BIM USE: AN IDENTITY PERSPECTIVE

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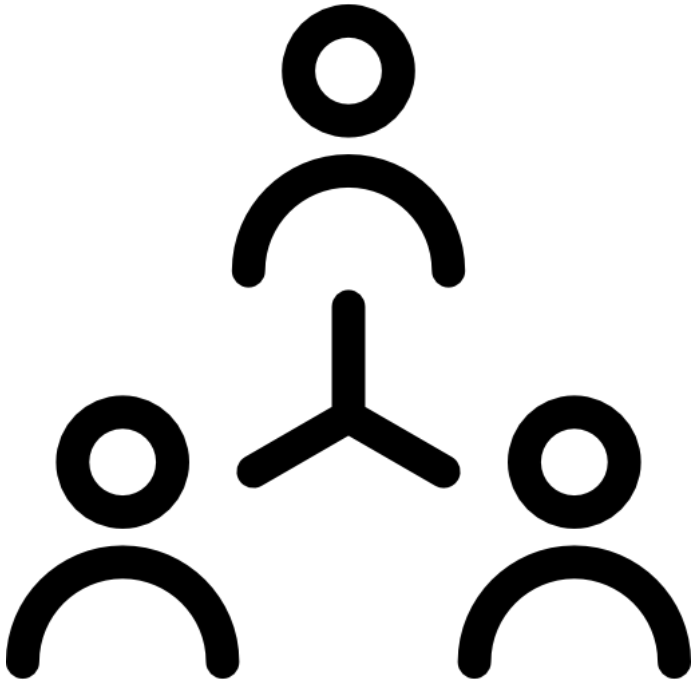


INTERORGANIZATIONAL SYSTEMS (IOS):

Transcend organizational boundaries

Require a high level of collaboration

Effective IOS Collaboration is not self-evident,

- Significant changes in business processes
- groups emphasize their own objectives

IS RESEARCH

A wealth of research on IOS collaboration

THE GAP

Few research has adopted an identity perspective in the examination of IOS

IDENTITY

is a powerful means to explain a range of social and organizational phenomena

SET OF MEANINGS THAT DEFINE WHO ONE IS

AT THE COLLECTIVE LEVEL

The set of meanings that define a group, an organization, or multiple groups interacting together

POWERFUL LENS TO UNDERSTAND INTERGROUP COLLABORATION

(Ibarra et al. 2014; Pittinsky 2010)

effective collaborative is bounded to the ability of groups to develop a **collective identity**

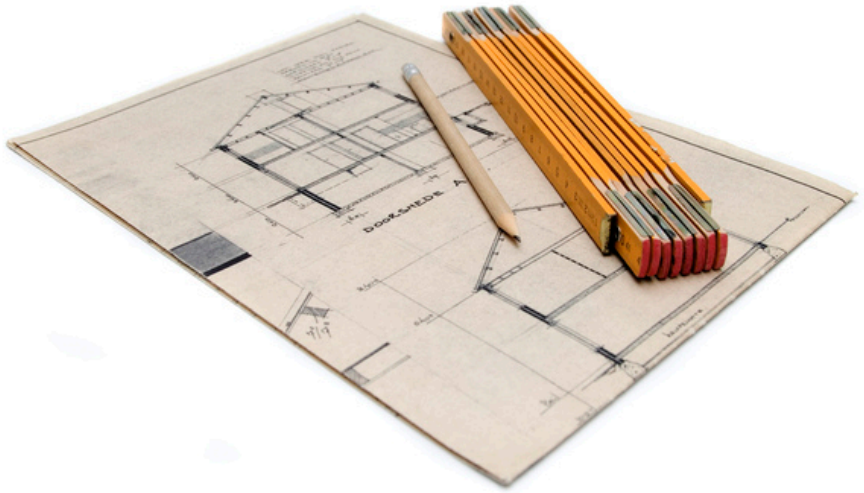

?
collective identity
Intergroup collaboration

RESEARCH QUESTION

In the context of **interorganizational system usage**, how does the development of a **collective identity unfolds**?

RESEARCH METHOD

Architecture, Engineering and Construction (AEC) industry



BIM Technologies

Building information Modelling

BIM is a modeling technology and a set of associated processes that allow architects, designers, engineers, and builders to visually create, analyze, and share building models (Azhar 2011).

