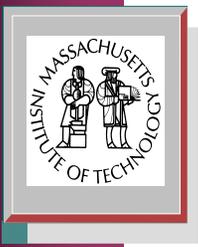


Technology Transfer

April 5, 2007



But first...

Let's deal with Brainstorming...



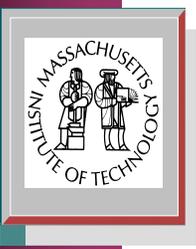
Creativity

Groups vs. Individuals



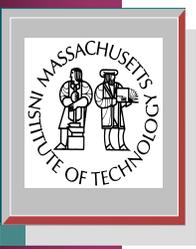
Groups vs. Individuals

- The basic question:
 - Are groups generally (on average) more creative than individuals?



Two Conclusions

- There have been many studies in which groups and individuals are compared on their ability to produce creative ideas and they all agree on the following two conclusions:
 - 1. Groups produce more creative ideas than individuals do.
 - 2. Groups produce more creative ideas than individuals do.



Two Conclusions

- Groups produce **more** creative ideas than individuals do.
- Groups produce more **creative** ideas than individuals do.



Normalizing for the Number of People

Individuals

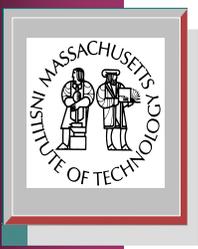
- ~~Groups~~ produce **more** creative ideas than ~~individuals~~ do.

Groups

Individuals

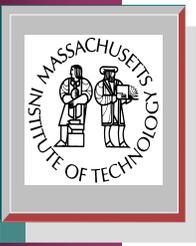
- ~~Groups~~ produce more **creative** ideas than ~~individuals~~ do.

Groups



The Nature of a Creative Idea

- A creative idea is very similar to another kind of idea.....?
- Therefore it is not very viable at birth.
 - It is easily squelched.
- The originator very often has not developed sufficient faith in the idea.
- A group, therefore, can be a hostile environment to introduce a creative idea into.

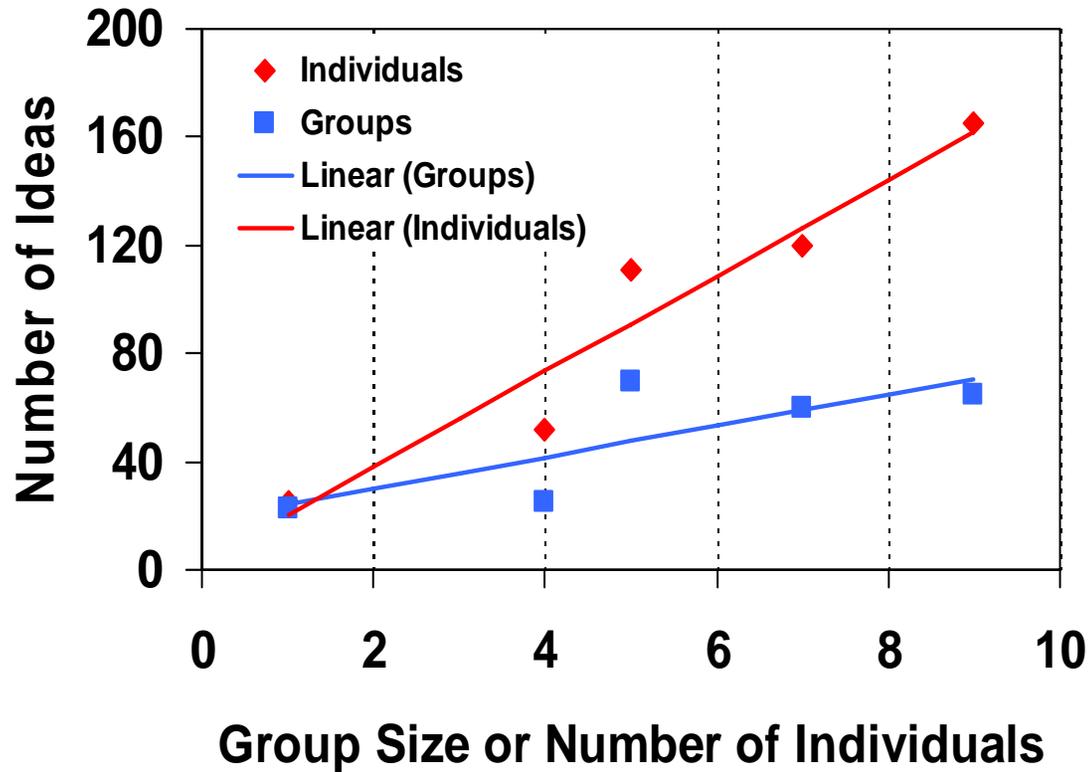


Brainstorming

- Osborne (*Creative Imagination*)
- Let your mind wander widely.
- Reserve criticism.
- Screen ideas at a later time.
- Does it work?

