

Séminaire  
MATI, Montréal  
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*Les interactions Ad Hoc en  
travail d'équipe*  
**Est-ce particulier au logiciel?**

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Travaux réalisés dans le cadre de projet de doctorat de  
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# Outlines

## ■ OBJECTIVES:

- *Why is there **ad hoc** vocal interactions?*
- *What are they talking about?*
- *Are these interruptions efficient?*

## ■ METHODOLOGY:

- *Audio-video recording of working sessions*
- *Professional software development environment*

## ■ DATA:

- *35 hours of audio-video recordings*
- *404 observed **Face-to-Face (FtF)** interactions*

## ■ ULTIMATE QUESTION:

- **Can these findings be generalized?**

# Ad Hoc Interactions

- Involve at least two participants
- Spontaneous
- Unplanned
- Unknown duration
- Undocumented
- Vocal interactions (Face to Face)
- Electronic interactions (e-mails)

# Industrial Environment Observed

## Large Organization

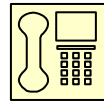
- **Team composition**
  - 1 project manager and 11 software developers
- **Education:**
  - Ranging from Bachelor degree to Ph.D.
- **Experience:**
  - Ranging from 2 to 16 years in software development
- **Service in the company:**
  - Ranging from 9 months to 5 years
- Disciplined **Software Engineering Process**

# Two Observational Phases

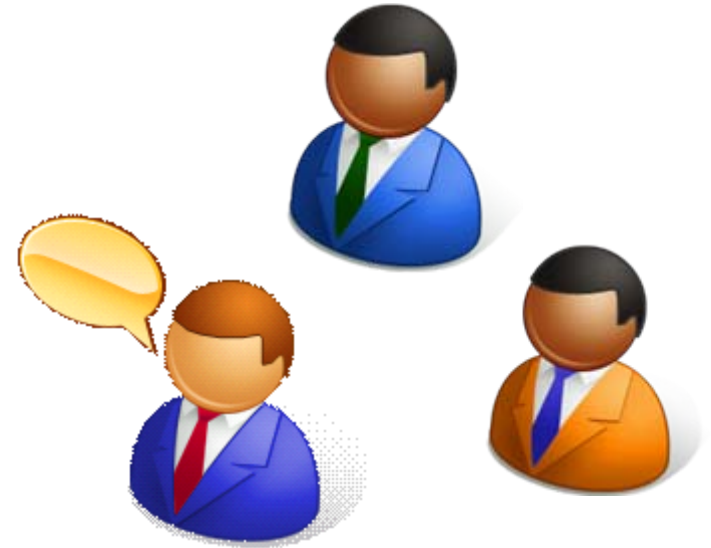
- **Ethnographic Phase** (6 months):
  - Observer join the group as a team member;
  - Observer plan the data collection method.
- **Data Collection Phase** (2 months):
  - Audio-video recording of *ad hoc* behaviour;
  - 200 hours of recorded working sessions.
- **Potential bias** due to the presence of the camera:
  - Three weeks of buffer recording to accustom participants.

# DATA MODEL

**WHO?**



**HOW?**



**WHY?**  
SYNCHRONIZE  
SHARE  
DEVELOP  
COORDINATE

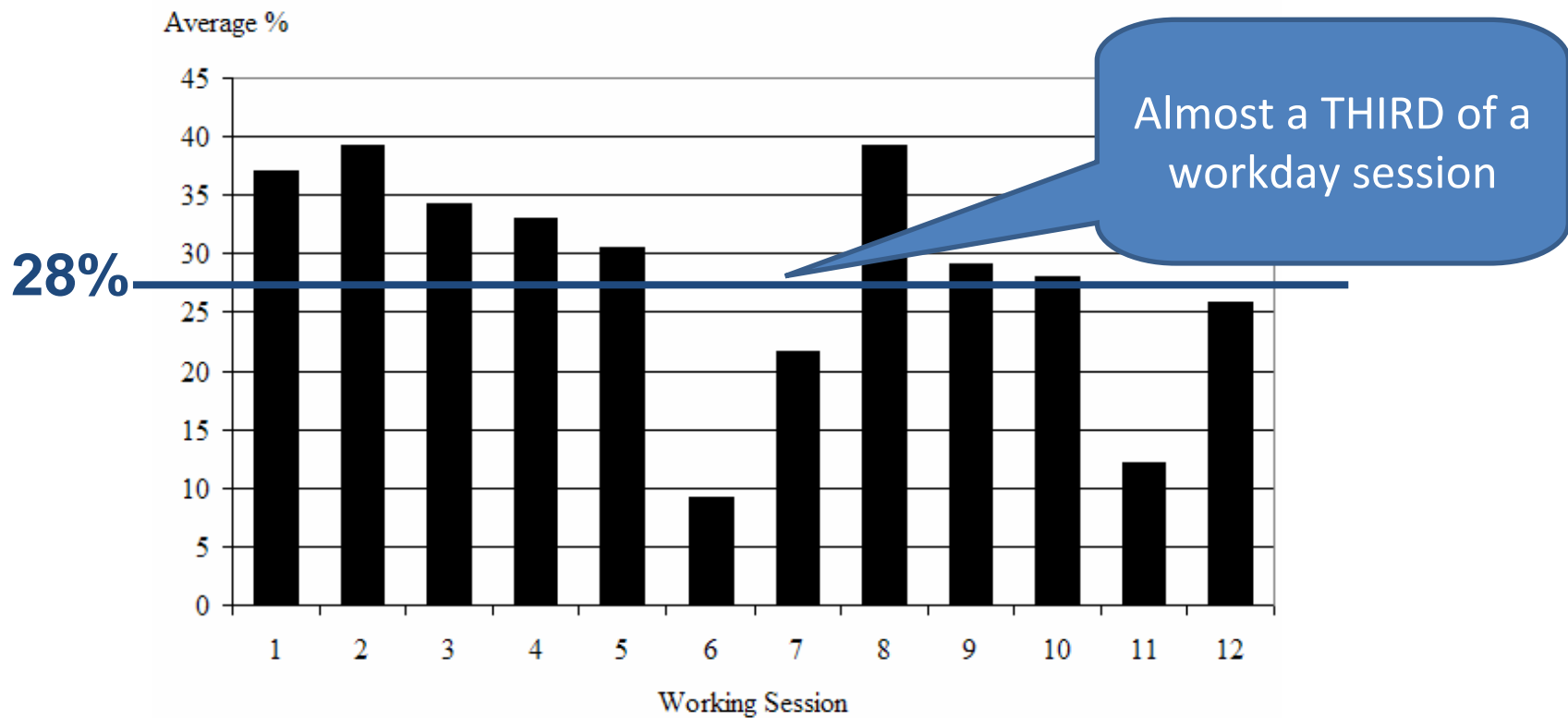
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**WHAT?**  
TECHNICAL  
SPECIFIC  
ORGANISATIONAL

.....