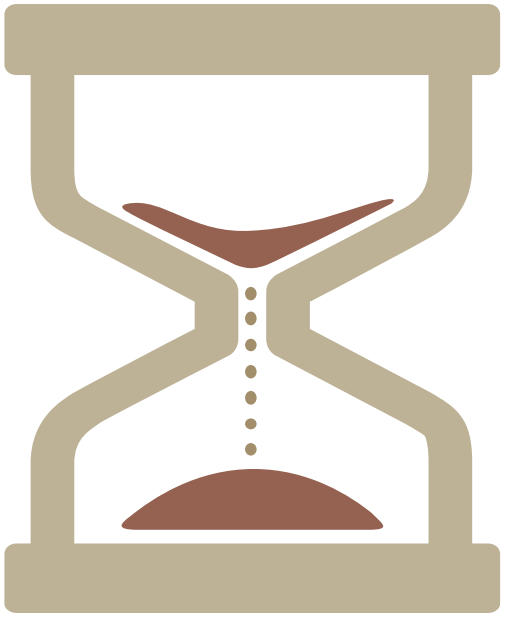

BIM REQUIRES TIGHT COLLABORATION
BETWEEN PROJECT PARTICIPANTS

THE FIELD

Quebec

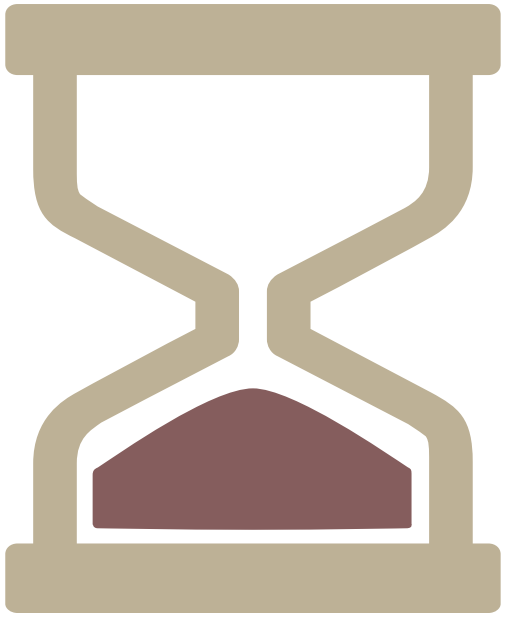
Finland

DATA COLLECTION



the first round
(March 2015 – October 2015),

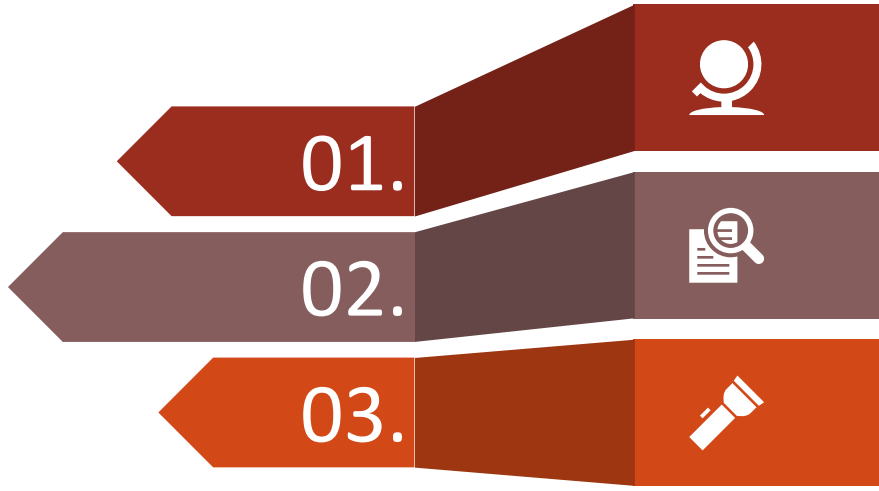
UNDERSTAND THE CONTEXT



second round
(September 2016 – December 2016),

HOW THE COLLECTIVE IDENTITY UNFOLDS?