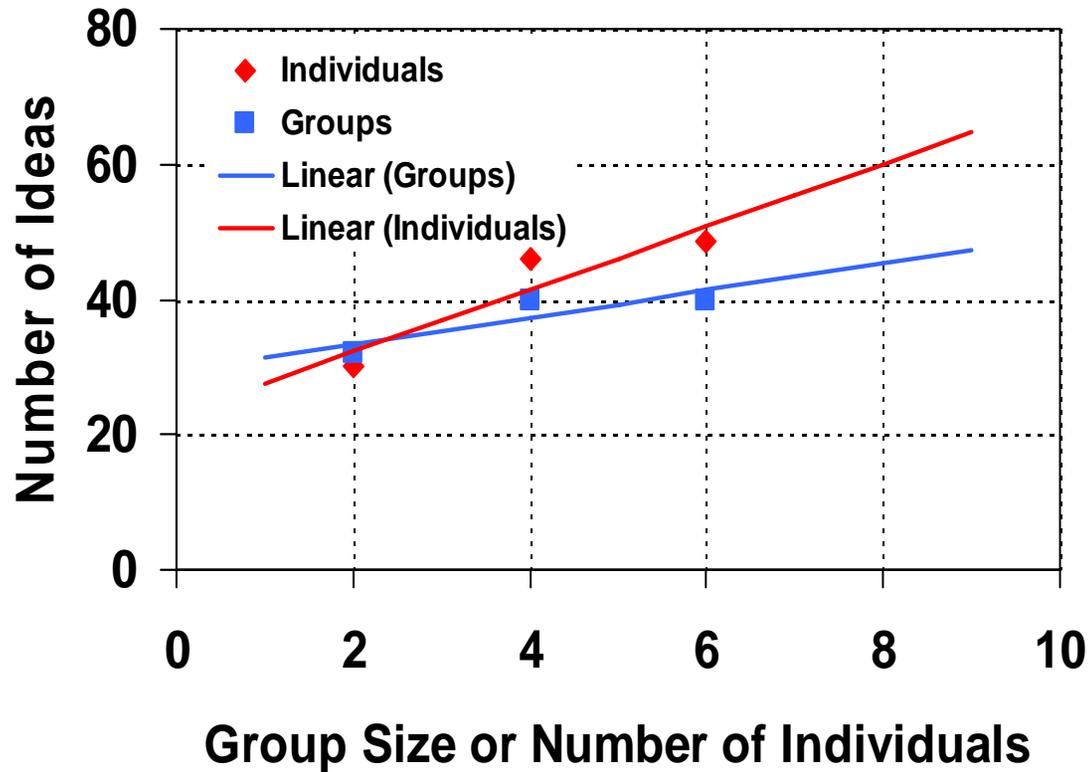


Creativity of Groups and Individuals



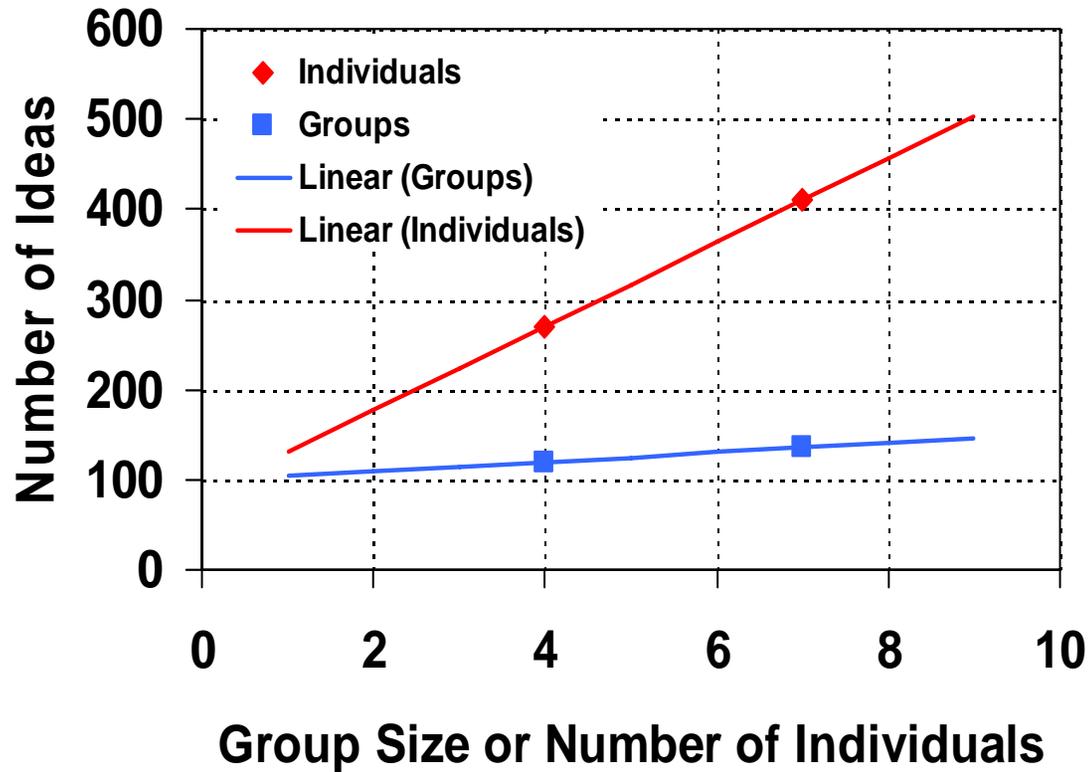


Creativity of Groups and Individuals

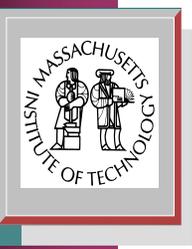




Creativity of Groups and Individuals



From Bouchard, et. al.)

