



Researcher Workshop on Wednesday the 1st February 2006
at Helsinki University of Technology

Studying Mobile Workers' Workspaces

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Questions to be answered by us

We should be able to study and understand

*For what purpose (task),
how (mode of communication
and collaboration) and where (place) and
with whom (network) they act and communicate?*

*How physical,
virtual and mental/social spaces
support or should support employees
and teams
in their work.*

In order to create

*Knowledge for understanding, how to best
support mobile and distributed
work.*



Methods

METHOD:

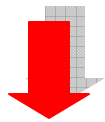
(a) Analysis by reasoning on conceptual level

**(b) Analysis by collecting empirical data
on target unit level, i.e. a distributed mobile
work system**



Why conceptual analysis?

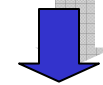
- It is not clear, what the concept 'distributed work' or 'mobile' or 'workspace' means?



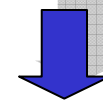
- Methods to analyse and describe distributed work are not very developed especially on the levels of:
 - Team
 - Organization
 - Network and
 - Society!

'ROADMAP'

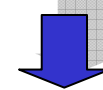
By collecting secondary data
and by reasoning,



it is possible to create concepts,
categories and indicators



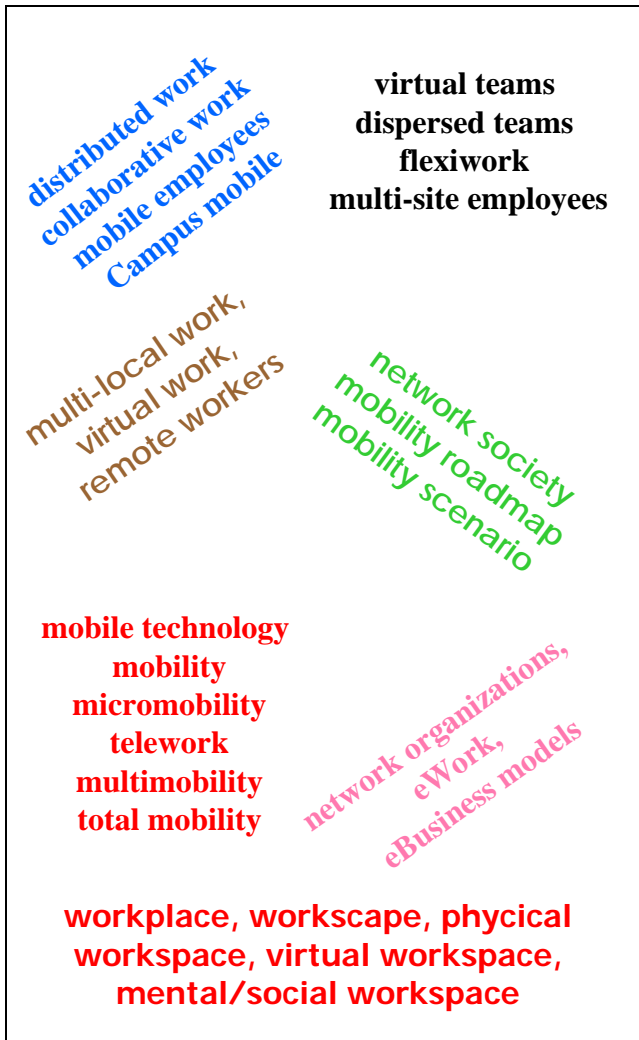
to analyse and
evaluate work systems and
their introduction



for building descriptions and models to
to test, and develop and design
work systems and their implementation



Challenge: chaos of concepts



?

Related?

OR

Zombi concepts
and theories



A new research object has emerged



Spaces and places as contexts in three meanings

- Working is always carried out in some space (physical, virtual, mental/social, see concept 'Ba' by Nonaka & Konno, Lewin: 'Life Space'). The spaces are embedded.
- ***Physical places***. A subject's mobility is typically related to changing physical places. The physical environments that employees use for working are divided into five categories: home, the main workplace ('Office'), moving places, e.g. cars, trains, planes, and ships, a customer's or partners' premises ('other workplaces'), and hotels, cafés etc. ('third workplaces').