DATA COLLECTION



Interviews recorded and transcribed verbatim,

Qualitative data analysis software

Québec
18

Finland
26

- semi-structured interview
- Open-ended questions

CIO

ARCHITECTS

OWNERS

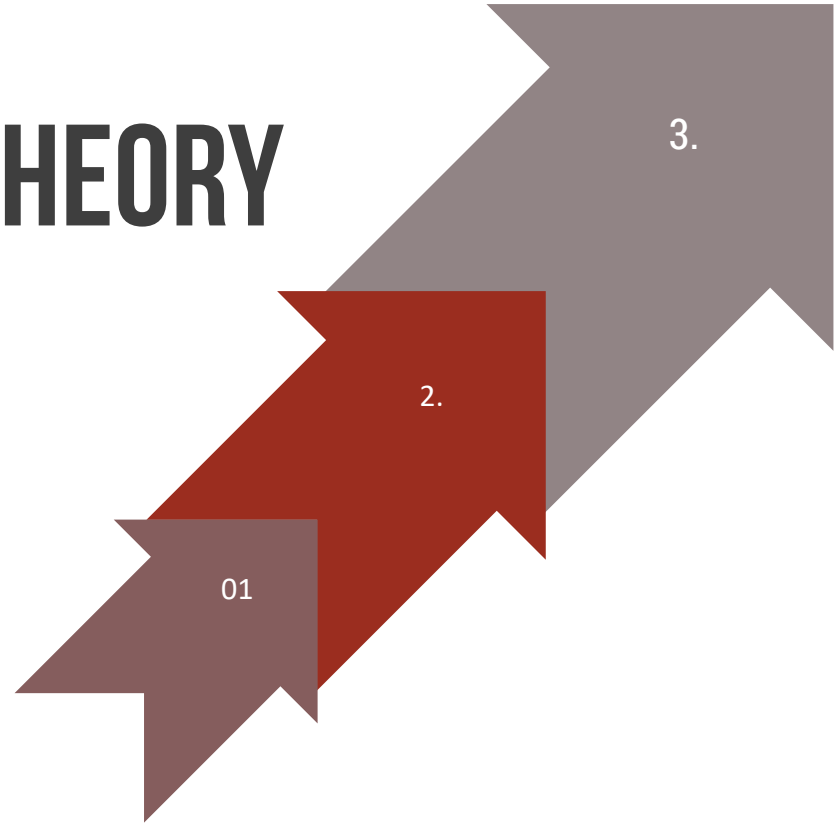
PROJECT MANAGERS

CONTRACTORS

BIM MANAGERS

	Respondents	Finland	Canada
Round 1			
	Project Manager	10	6
	CIO	-	2
	Architects	3	-
	Contractor	1	-
	Owner	2	1
	BIM consultant	1	1
	BIM Trainer	-	1
	BIM Technician	1	1
	Sub-total	18	12
Round 2			
	Project Manager	1	3
	BIM consultant	1	-
	CIO	-	1
	Architect	1	-
	Owner	-	1
	BIM Technician	-	1
	Research and development professional	3	-
	Sub-total	6	6
	Total	24	18
	Total interviews	42	