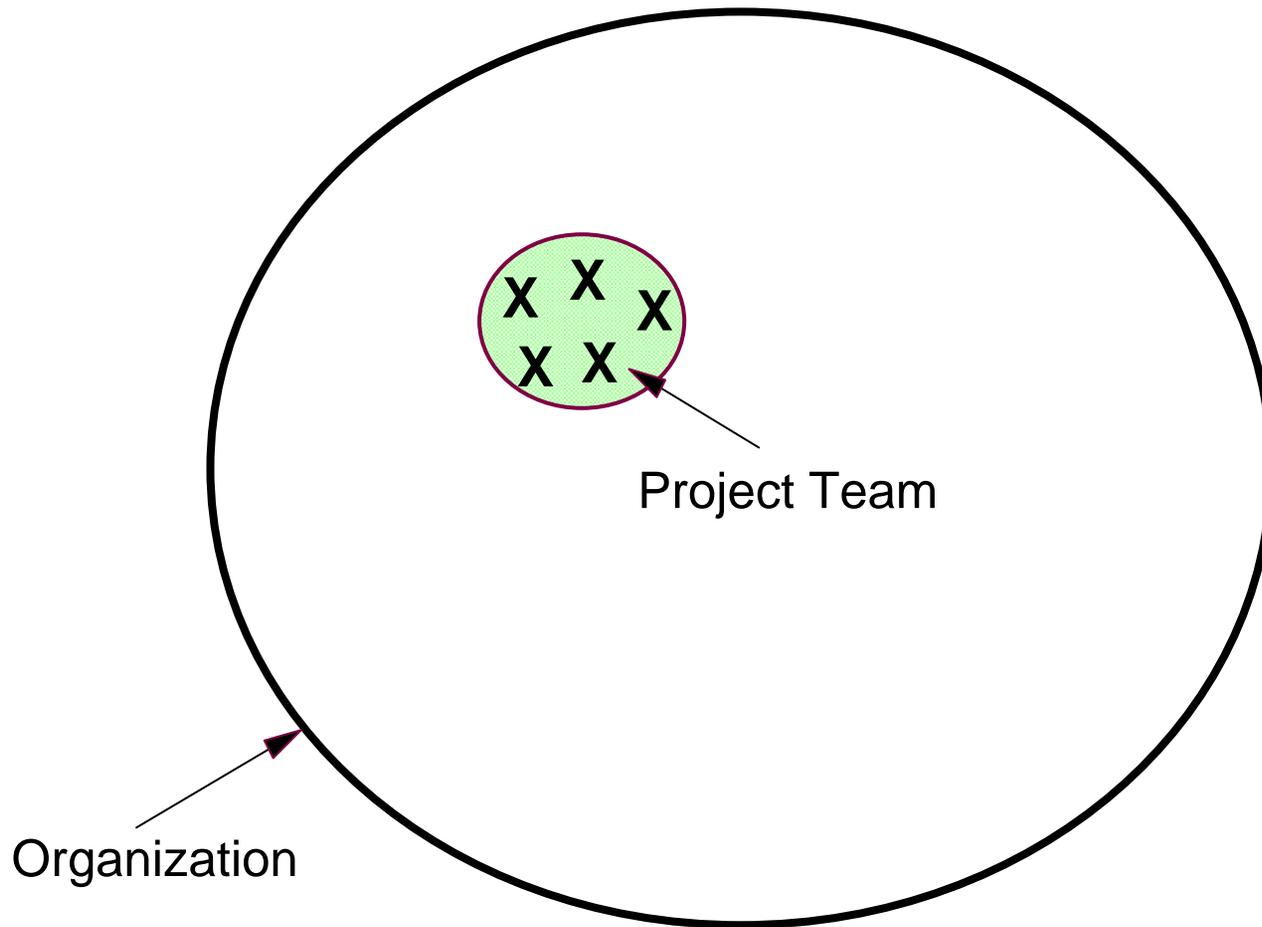


Some Research Evidence

Sources of Ideas in Product Development

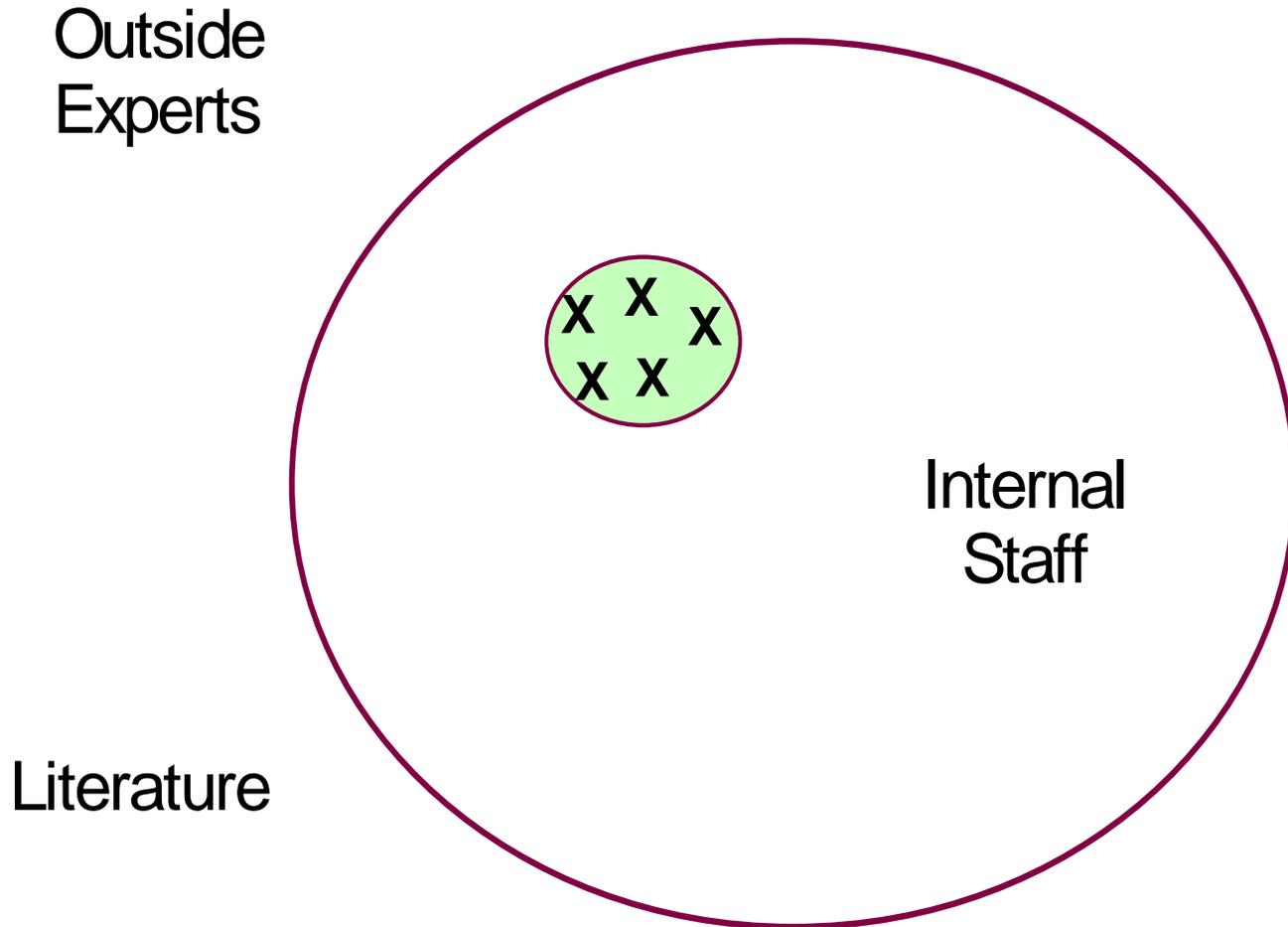


The Context of the Study



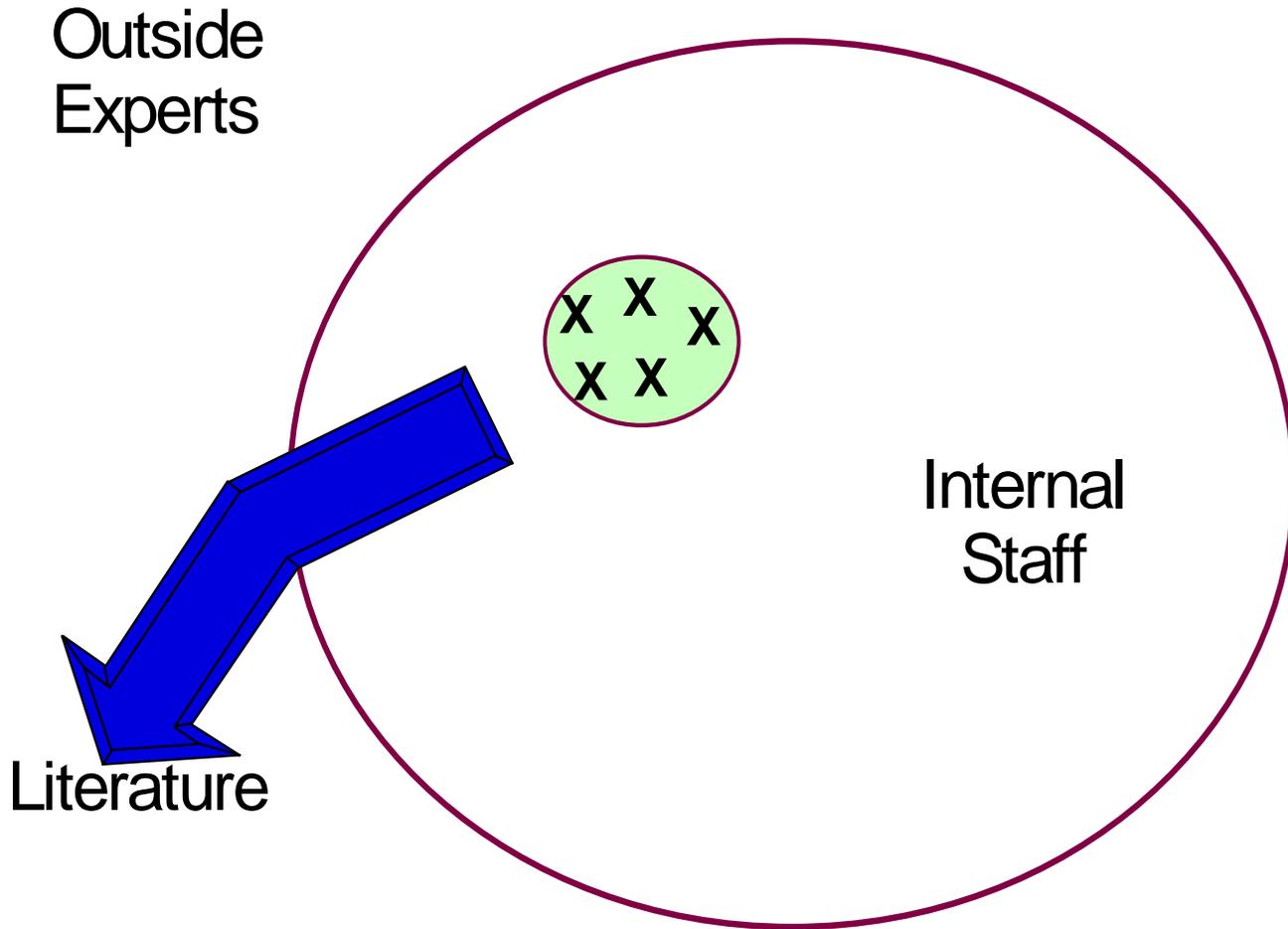


Sources of Technology



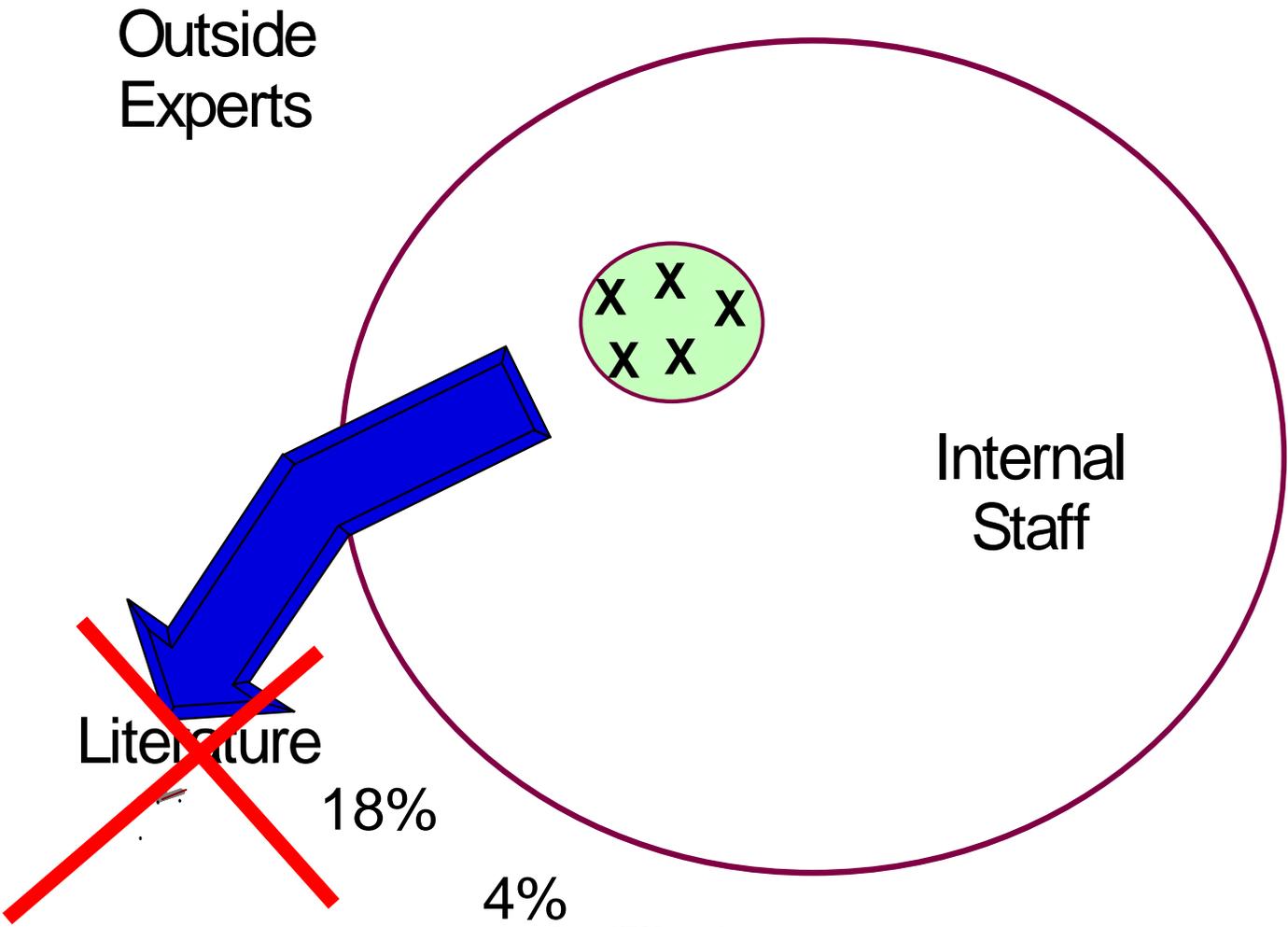