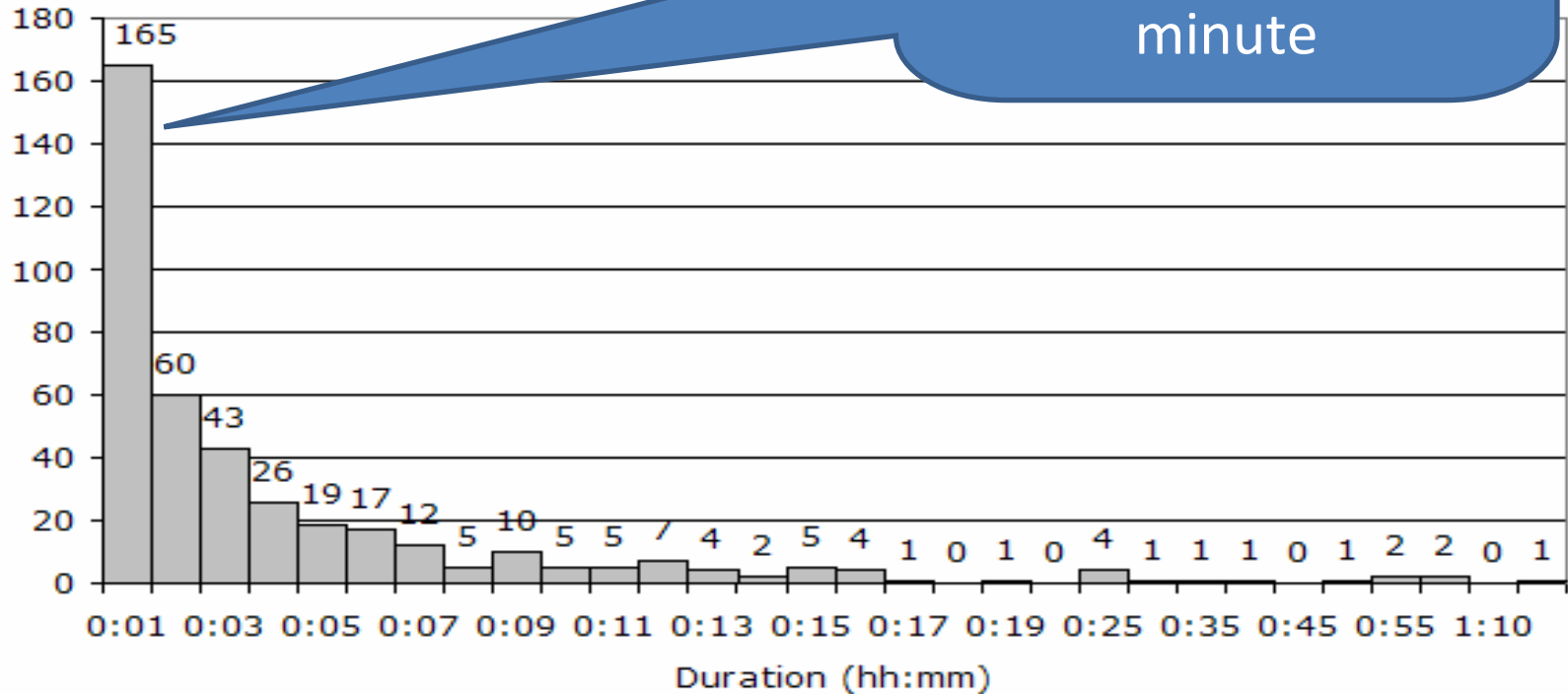
**RELEVANCE**  
?  
KNOWLEDGE  
KNOW-HOW  
KNOWING