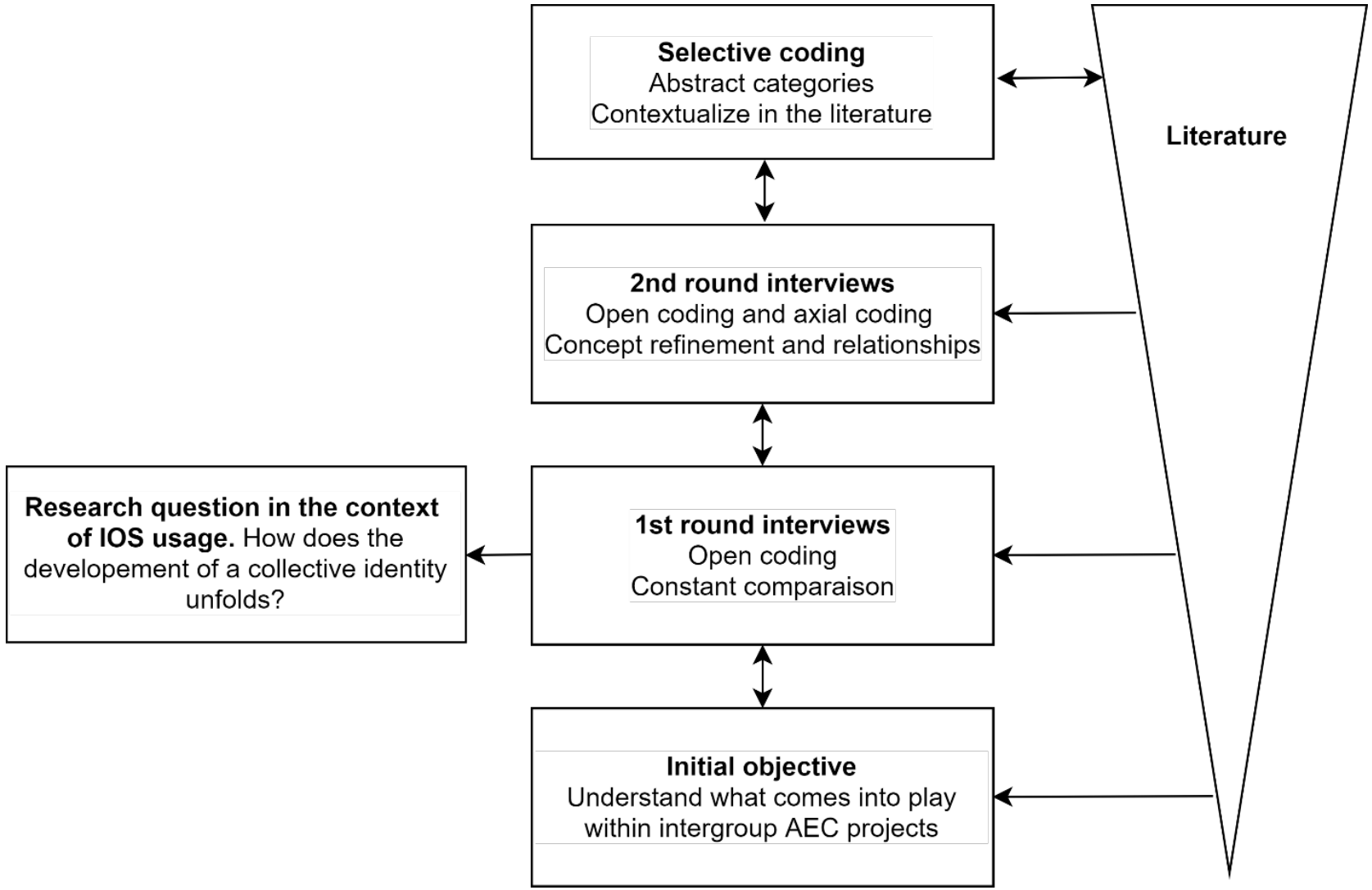
GROUNDED THEORY



SELECTIVE CODING

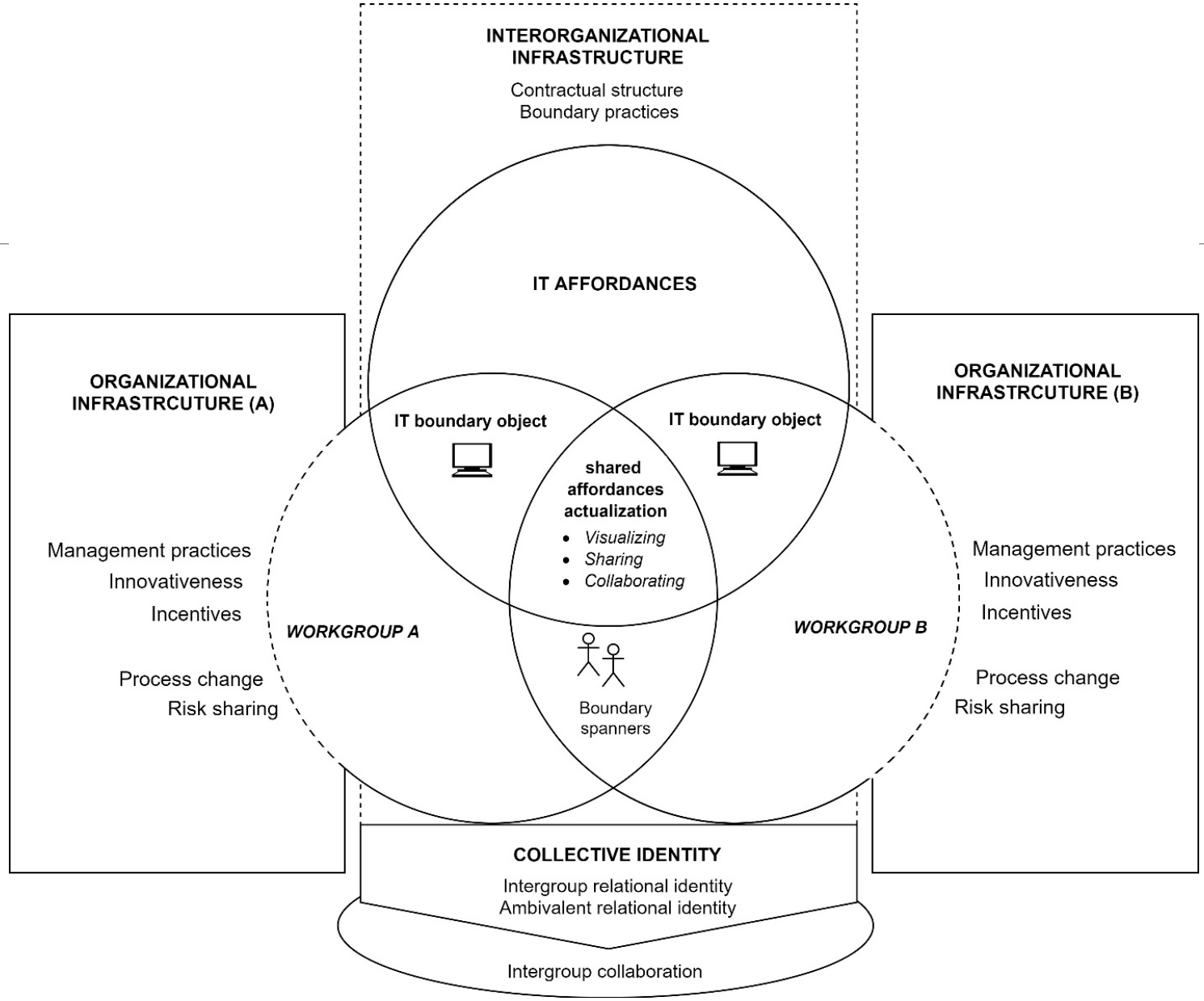
AXIAL CODING

OPEN CODING


Selective coding
Abstract categories
Contextualize in the literature
2nd round interviews
Open coding and axial coding
Concept refinement and relationships
1st round interviews
Open coding
Constant comparaison
Initial objective
Understand what comes into play within intergroup AEC projects
Research question in the context of IOS usage. How does the developement of a collective identity unfolds?
Literature

FINDINGS

Codes	Concepts	Categories
Cooperation, common fate, shared goal, ambivalence, finger pointing, disassociatio	Intergroup relational identity, Intergroup ambivalent identity	Collective identity
Goal orientation, shared information, collaboration, transparency, error reducing communication, visualization, efficiency, realistic view	Visualizing, sharing, collaborating	IT affordances
Management support, vision leadership, innovation, risk, work change, motivation	Management practices, innovativeness, incentives, process change, risk sharing	Organizational infrastructure
BIM coordinator tasks, coordination, alliance, partnership, DB and DBB models, BIM interoperability	IT boundary object, boundary spanners, boundary practices, contractual structure	Interorganizational infrastructure


INTERORGANIZATIONAL INFRASTRUCTURE
Contractual structure
Boundary practices
IT AFFORDANCES
ORGANIZATIONAL INFRASTRCUTURE (A)
Management practices
Innovativeness
Incentives
Process change
Risk sharing
IT boundary object
IT boundary object
shared affordances actualization
Visualizing
Sharing
Collaborating
WORKGROUP A
WORKGROUP B
Boundary spanners
ORGANIZATIONAL INFRASTRCUTURE (B)
Management practices
Innovativeness
Incentives
Process change
Risk sharing
COLLECTIVE IDENTITY
Intergroup relational identity
Ambivalent relational identity
Intergroup collaboration

ORGANIZATIONAL INFRASTRUCTURE

1. MANAGEMENT PRACTICES
2. INNOVATIVENESS
3. RISK SHARING
4. INCENTIVES