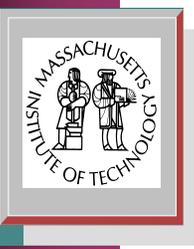
Literature & Documentation





Literature & Documentation



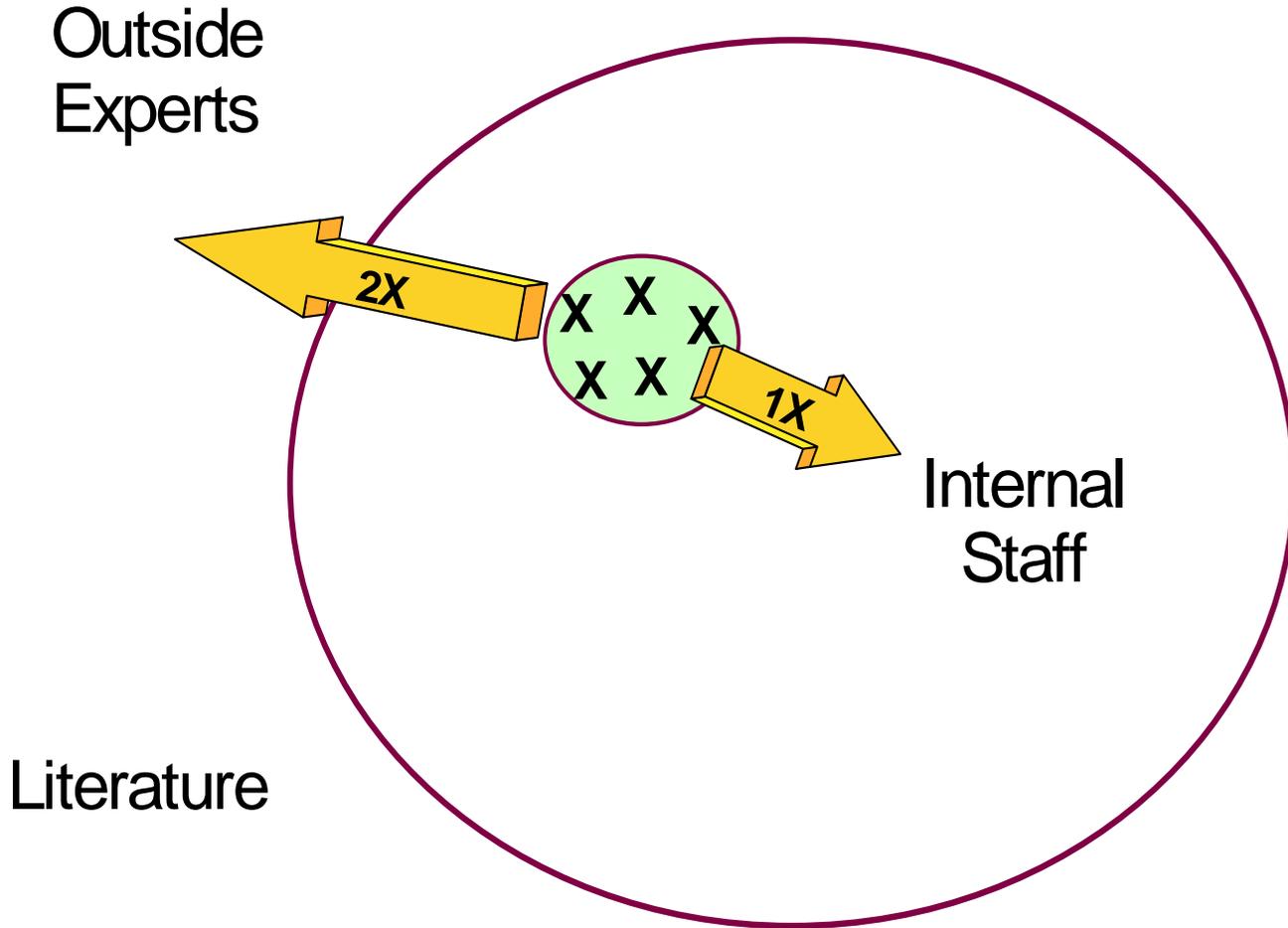


Personal Contact

- Most of the information came through personal contact.
 - Where are the majority of these people?