# Time Spent on Collaborative Activities



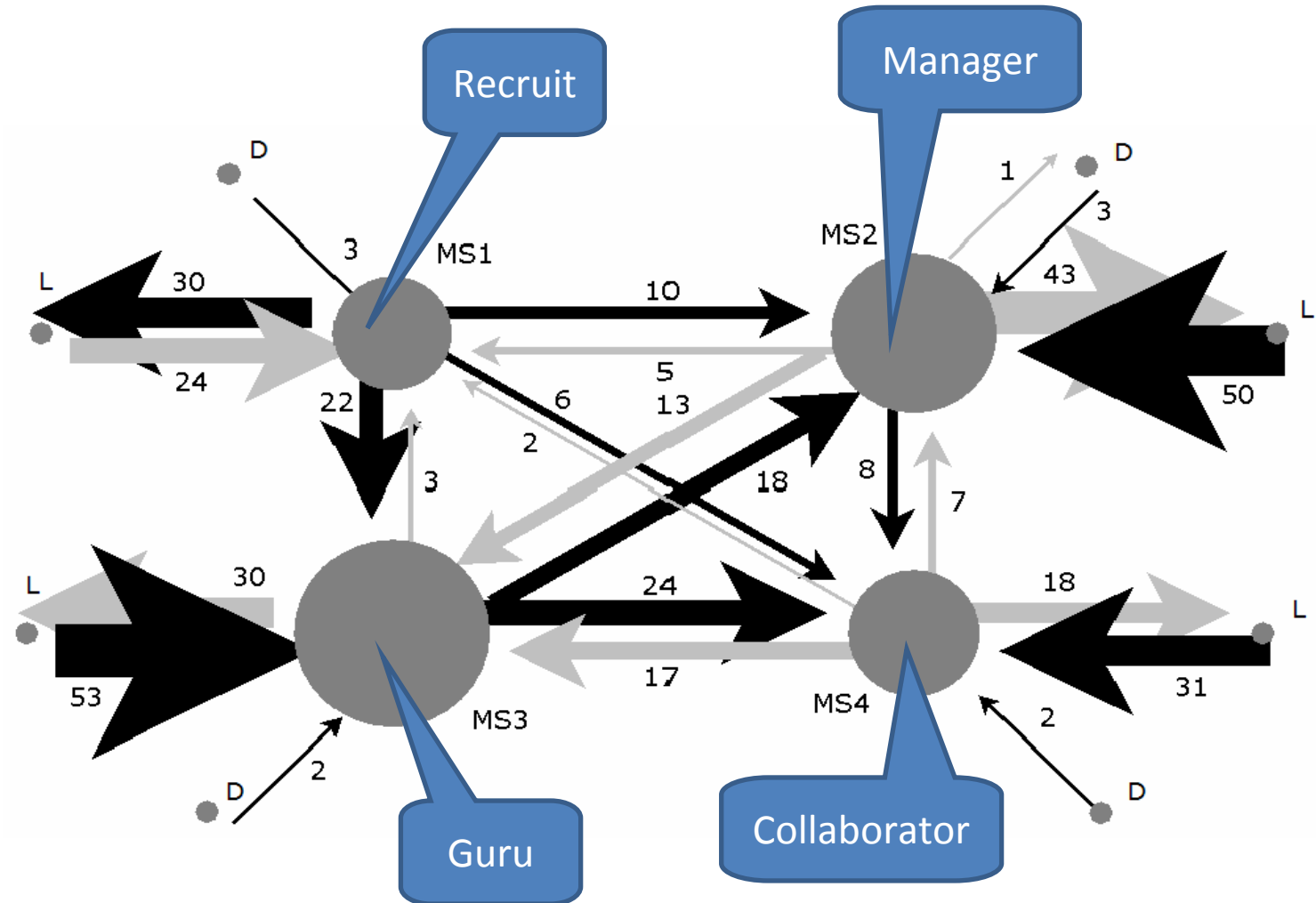
# Duration of *ad hoc* Interactions

Cumulated  
*Ad Hoc*  
Collaborative  
Interactions

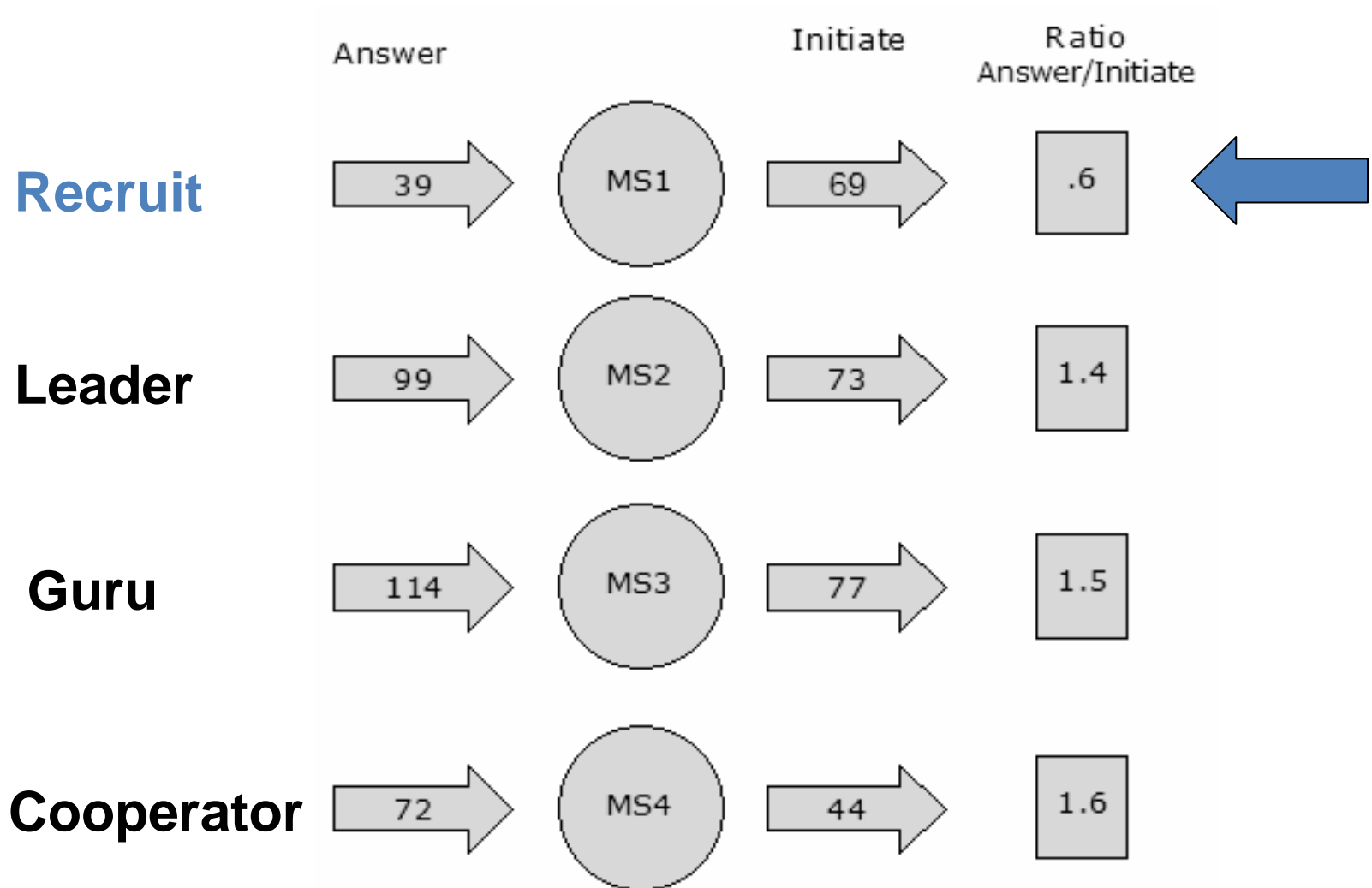


Almost **40%** of the *ad hoc* interactions last less than a minute

# Network of *ad hoc* Collaborations



# Contribution to Knowledge-Sharing



# Modes of Face-to-Face (FtF) Interactions

**Verbal**



**Two  
F2F**



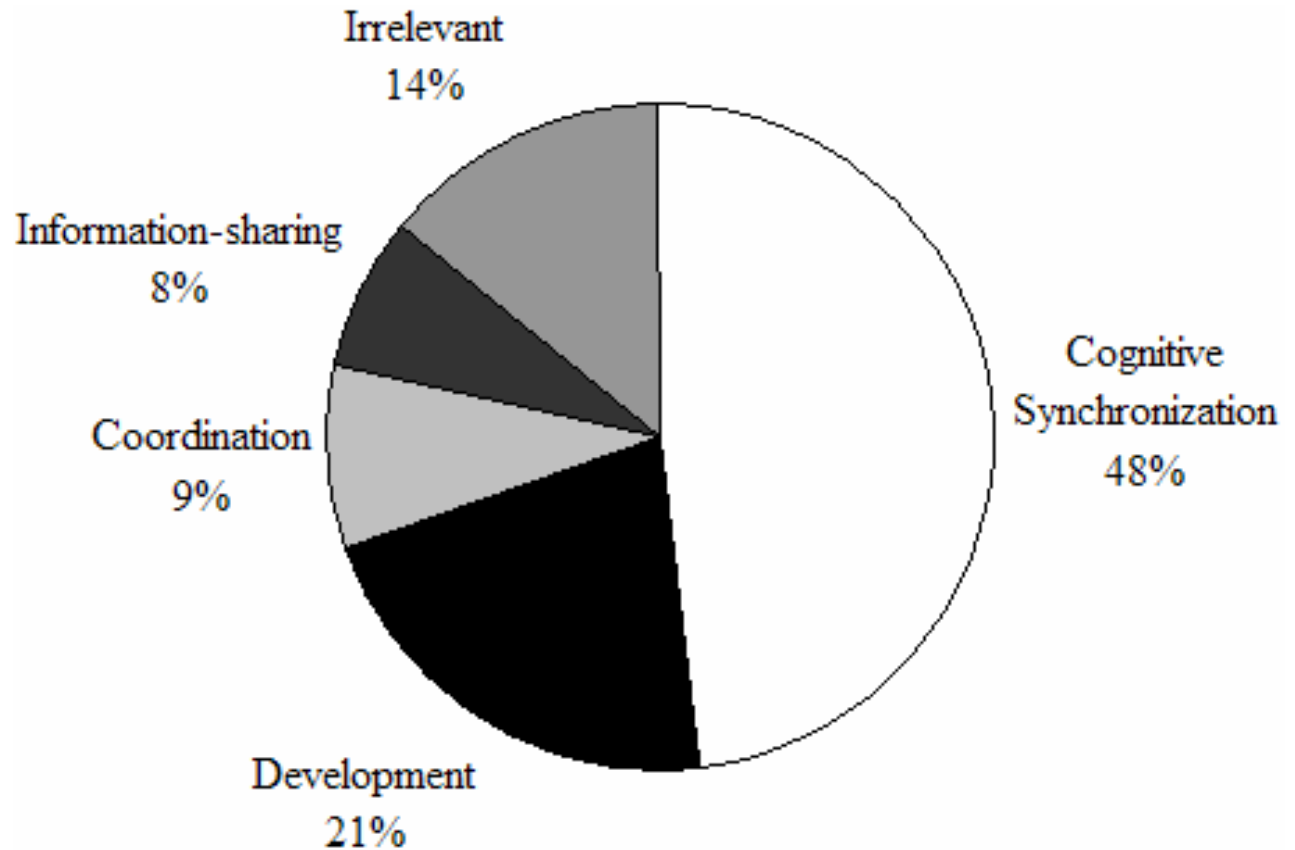
**Many  
FnF**



# Types of *ad hoc Interactions* (Why)

- **Cognitive synchronization**
  - Exchange understanding to validate mental model
    - “Hey Chris, could you tell me how we should configure this?”
- **Information-sharing**
  - Share information without being requested
    - “Michel, I modified your ABC function in class EFG ”
- **Development**
  - Work together on a particular task of the project
    - “Let’s find the solution to get rid of this problem.”
- **Coordination**
  - Schedule meetings, define priorities, give a status report
    - “When would you be available to meet to discuss that?”
- **Irrelevant interaction**
  - Discuss subjects in a social context
    - “Hi John! How was your weekend?”