Physical places and mobility: working at multiple locations

Base →	(a) at home or the same grounds	(b) on another site of employer	(c) at customers/ clients	(d) at a hotel/ meeting venue	(e) on the move
at home or the same grounds	100.0	40.4	42.2	39.1	42.5
on another site of employer	11.5	100.0	52.5	57.4	55.6
at customers/ clients	17.4	76.0	100.0	64.6	71.9
at a hotel/ meeting venue	9.2	47.4	36.9	100.0	50.1
on the move	14.2	65.2	58.3	71.0	100.0

From: K. Gareis, S. Lilischkis and A. Mentrup (2006).

Base: all multi-locational workers. Data source: BISOER RPS 2003, weighted



Use of physical places on individual level

Division of working places, 5 persons included

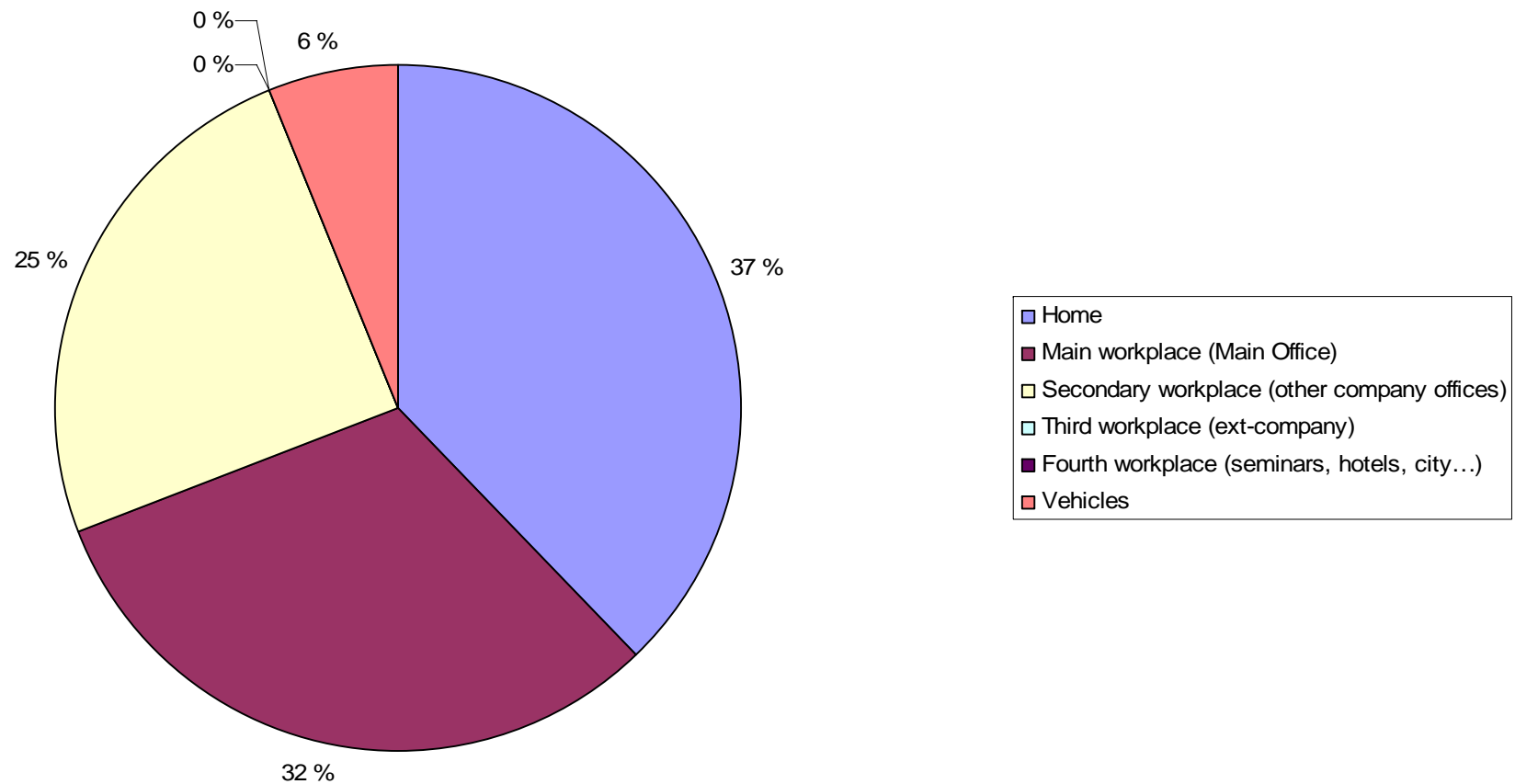
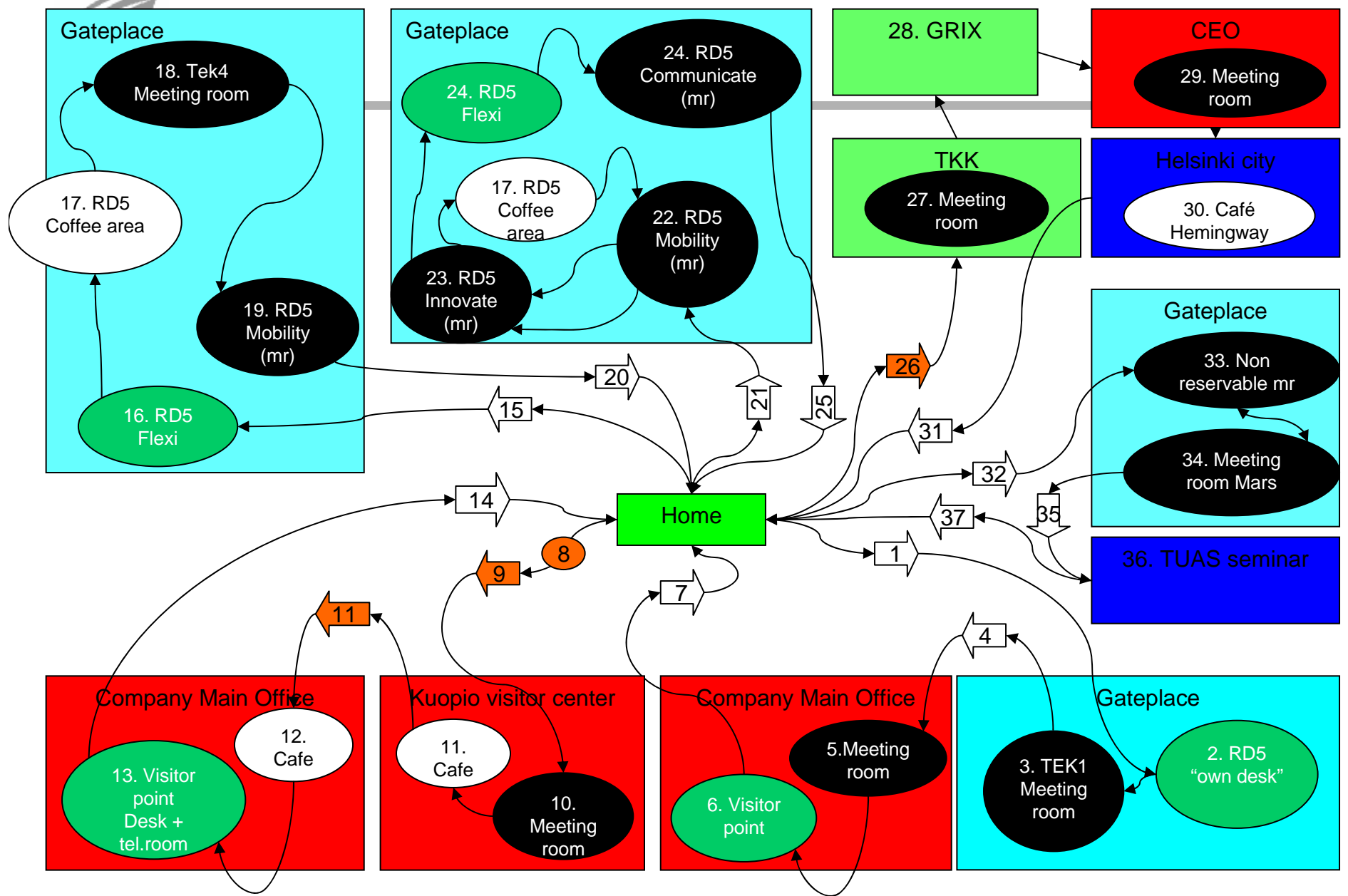


Figure ?

Work environment	Home	Secondary workplace, other c. of.	Fourth workplace, city, semina
Main workplace: office	Third workplace, ext-company	Moving places	



Work arena.

Restaurant etc.	Office floor	Meeting room
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Virtual place

- ***A virtual place*** refers to an electronic working environment or virtual working space. The internet and intranet provide a platform for working places for both simple, e.g. e-mail, and complex communication tools, e.g. collaborative working environments.