 - Inside or outside of the organization?

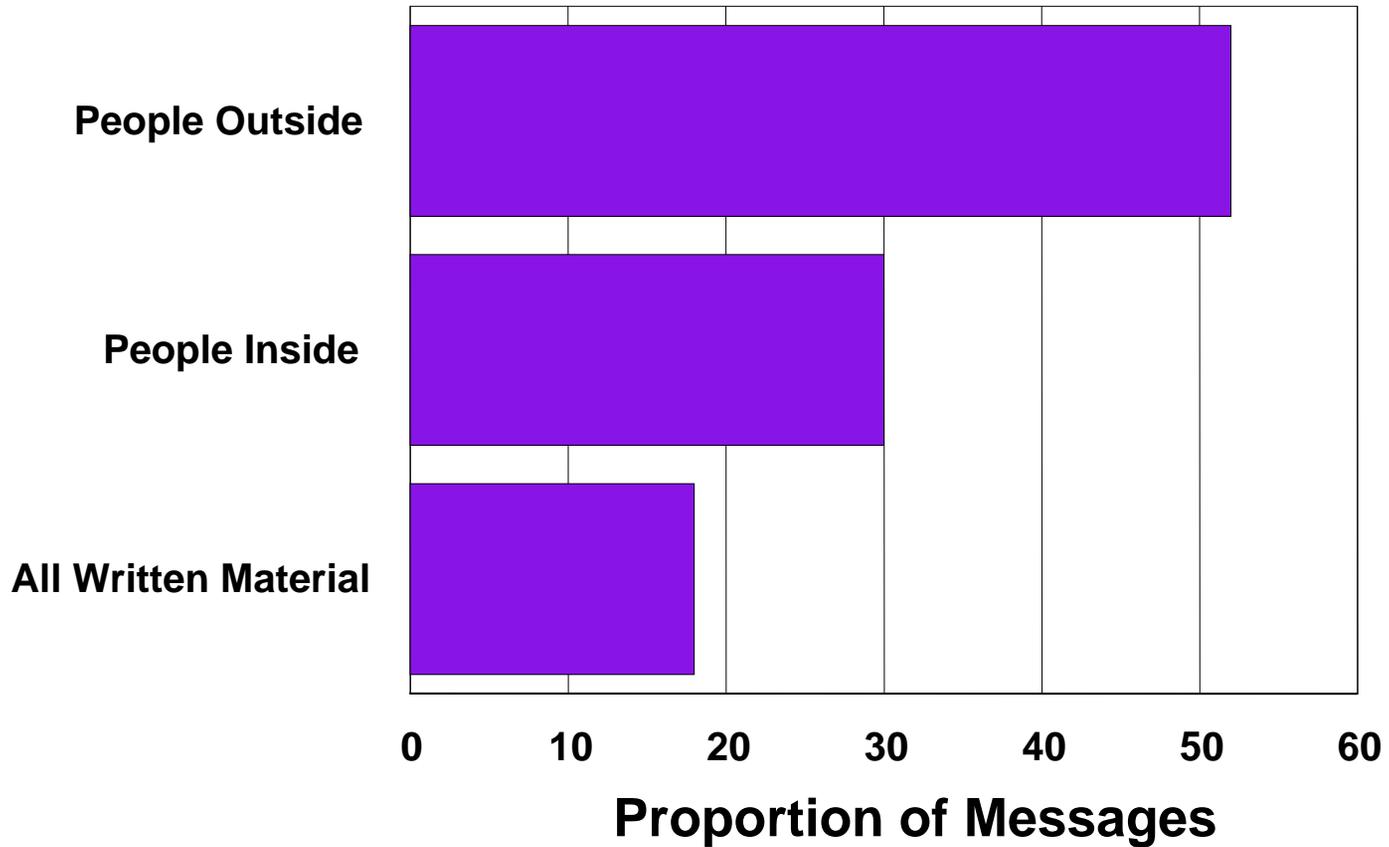


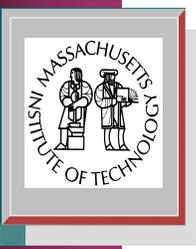
People as Sources of Technology





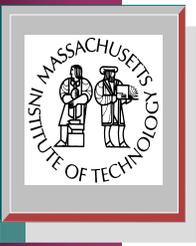
Technology Sources for Product Development Projects