# Types of Vocal Sequences (Frequency)



# Modes of e-mails

Direct  
Person-to-Person



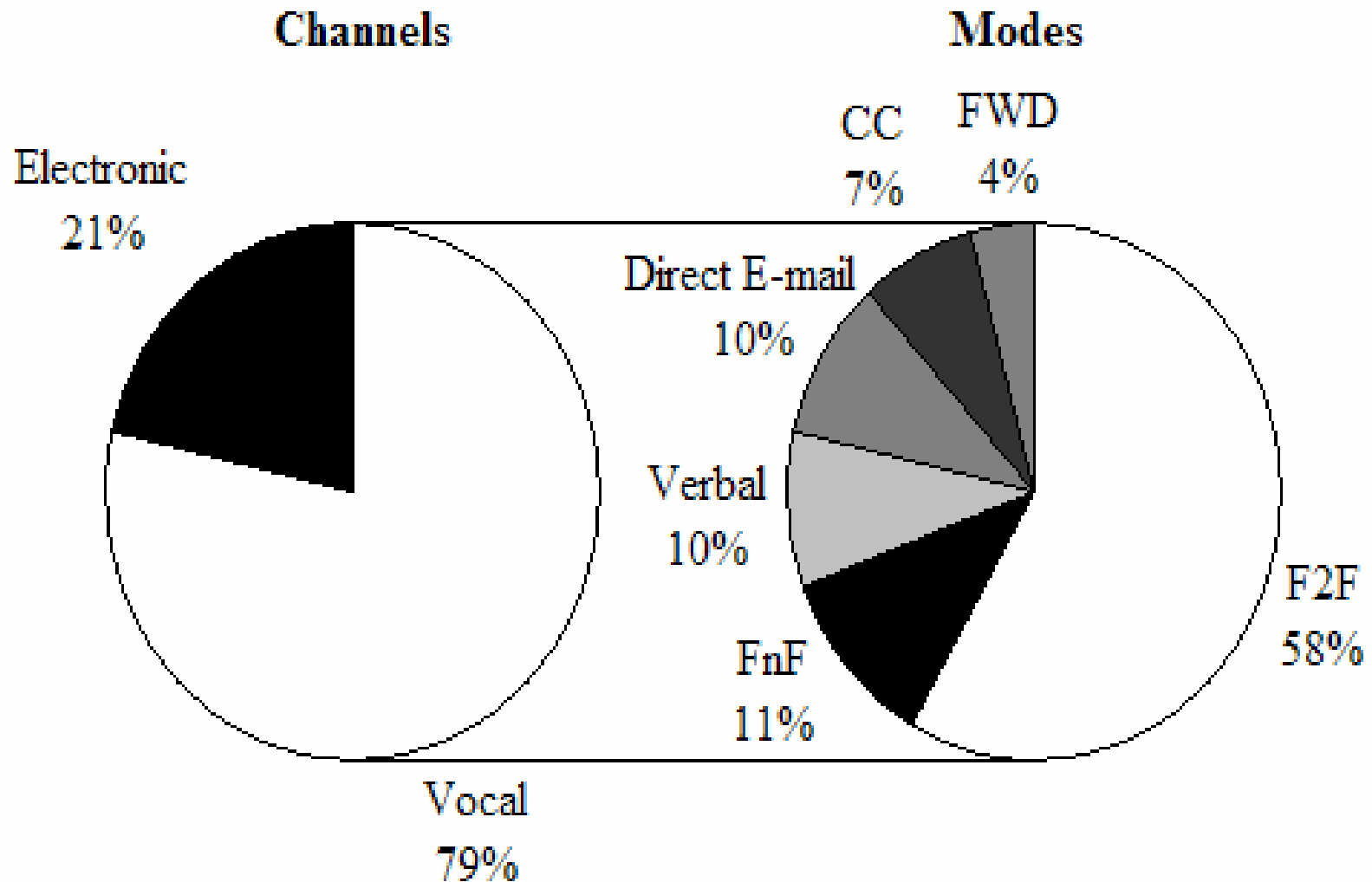
Carbon-Copy



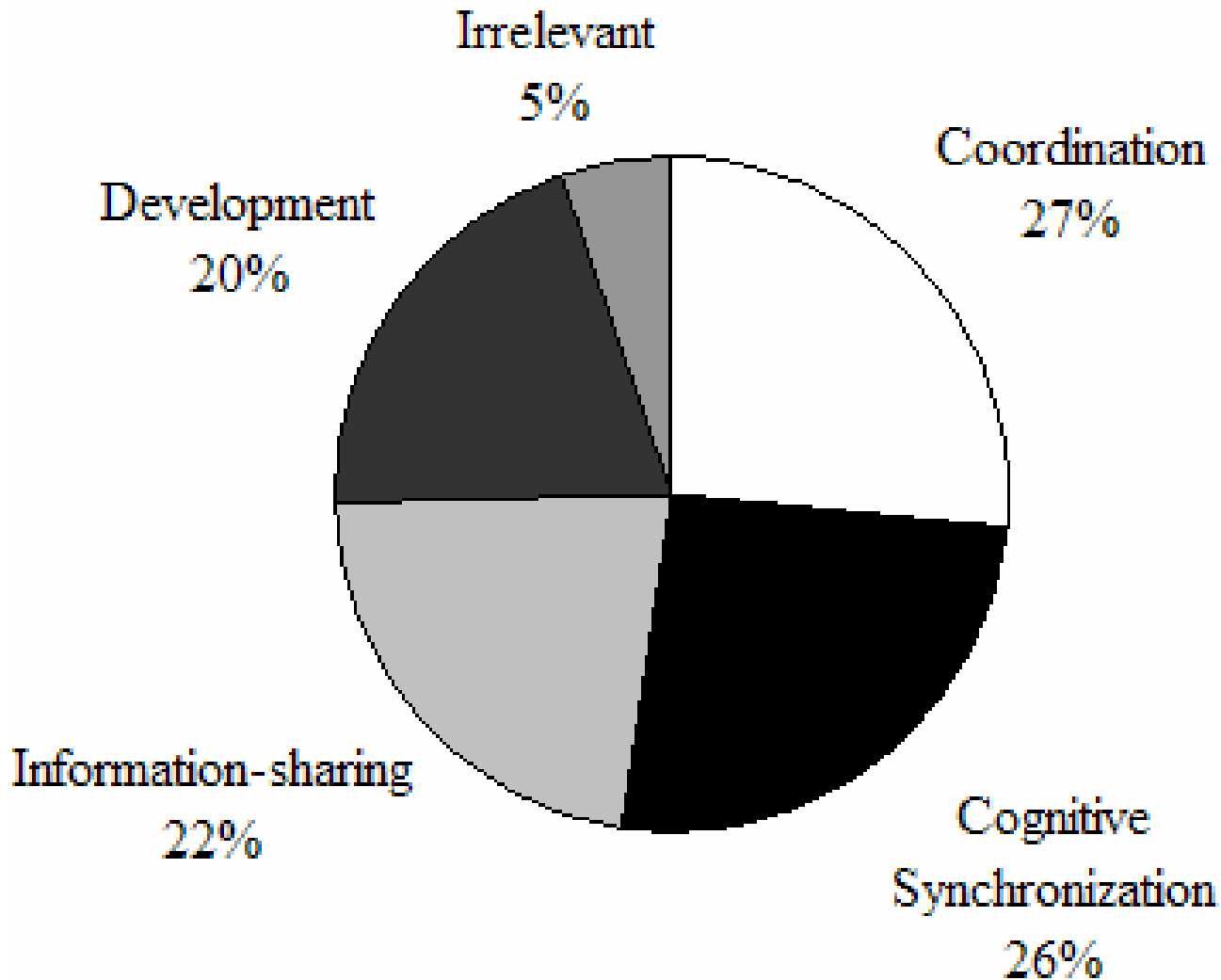
Forwarded



# Channel Modes Usage Frequency



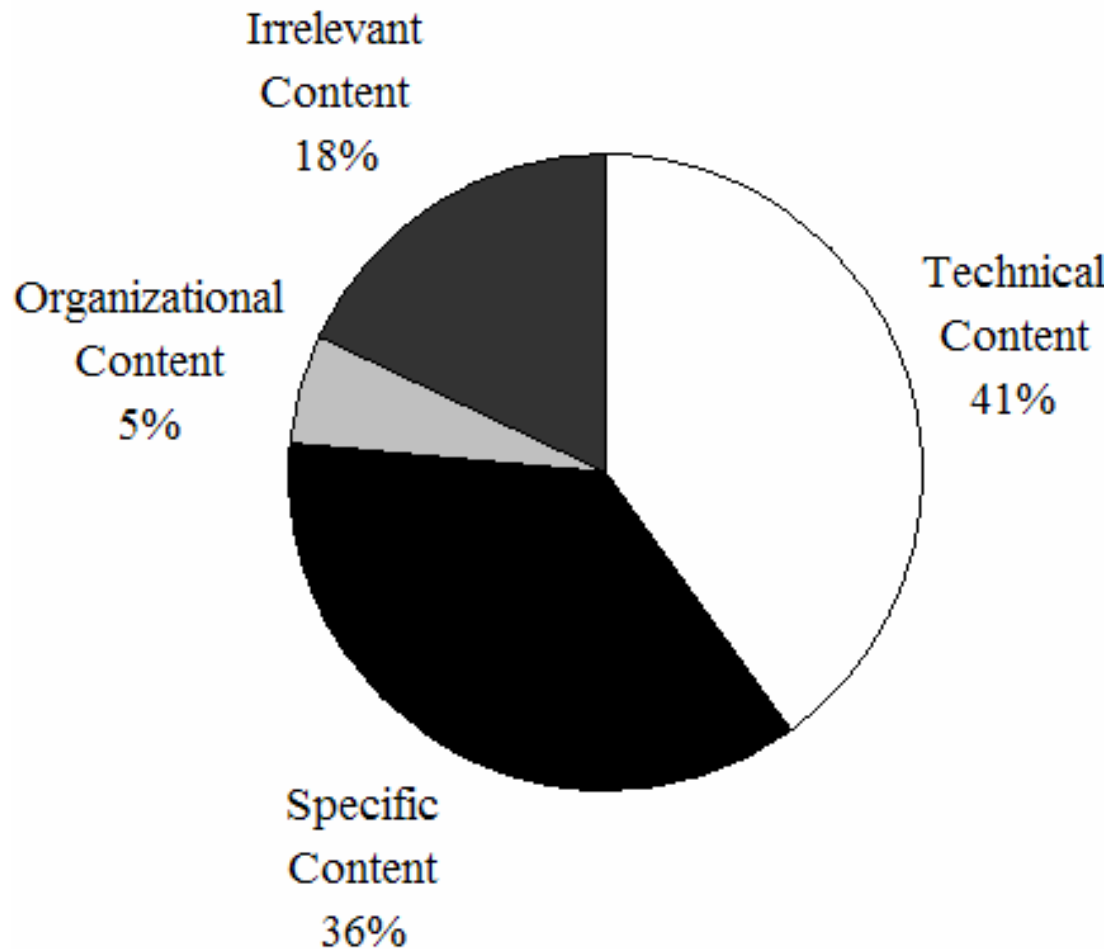
# Types of e-mail sequences (Frequency)



# Content Exchanged (What)

- **Specific content:**
  - Specific topics or features of the software product;
    - “John, could you please help me to fix the bug in the XYZ module”
- **Technical content:**
  - General topics not related to product
    - “Hey Michel. Where is the setting to disable the compilation ...?”
- **Organizational content:**
  - Development process, resources, training, meetings, etc.