5. PROCESS CHANGE

“It is not only a question of technologies, it is also a question of work processes, team building and integration, the buy-in and so on. Here, upper management has to…, it is even crucial, necessary, and a prerequisite, they have to buy these concepts, know and understand them, and make sure everyone else in the chain adopts, implements and uses them”.

MANAGEMENT PRACTICES

[In our company] we innovate, we always look for the world best practices...

INNOVATIVENESS

I do not want to take your risk; I do not want to play with your stuff. I do not want you to play with my stuff."

RISK SHARING

"When you are managing the BIM process, your job is to highlight the issues, you turn around, and you say to the project management team and the consultants, the architects and engineers: "there is a problem with the model, it is your job to solve it. I am not saying it is your fault, I am saying there is a problem."

RISK SHARING

you have to change the way you work, it

PROCESS CHANGE

"I look at best projects, for example what [this company] has been doing; I think it is a perfect model showing how to motivate people [business partners] to change because there is a clear financial incentive for people to collaborate, and then they start doing it".

INCENTIVES

INTER-ORGANIZATIONAL INFRASTRUCTURE

1. CONTRACTUAL STRUCTURE,
2. IT BOUNDARY OBJECT,
3. BOUNDARY SPANNERS,
4. BOUNDARY PRACTICES

“To make [BIM] works, you need to collaborate between the various parties, and as long as the contract will say ‘Don't cross that line because it’s at your own risk’, it’s not going to happen”.

“The lowest bidder model kills BIM, literally […] It is anti-quality, anti-BIM. We all know how the projects that use lowest bidder model end. Regulation has to change”

CONTRACTUAL STRUCTURE, (DB – DBB)

"The tool that the architect uses to make his models, the tool that the mechanical engineer or the structural engineer uses are in different platforms. we are not all at the same version. And, that's difficult."

