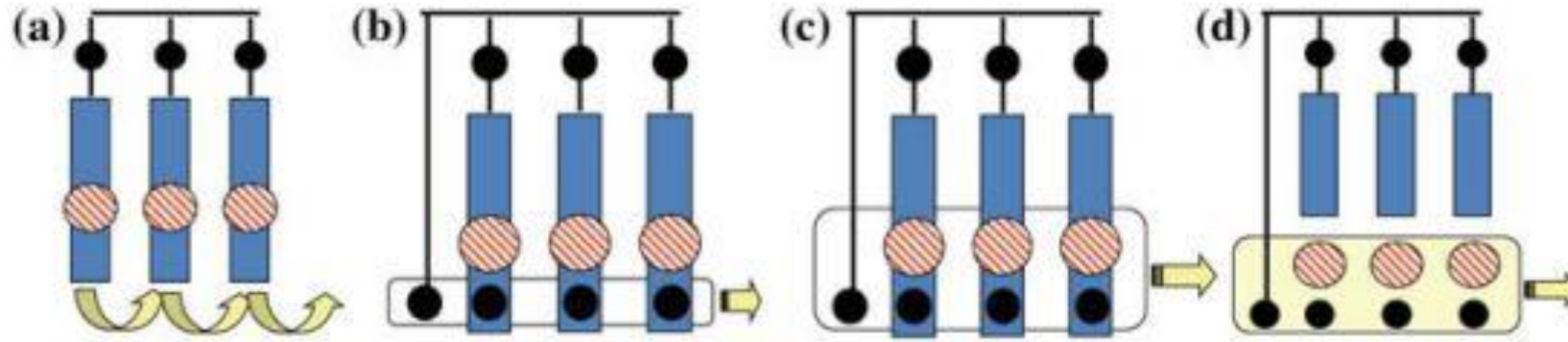
Space and Office Layout

While studying communication flows between individuals, Allen discovered that office layout had a major impact. Specifically, and quite unsurprisingly, he discovered that the probability of information exchange in a given time interval between any couple of individuals decreased quite dramatically with the distance that separated their respective workplaces. The probability of having one weekly communication act would fall to a meager 10 % when this distance would be greater than 15 m, in the case of people having some kind of organizational linkage. The same probability would occur at a distance greater than 5 m for people not tied by such a linkage. Recent research (Hansen 2004) confirmed this finding, showing that knowledge exchange depends on geographic proximity, together with previous acquaintances and relatedness of competencies.

Virtual — Physical

Knowledge systems, PLM systems

Restricted/Private
Protected access
Individual or collaborative workspace

Serviced offices, incubators, co-working spaces, homeworking

Extranet, Forums, Chat groups, Knowledge communities

Reserved
Invited access
Collaborative project and meeting space

Clubs, Laboratories, Lounges, Conferences

Internet

Open/Public
Free access
Informal interaction and workspace

Cafes, Restaurants, hotel lobbies, airport terminals

Organizational Design

- **Purely functional organizations.**
- **Lightweight project teams.**
- **Heavyweight project teams.**
- **Autonomous teams.**

The Influence of Globalization

A firm may have several R&D departments located in different parts of the world. Alternatively, the R&D department in one country may have to jointly design a product with a subsidiary located in another country and with a set of suppliers who operate from other parts of the world.

A central enabler of this globalization of product development activities is the progress of Information and Communication Technology.

Project Staffing

- **Personal traits.**
- **Gender.**
- **Experience.**
- **National culture.**

با تشکر از حسن توجه شما.