    - “Martin, when the integration test phase has been planned?”
- **Irrelevant content:**
  - Do not concern the project.
    - “Hey Martin! How about pizza for lunch?”

# Vocal Sequences Content (Frequency)



# Relevance Level of *Ad hoc* Sequences

- ***Knowledge* relevance:**

- Contents related to product, design, implementation, business application and rules

- “Hey Chris, which business rules are handled in function XYZ?”

- ***Know-how* relevance:**

- Contents related to the skills to build the product, technical ability and expertise.

- “Hey Mart, how to deal with the new branch in the source control?”

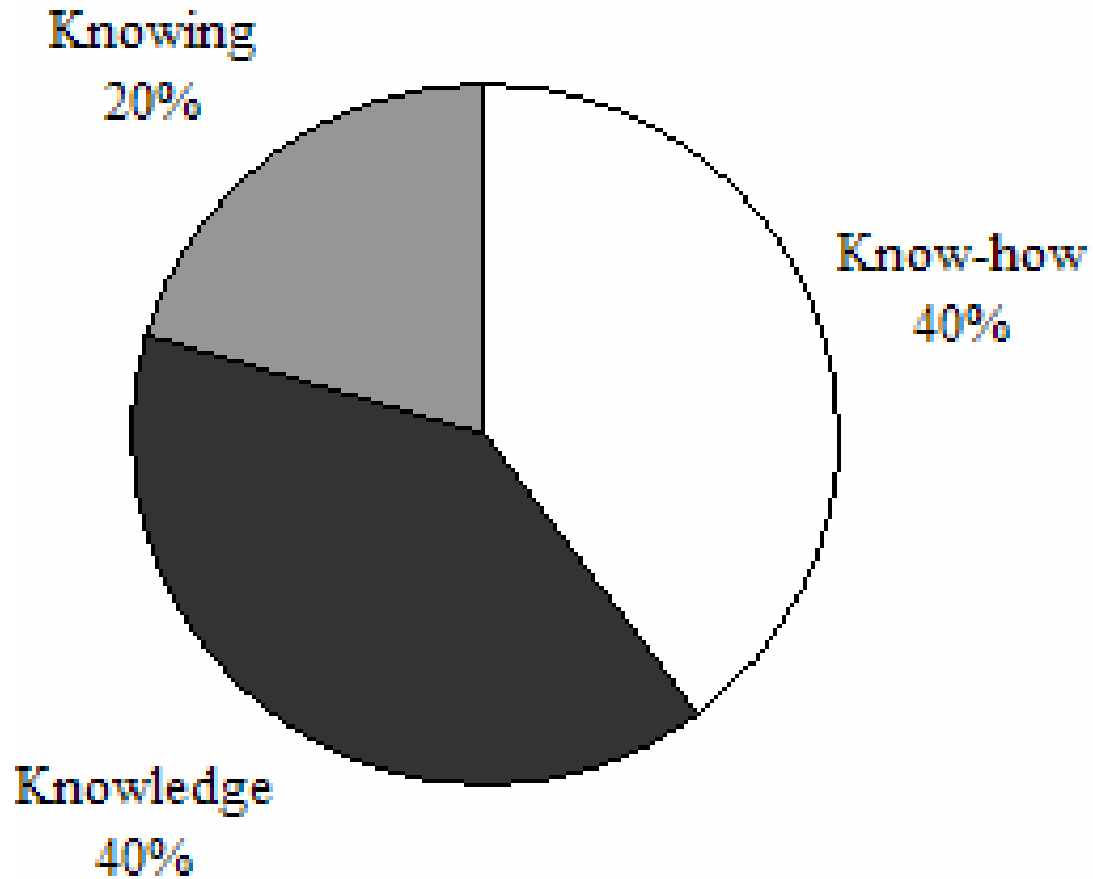
- ***Knowing* relevance:**

- Factual contents relevant when the interaction occurs.