THEY created national BIM guidance for the all parties so we have some kind of general or common guidelines

BOUDARY OBJECT : INTEROPERABILITY ISSUES

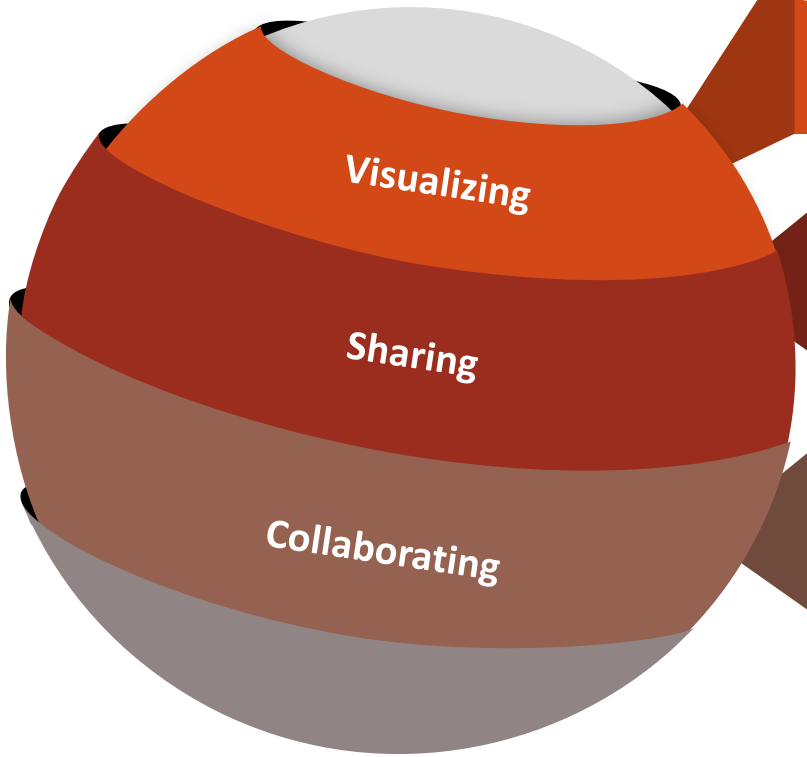
BOUNDARY SPANNERS – BOUNDARY PRACTICES

"The BIM coordinator is the person who has the lead on BIM, his role is to make sure that everyone has the same understanding of the project, its objectives, the use, the requirements and that the strategies in place are good […] He's like a conductor of orchestra, his role is to identify and overcome problems of communication and coordination."

1. Externals: Association, Government agencies
2. Internal : BIM COORDINATOR
3. Position in the team

Levina and Vaast 2005; Star and Griesemer 1989)

AFFORDANCES



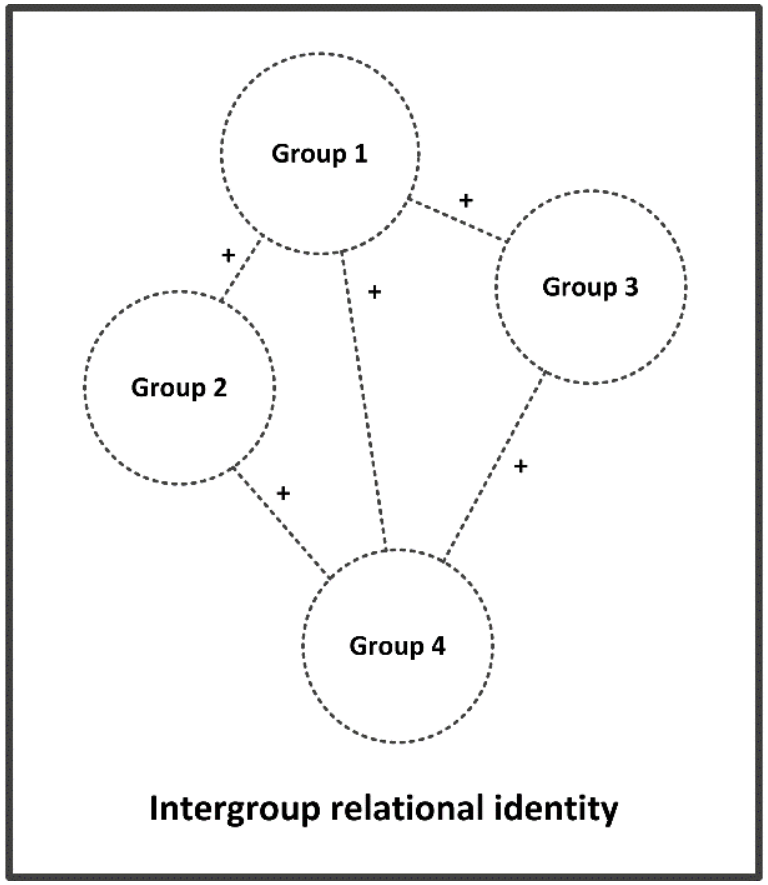
"in design, [the tool] allows us to create reference models, 3D models…it incorporates aspects of different disciplines within one model…