Virtual mobility: working in collaborative workspaces



Portal to a distant office. Shown here in mono, the remote office scene is normally viewed in stereo by the head-tracked user.



France Telecom R&D Telepresence Wall



Telepresence session in the TELEPORT room



Example of VIRTUE setup :
Virtual Team User Environment



Mixed reality environment used for natural téléopération of a remote robot (LSC Mixed Reality Environment)

Samir OTMANE

Samir Otmane from Université d'Evry/Laboratoire Systèmes Complexes (LSC-CNRS). In **IST Call 5 Preparatory Workshop on "Collaborative Working Environments"** 13 April 2005, Brussels.



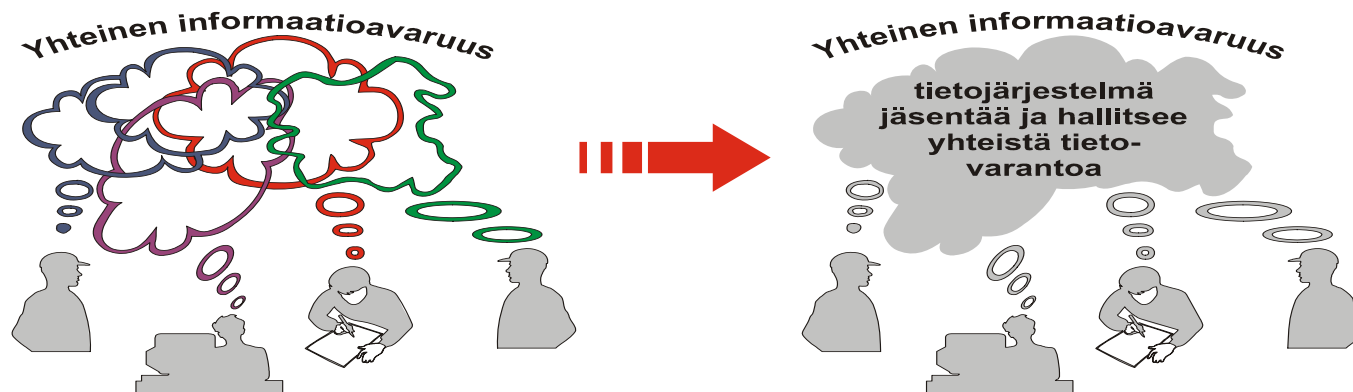
Workscape

The combinations of physical and virtual workplaces can be described as a *'workscape'* (Harrison et al. 2004). The term 'workscape' refers to the "layers of where we work", i.e. the constellation of 1) real and virtual work settings, i.e. furniture + IT, within 2) particular spaces, i.e. meeting rooms, project areas, cafés etc, that are, again, 3) located in a specific environment, i.e. office building, city district, street, home, airport, bus etc.



Mental/social places

- ***Mental/social place*** refers to cognitive constructs, thoughts, beliefs, ideas, and mental states that employees share. Creating and forming joint mental spaces requires communication and collaboration, for example, exchanging ideas in face-to-face or virtual dialogues. 'Awareness', 'Presence'





Mobile distributed collaboration is carried out in three types of spaces

REALISING PURPOSES OF ACTIVITIES

Tasks and assignments are carried out as practical and communicative actions

IN enabling and disabling spaces

PHYSICAL SPACES

which are settings, arenas and environments at home, in the main workplace ('Office'), moving places (e.g. cars, trains, planes, ships), other places (e.g. partners', clients' and suppliers' premises), and third places (e.g. hotels, cafés, congress venues)

VIRTUAL SPACES

which are connections (e.g. Internet, intranet, extranet, wlan, broadband), devices (e.g. laptop, mobile devices) and applications and services (e.g. e-mail, calendars, access to databases) enabling communication and collaboration

MENTAL AND SOCIAL SPACES

which are shared common experiences, ideas and ideals based on human interaction and collaboration