Given participant with specific reason within defined context

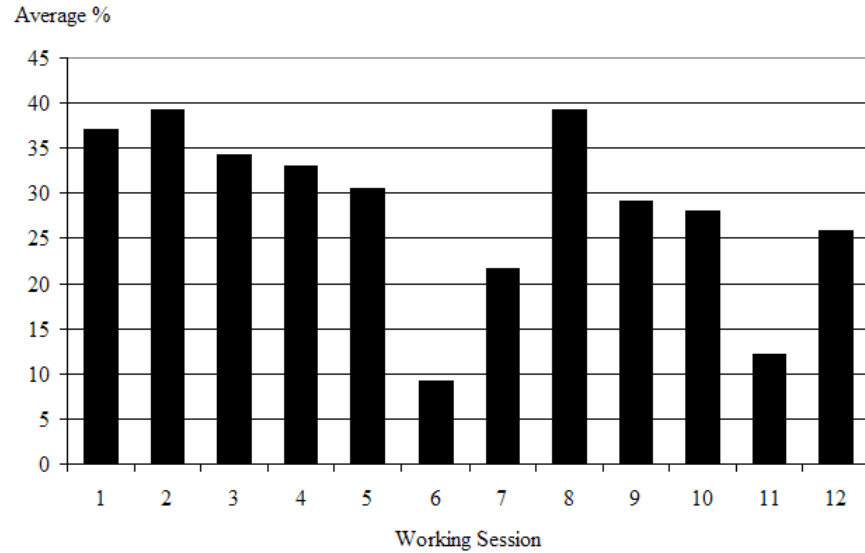
- “Hey John, did you release class ABC?”

# Vocal Sequences Relevance (Frequency)



# Findings

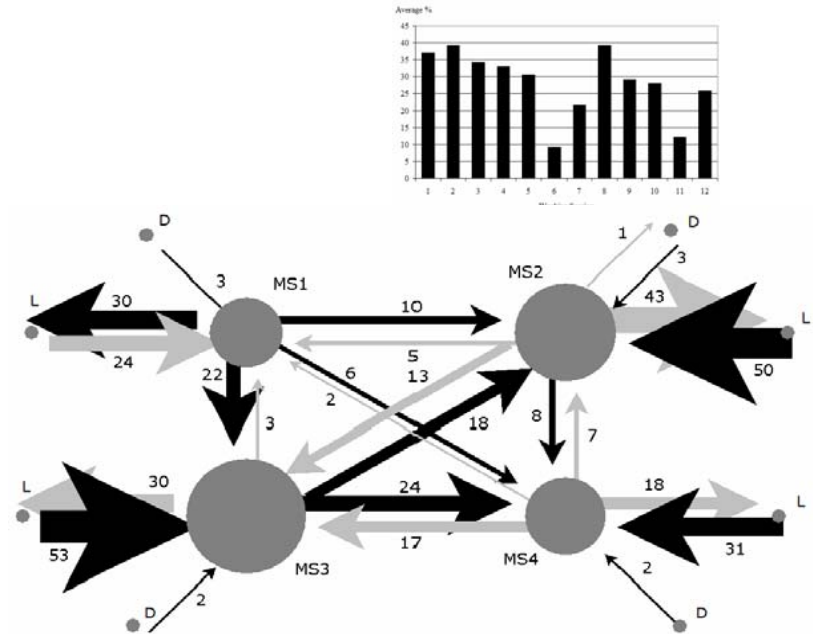
No project trend



# Findings

No project trend

Collaboration patterns according to role

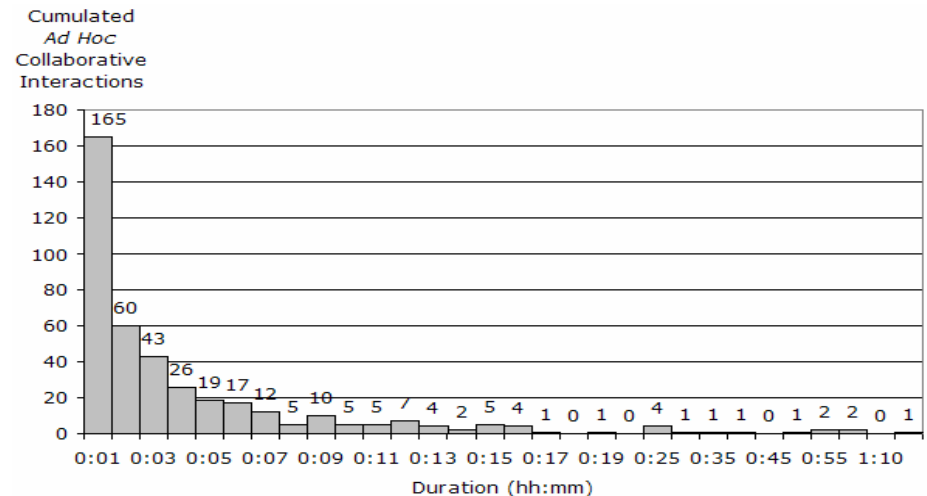
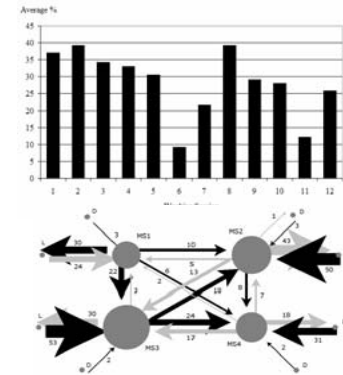