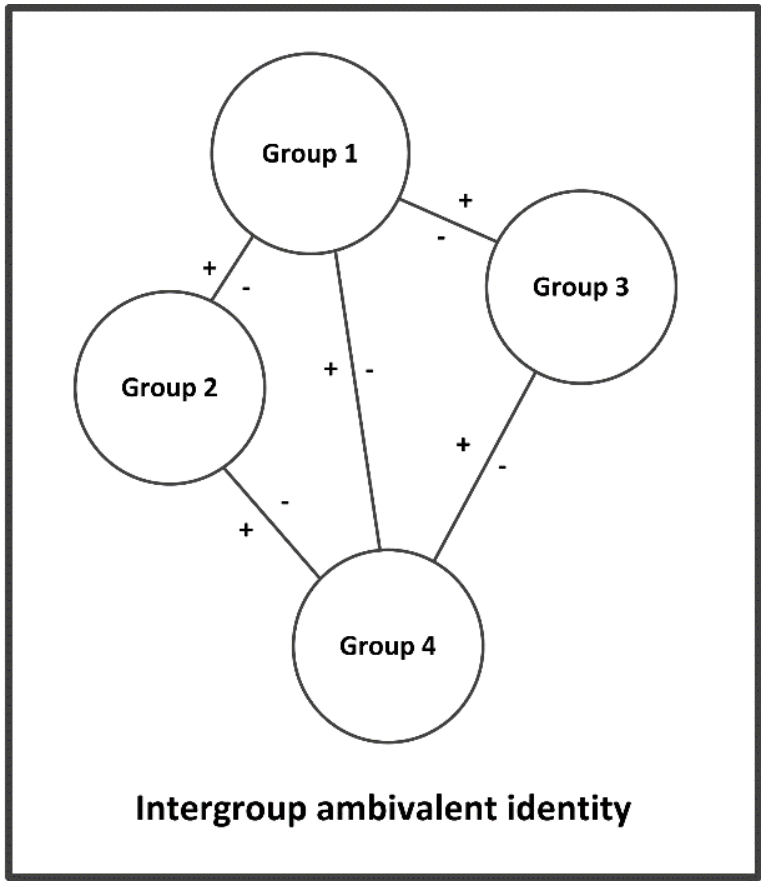
We're building some extensions to the metro line, so several companies are involved, and different companies are building different stations. So, [through BIM], you are sharing data, you are sharing plans, there is lots going on."

The players are on the ice at the same time, working together as a team".

COLLECTIVE IDENTITY

COLLECTIVE IDENTITY





Intergroup relational identity

Define a group in terms of its relationship with other groups.