Research in practice



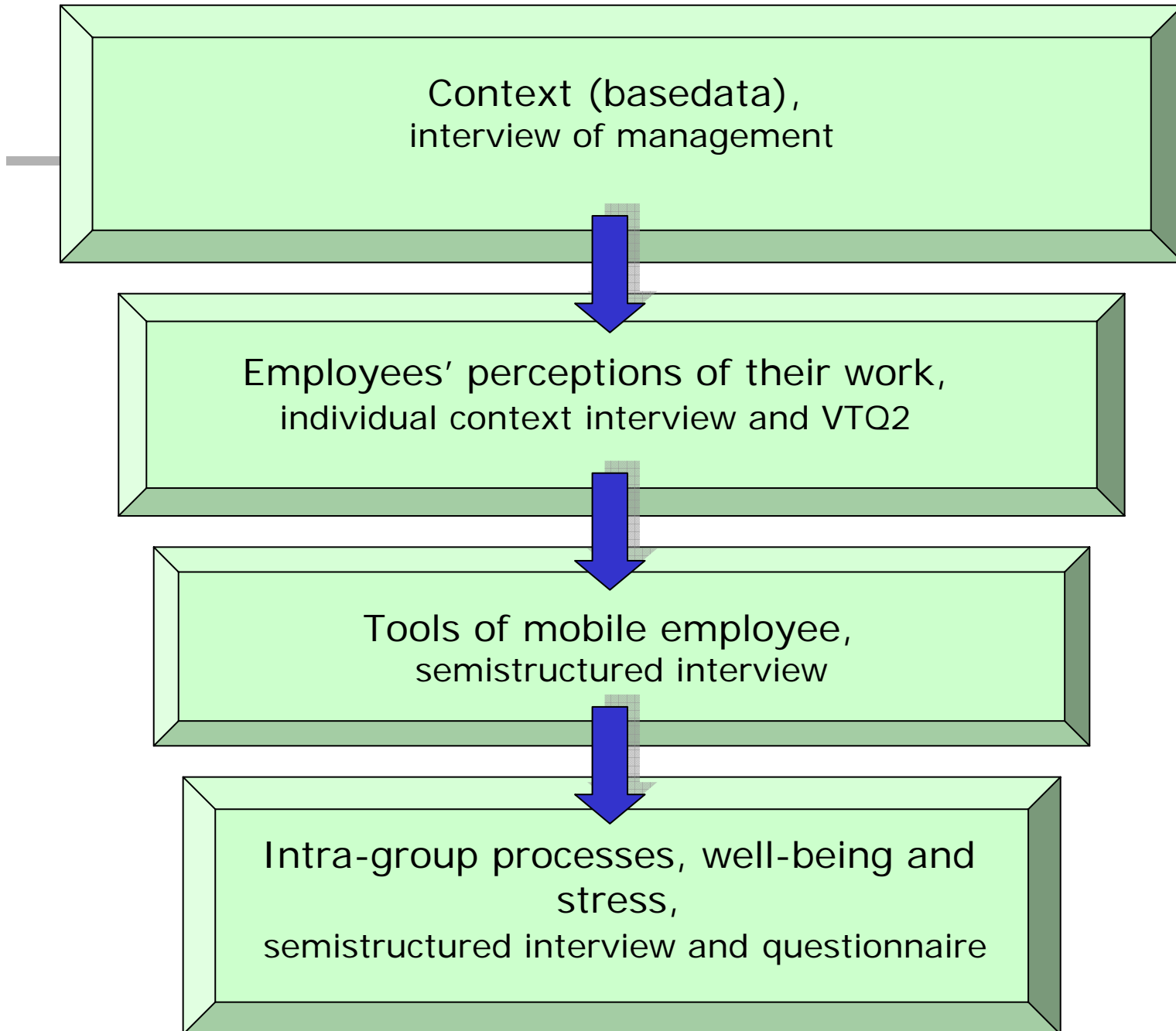
On-going Research

ON:

- Meaning of physical places in mobile distributed work
- Interaction and communication relationships of actors
- Quality of tools and collaborative working environments for communication and collaboration
- Intra-group processes, e.g. meaning of trust, identification
- Employee, management and collective competences in distributed work
- Mental work load factors, coping mechanisms and mental strain in distributed work



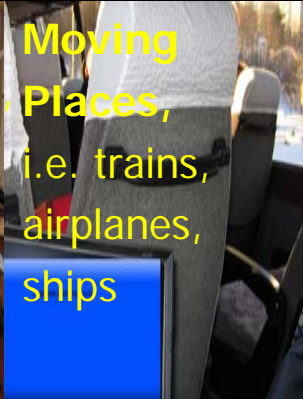



DATA BASED ON:

- Documents, observations (external and self-), in-depth interviews, questionnaires, simulation games, groupwork techniques