# Findings

No project trend

Collaboration patterns according to role

Opportunistic interactions



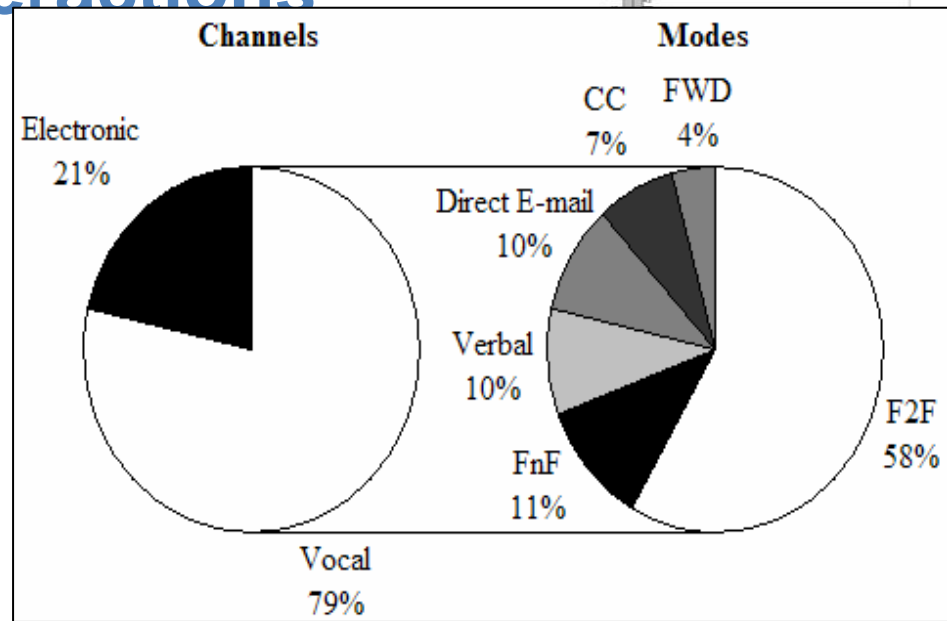
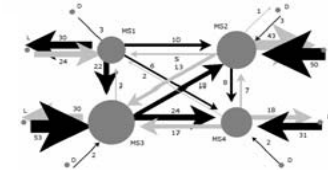
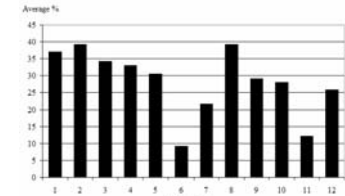
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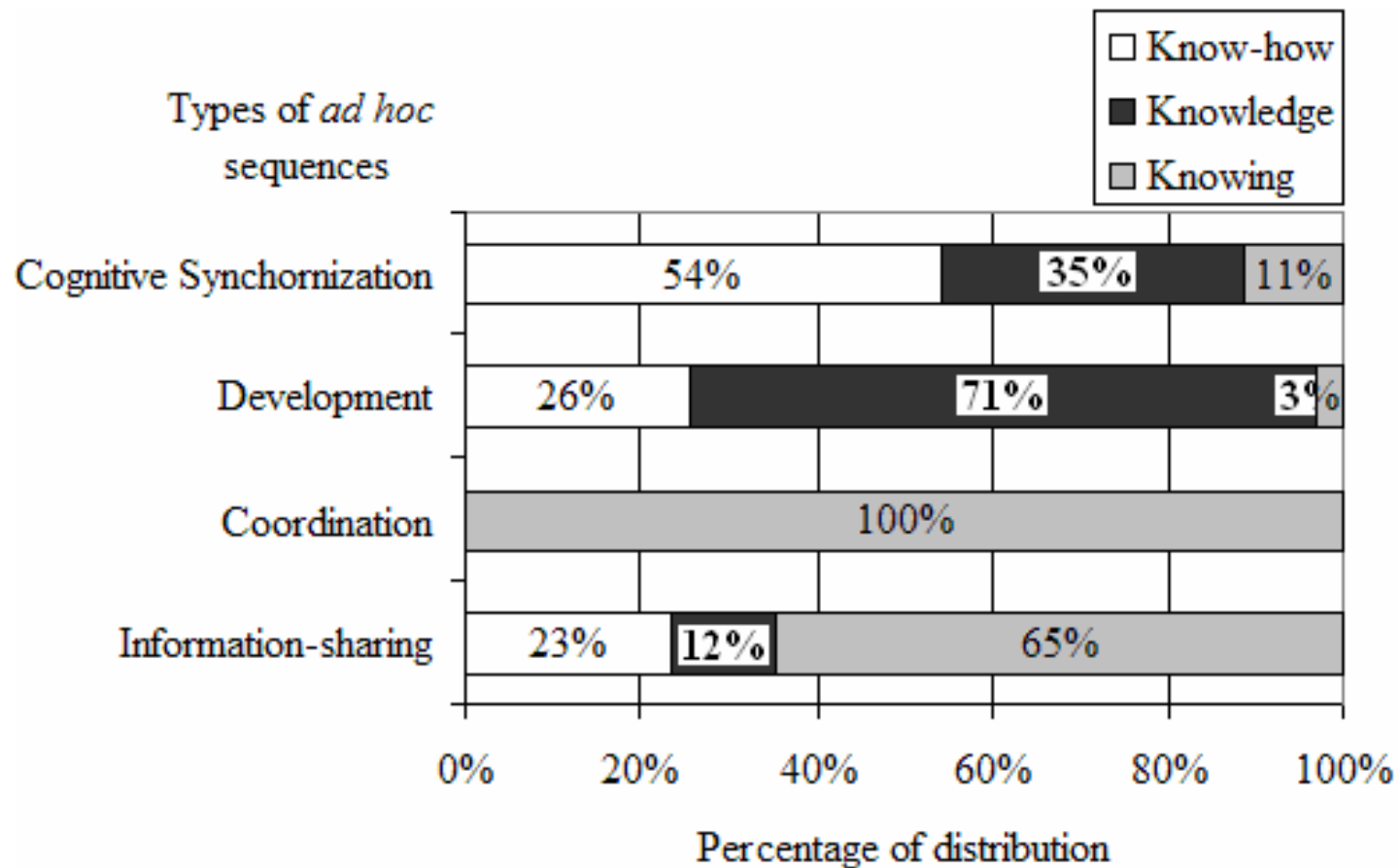
Opportunistic interactions

Mostly F2F



# MAJOR Finding

## Mostly cognitive synchronization on Know-How



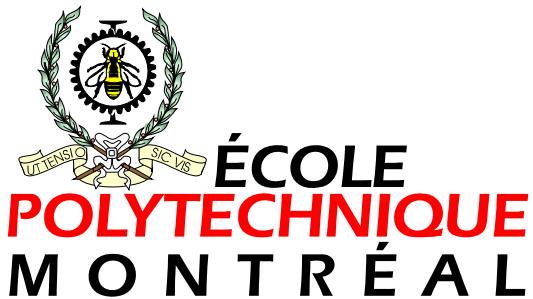
# Conclusion

- **Face-to-Face** *ad hoc* interactions;
  - Requires almost a third **(30%) of the team time**;
  - Time consuming for the leaders **(guru, manager)**
  - **Rarely taken into account** in task assignment;
- Relationships between **verbal *ad hoc* activities and the physical seating**
- *Ad hoc* collaborations is a **just-in-time** paradigm
  - **for know-how sharing or knowledge validation**
- **Social aspect of FtF *ad hoc* collaborations** is suspect to be fairly **important**.

# QUESTION

**CE COMPORTEMENT COLLABORATIF  
EST-IL REPRÉSENTATIF  
DE TOUT TRAVAIL D'ÉQUIPE  
QUELQUE SOIT LE DOMAINE?**

**Merci de votre attention**



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