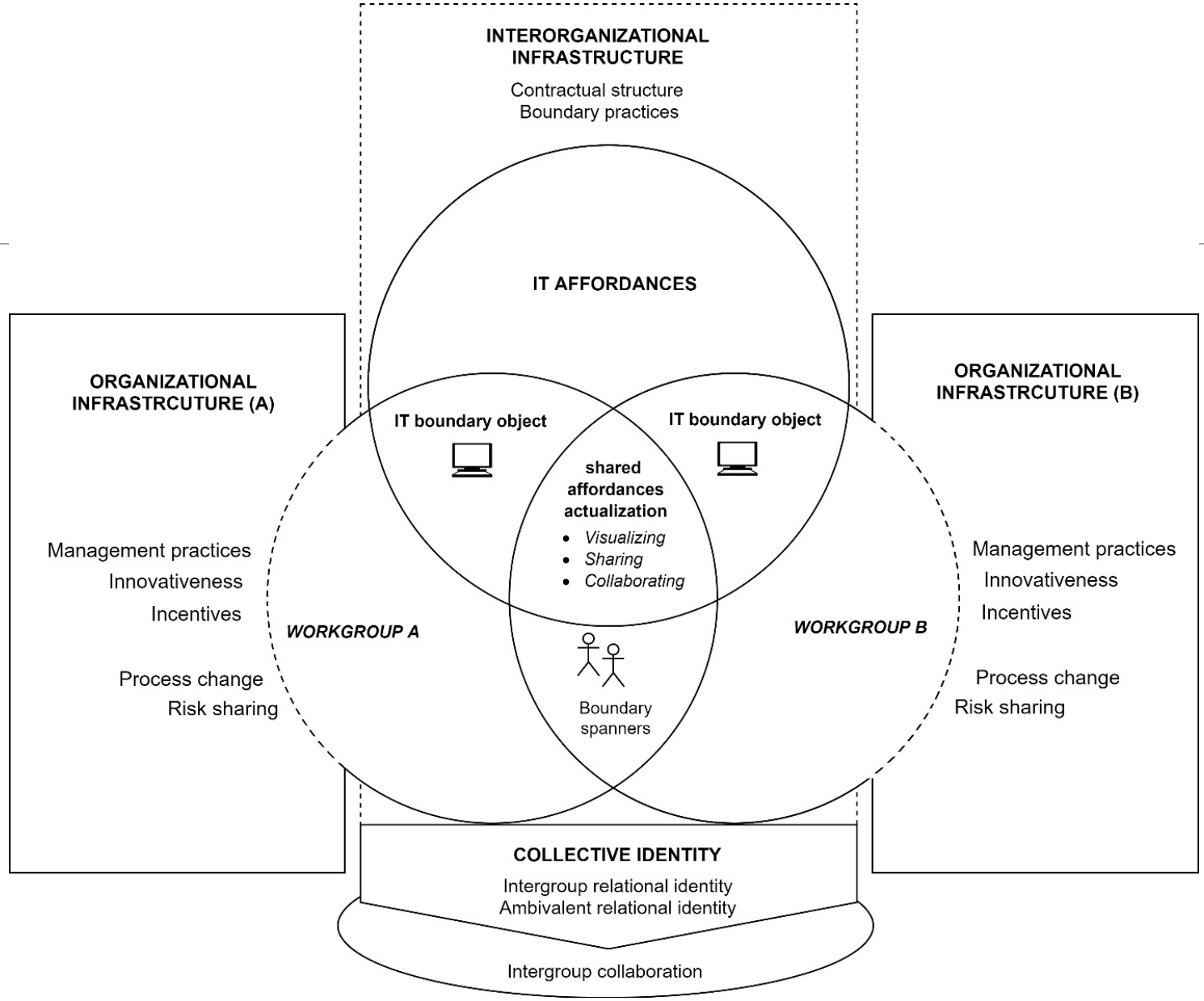
Collaboration as a key component

This [university project] is a kind of a heart transplant operation; it requires a circulation of blood outside the body for some time. So the campus is the heart, and this blood that is circulating is the same for everybody: the architects the engineers and so on. This is what unites us".

INTERGROUP RELATIONAL IDENTITY

"There are always some groups that don't want go for it. The problem with this, is that you have a wheel that does not turn, or one that turns 'square': it blocks all the others."

AMBIVALENT RELATIONAL IDENTITY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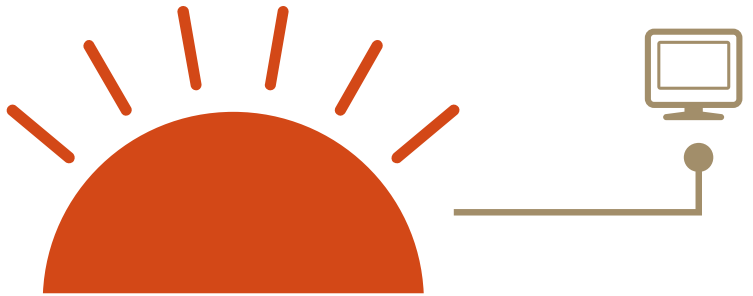
CONCLUSION

THEORETICAL IMPLICATION



Integrative model on the relationship between IT, identity, and intergroup Collaboration.

Identifies affordances that are particularly beneficial to the development of an IRI

AT THE INSTITUTIONAL LEVEL,

- Project a clear vision about integrating BIM for state projects
- BIM use is mandatory
- Create a nationwide roadmap
- Develop guidelines
- Stimulate innovation
- Adapt the incentives
- Fund rallying projects.

AT THE INDUSTRY LEVEL,

- Developing a boundary-spanning leadership coalition
- ignite the process of transforming organizations' self-interests into a collective interest

AT THE INTERORGANIZATIONAL LEVEL,

- Interoperability issues
- Leveraging the role of boundary spanners, such as the BIM manager
- Contractual structure : DDB > DB

AT THE ORGANIZATIONAL LEVEL,

Innovativeness, management practices, the need for process changes, and incentives

Thanks