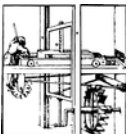


HAAMAHA 2000
Kraków, Poland
August 27-30, 2000

Hansjürgen Paul
Lothar Beyer

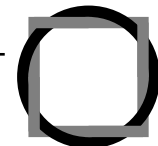
Institute for Work and Technology
Science Centre North Rhine-Westphalia
Gelsenkirchen

Video Conferencing and Application Sharing in Public Administration – Between Organisational and Personal Awareness



HAAMAHA 2000

Institut Arbeit und Technik
Wissenschaftszentrum NRW



Awareness (1)

Awareness is...

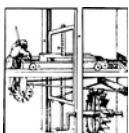
- ☐ ...a quality that is provided by a technical system to a social system, e.g.
 - the awareness of tools and objects that are available to a user in a video conference,
 - the working conditions of the users in a video conference,
 - the social relationship of the users.

Awareness describes...

- ☐ ...the extent of cognitive consciousness employees should have of the work processes they are involved in

...and...

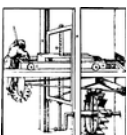
- ☐ ...how this consciousness can be supported.



Awareness (2)

Sender-receiver-oriented framework to assign aspects of awareness consisting of six items (according to Luczak & Wolf):

- ☐ **the person who provides awareness information,**
- ☐ **the specification and collection of awareness information,**
- ☐ **the selection and distribution of awareness information,**
- ☐ **the presentation of awareness information,**
- ☐ **the person who receives and perceives awareness information,**
- ☐ **the context of communication processes describing the social relationships the interacting persons have with each other.**



Awareness (3)

Additional contexts of awareness found in the TEAMS project:

❑ ***Organisational Awareness...***

...means the context of the involved organisations and the awareness information that is provided to the organisation,

- **what the organisation learns about the other organisation.**

❑ ***Functional Awareness...***

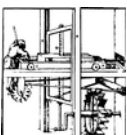
...means the context of the involved functions (roles, offices) and the awareness information that is provided to the functions,

- **what the functions (roles, offices) learn about the functions in the other organisation.**

❑ ***Personal Awareness...***

...means awareness about personal activities and their effects on other persons,

- **what the employee learns about other individuals and the effect of his activities on them.**



The Mission of TEAMS (1)

Report about a project (finished in April 2000) of

- ❑ the District Government in Düsseldorf,
State of North Rhine-Westphalia,

- ❑ its Department of Cadastral Surveying,

in cooperation

- ❑ with Municipal Cadastral Surveying Offices in

- Mülheim,

- Oberhausen and

- Neuss District,

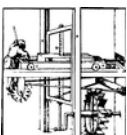
accompanied by the

- ❑ Institute for Work and Technology (IAT).