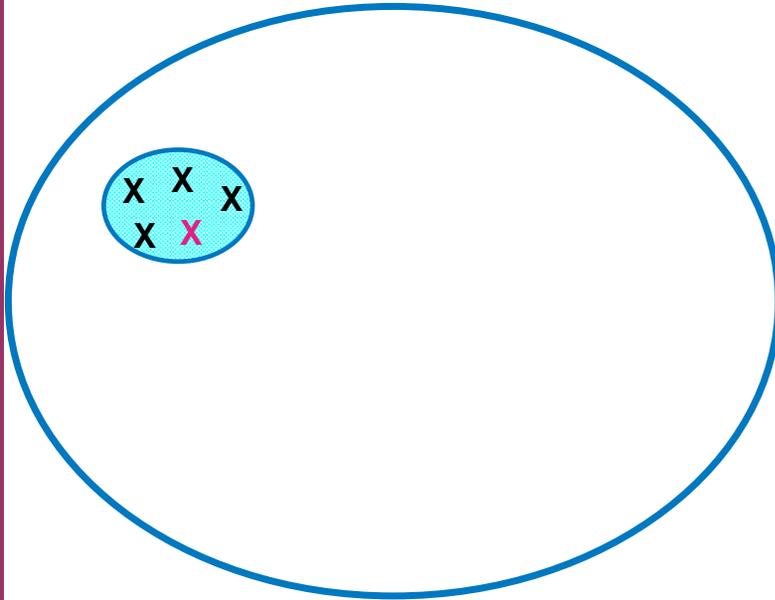


Performance

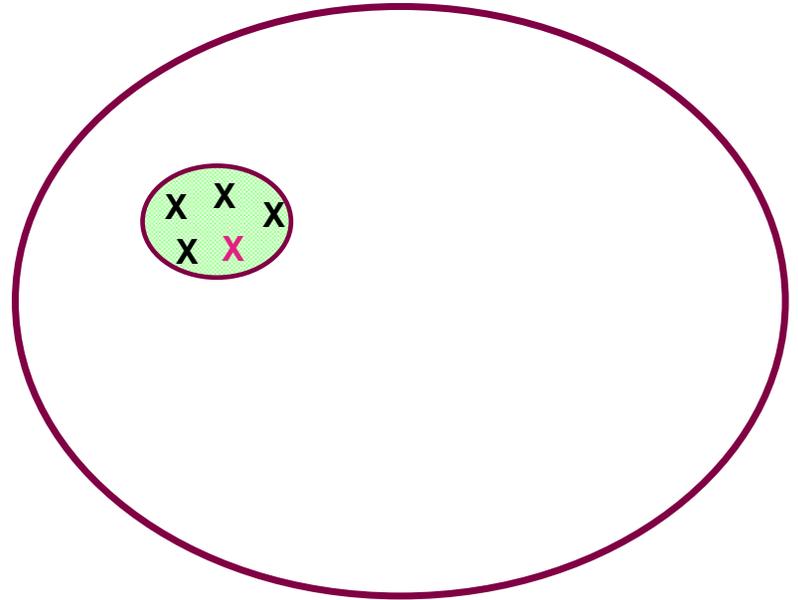
- But what about performance?
 - Where did the better ideas originate?
 - Inside or outside?
- How can we measure performance?
 - Is it difficult?
 - Why?



'Twin' Projects



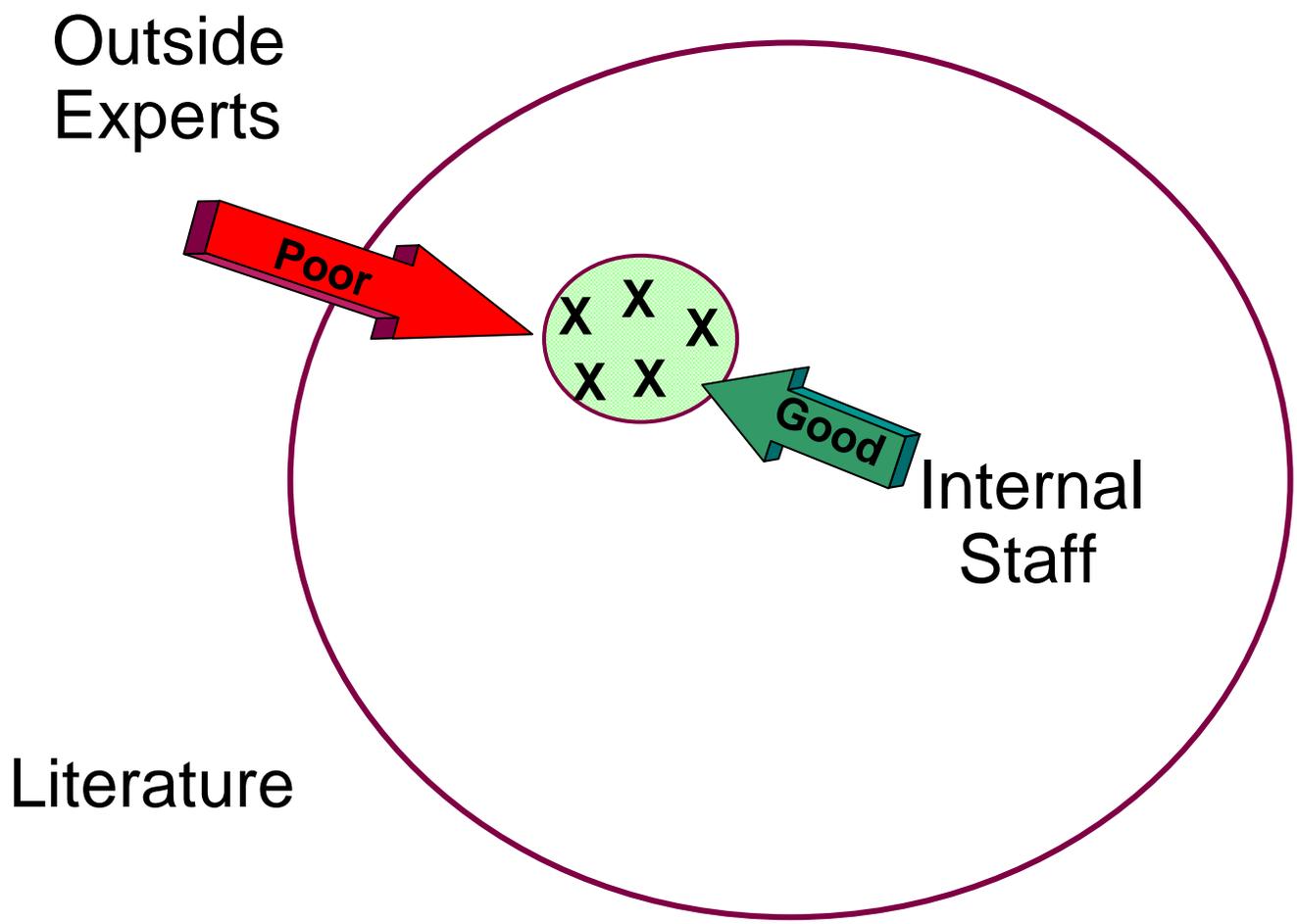
Company 'A'



Company 'B'