Framework to understand Workspace

<p>Physical Spaces</p> <ul style="list-style-type: none"> - Settings - Arenas - Environments - Tasks 	<p>Home</p> 	<p>Main workplace(s), 'Office'</p> 	<p>Moving Places, i.e. trains, airplanes, ships</p> 	<p>'Other Workplaces', e.g. clients' and suppliers' places</p> 	<p>'Third Workplaces', e.g. hotel, cafe, congress venue</p> 
<p>Virtual Spaces</p> <ul style="list-style-type: none"> - Connections - Devices - Services - Purposes - Functionality 	<p>PC, phone, Internet, broadband, wlan</p>	<p>Intranet, communication and collaboration systems</p>	<p>Mobile devices</p> 	<p>Intra- and extranet, Internet</p>	<p>Laptop, intranet</p>
<p>Mental and Social Spaces</p> <ul style="list-style-type: none"> - G&O and HRM issues 	<p>Tranquility, family</p>	<p>Shared values, 'stress', peers</p>	<p>Change and solitude, strangers</p>	<p>Trust, partners</p>	<p>Interruptions, mostly strangers</p>

Mobile team members' Workscape

Physical Spaces <ul style="list-style-type: none"> - Settings - Arenas - Environments - Tasks 	Home <ul style="list-style-type: none"> - The preferred place - Work rooms, kitchen table, living room - Productive and creative tasks - Tasks requiring concentration 	Main place, 'Office' <ul style="list-style-type: none"> - Office not physical space, but briefcase and its contents - Trolleys for storing belongings - Meetings 	Moving places <ul style="list-style-type: none"> - Car (own or taxi) - Train - Public transportation (rarely, slow) 	Other places <ul style="list-style-type: none"> - Meeting rooms - Utilizing empty workstations, cafeterias, visitor's points - Problem solving, decision making 	'Third places' <ul style="list-style-type: none"> - Hotels - Airport lounges
Virtual Spaces <ul style="list-style-type: none"> - Connections - Devices - Services - Purposes - Functionality 	<ul style="list-style-type: none"> - Home PC or laptop and accessories - Mobile phone - E-mail - Writing documents - Phone calls and teleconferences - Important material end up stored at home 	<ul style="list-style-type: none"> - Laptop, Basic office software - E-mail and teleconf. (good) - SameTime/ NetMeeting (some problems with software), chat - For communication & collaboration 	<ul style="list-style-type: none"> - Mobile phone - Phone calls - Teleconferences in car (involvement not high, mostly listening) - SMS messages - Efficient use of travel time 	<ul style="list-style-type: none"> - Laptop - Few scanners and other equipment - Taking notes, checking e-mails, doing quick tasks 	<ul style="list-style-type: none"> - No admin. rights to laptop → no Internet access
Mental and Social Spaces <ul style="list-style-type: none"> - G&O and HRM issues 	<ul style="list-style-type: none"> - Concentration, no disturbances (peace and quietness) - Upside: Improved work-life balance, less travel, flexibility - Downside: expenses, 'blurred' work, working hour unclarity, storage space 	<ul style="list-style-type: none"> - Best ad hoc working place - Shared but shallow goal - Low identification with team - More teleconf. and quiet rooms needed - Hardware restrictions 	<ul style="list-style-type: none"> - Somewhat problematic - Privacy in train - Tightness of schedules. Coming late or leaving early meetings - Far too few parking places (driving around) 	<ul style="list-style-type: none"> - Positive responses on functionality - Fear of disturbing others - Lack of peace and quietness - Visitor points function inadequately (scarce and crowded) 	<ul style="list-style-type: none"> - Privacy in lounges is a concern



Conclusions



Some research implications

- Distributed work is a work system
- Design perspective: distributed work systems are constellations of interrelated features!
 - Features should balance each other

How to study and model distributed work systems in their contexts:

- By defining task and contextual complexities
 - **Work processes** and **task-related network analyses + physical space analysis**
- By studying support provided by communication tools and collaboration environments
 - **Quality of communication, usability and compatibility analyses**
- By studying intra-individual and intraorganisational regulative processes
 - **Content of perceptions, beliefs, knowledge and feelings of employees, individual and collective competences, intra-group interactions, team climate**
- By studying outcomes
 - **Performance and well-being/stress**
- By combining 'objective' and 'subjective' indicators



More about topic



Andriessen, E. & Vartiainen, M. (Eds) (2006)
Mobile Virtual Work – A New Paradigm?
Heidelberg: Springer.