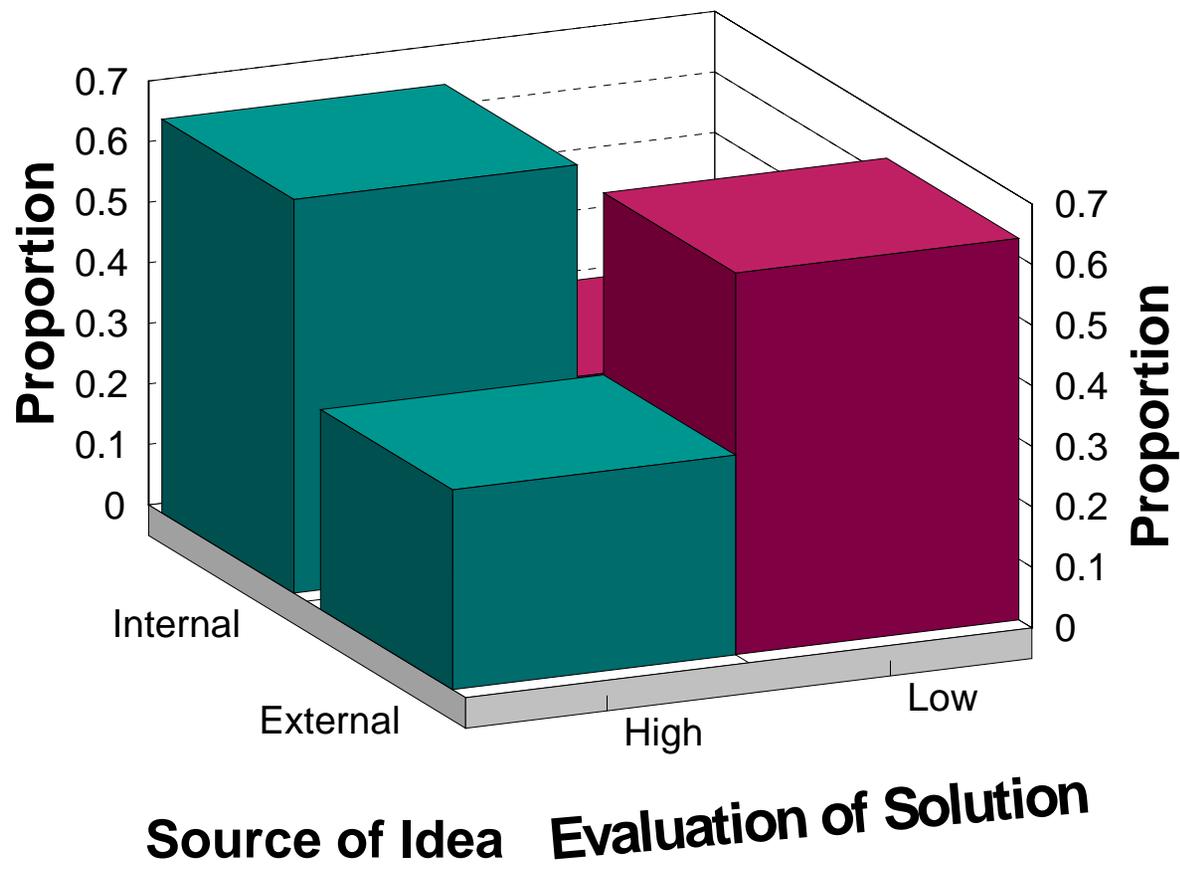


People as Sources of Technology





Customer Evaluation of Solutions as a Function of Idea Source





Customer Evaluation of Solutions as a Function of Idea Source

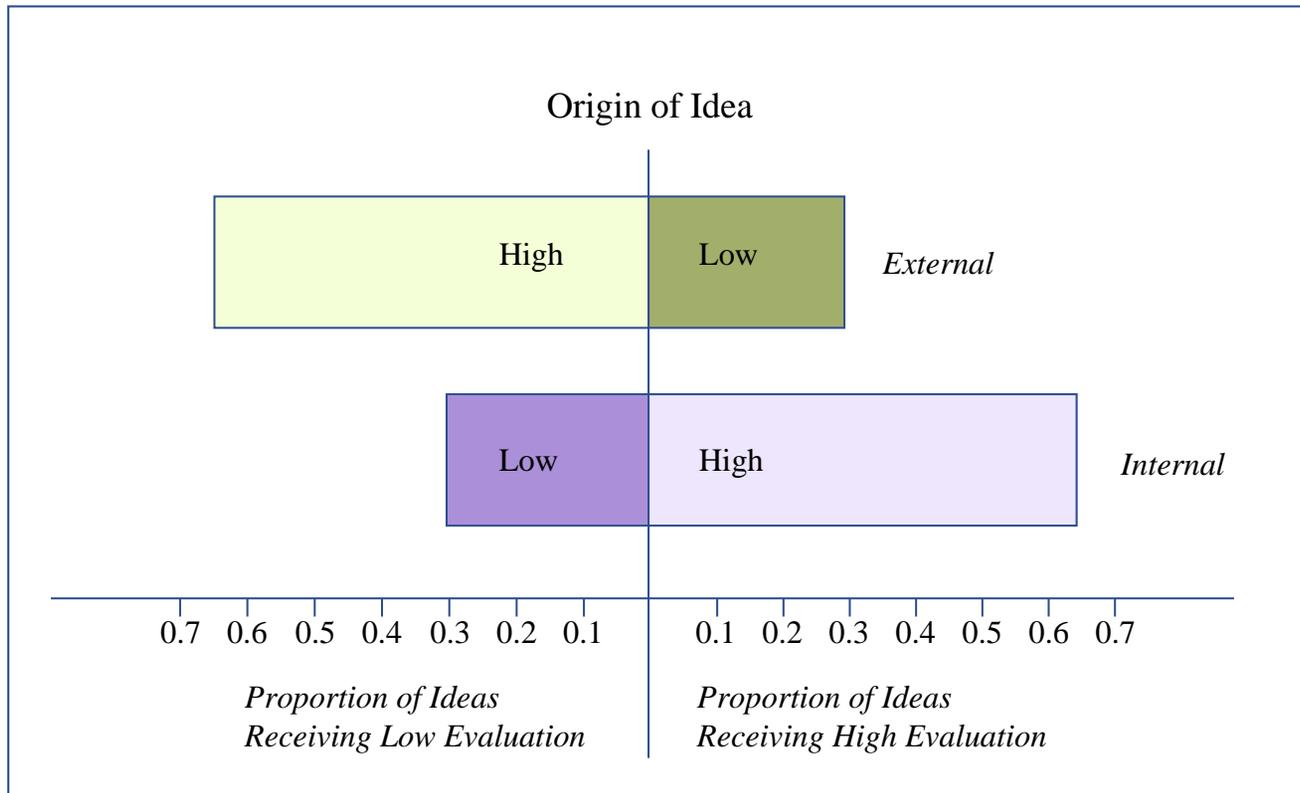
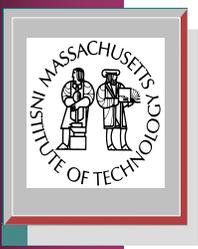


Figure by MIT OCW.

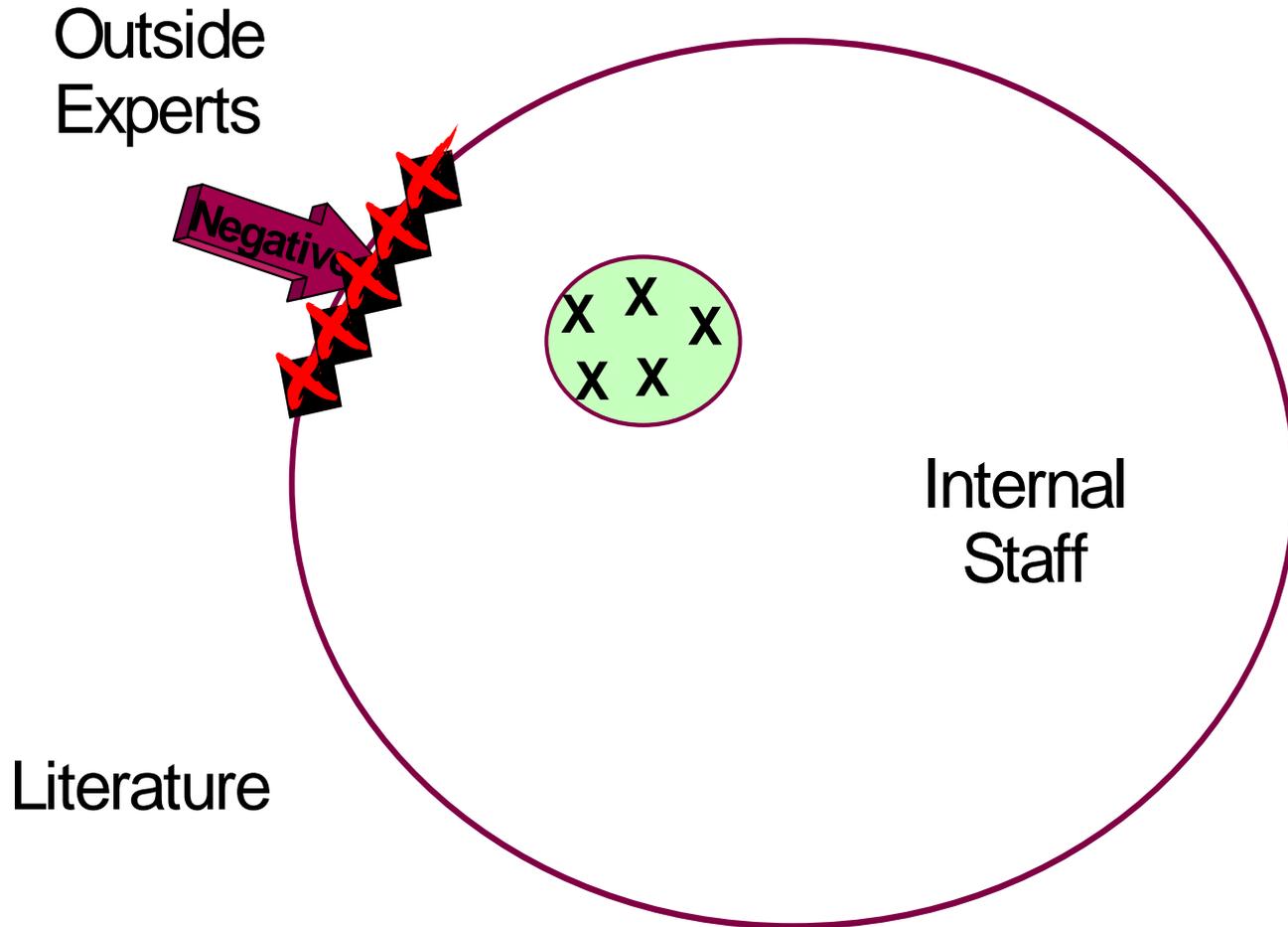


What have we learned?

- So far, no answers but three questions.
 - Why don't those outside the organizations supply better ideas?
 - Why aren't those inside the organization consulted more?
 - How do the 'internal consultants' acquire their information?



'Boundary Impedance' of the Organization





Science and Technology

- Science is Universal.
- Technology is *Local*.



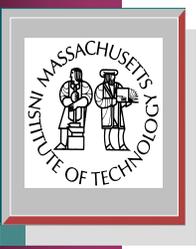
Technology

- Technology is defined in terms of:
 - The Business Goals
 - The Marketing Strategy
- and most importantly,
 - The Culture
 - of the organization in which it is developed.
- Technical problems are thus defined in terms of that culture and its system of values.



The Local Nature of Technology

- This implies that:
- Anyone outside of the organization cannot fully understand the way that those within the organization define technical problems without understanding the organization's culture.
- This difficulty in understanding the problem is the principal barrier to technology transfer.
- Barriers of this sort arise any time that we try to transfer knowledge across organizational boundaries.
- It thus holds true for internal communication as well as communication with other organizations.
- It is one of the causes of poor interfunctional relations in organizations.

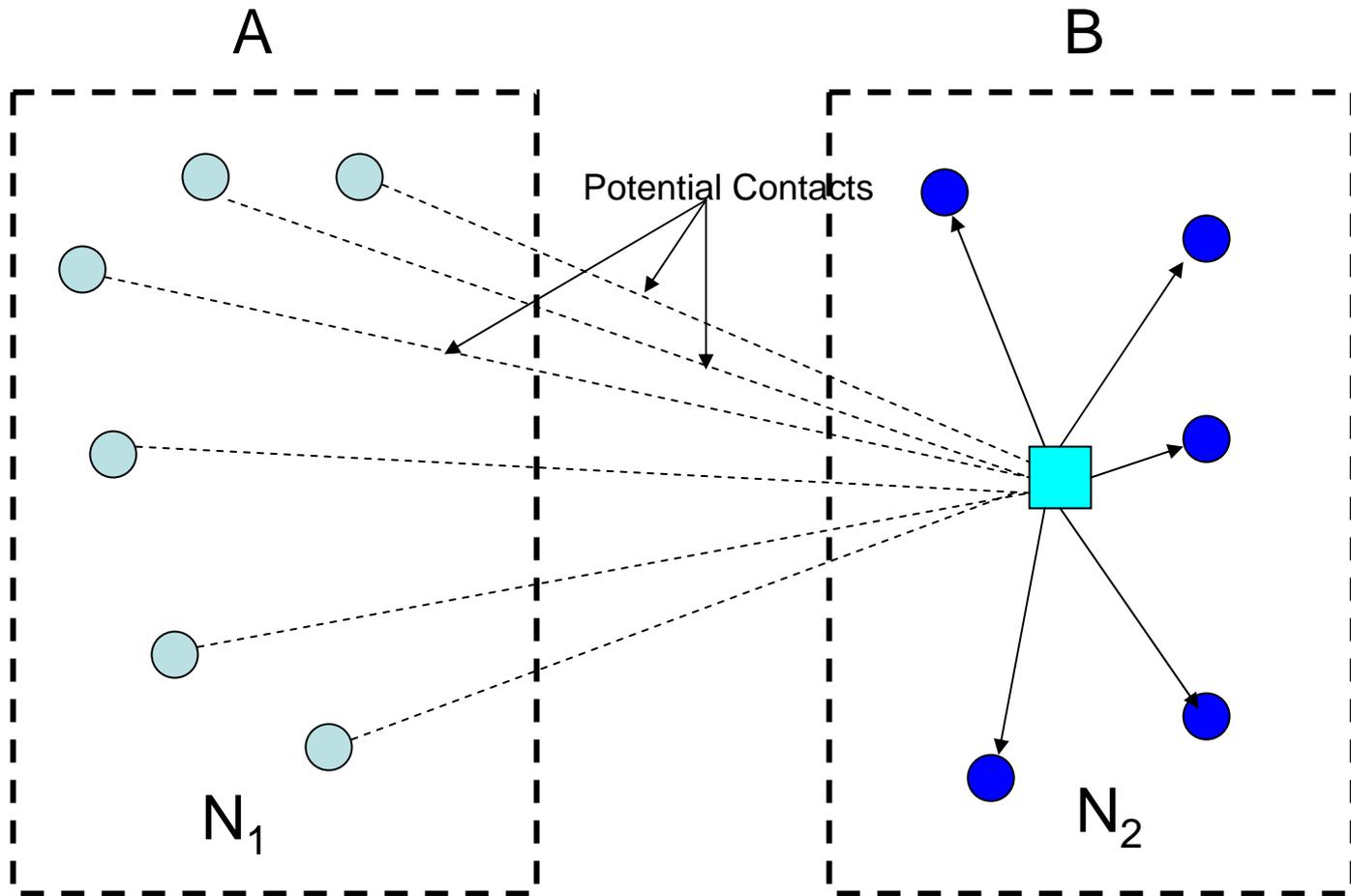


Internal Problems

- There are boundaries inside the organization that can cause as much difficulty (sometimes more) as the external boundary:
 - Product Development ↔ Marketing.
 - Product Development ↔ Manufacturing Engineering.
 - Etc.



More Continuing Relations





Referrals