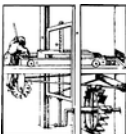
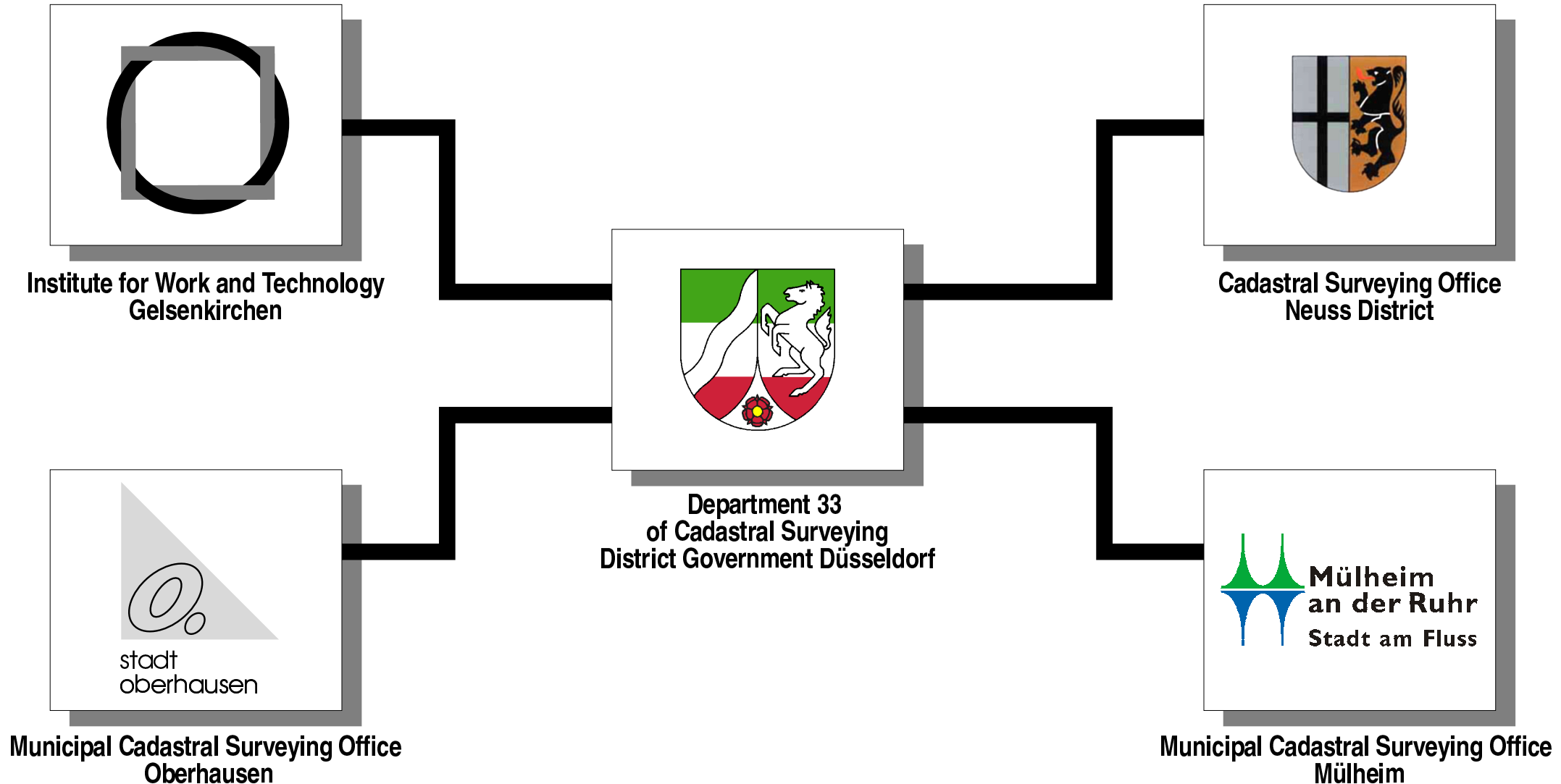
TEAMS is an acronym standing for

- ❑ “Telekooperation unter Einsatz von Application
Sharing und Multimedialen Systemen in der
Verwaltung”

- ❑ *in English:* Telecooperation Using Application Sharing
and Multimedia Systems in Public Administration



The Organisations of TEAMS



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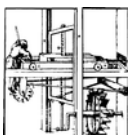
The Mission of TEAMS (2)

It was the aim of TEAMS

- ☐ to introduce *video conferencing* and *application sharing* (VC/AS) as tools for co-operation,
- ☐ to report about benefits and improvements,
- ☐ to point out hindrances and obstacles and
- ☐ to develop concepts for efficient and effective use of VC/AS in additional branches of public administration.

The focus of TEAMS is

- ☐ on the changes in the organisation of work,
- ☐ on the renewal of organisational processes,
- ☐ on the creation of new services for citizens,
- ☐ and not only on the introduction of new technology.



The Mission of TEAMS (3)

Aim for District Government and Councils

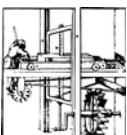
- ☐ to support the process of creating local digital maps and a general digital map of Germany

Superior Questions

- ☐ What are the benefits of “new” technologies like VC/AS in general for public administration?
- ☐ Which opportunities arise for the citizens from the combination of digital maps and new technologies?

Scientific Aims of TEAMS

- ☐ to collect information about the use of video conferencing and application sharing systems (VC/AS systems) under conditions of real life
- ☐ to watch the impacts on the organisational structures and processes of the participating administrations.



Researchers and Roles

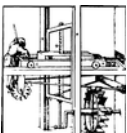
The researchers played two different roles in TEAMS

□ Role as researchers:

- **accompanying the process,**
- **observing the employees doing their work with the VC/AS systems,**
- **making interviews with the employees and their superiors.**

□ Role as “technology consultants”:

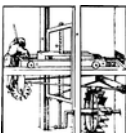
- **helping the users in the municipal offices with the systems’ configurations,**
- **providing and distributing updates and patches,**
- **solving typical PC problems.**



Ascertaining and Observing (1)

□ Questionnaires

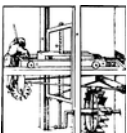
- a short ***“everyday form”*** – to be filled in
 - by the participants of the conferences of each session
- a ***detailed questionnaire*** – to ascertain information about
 - the participants,
 - the participants’ qualifications,
 - the participants’ tasks,
 - use of the VC/AS systems,
 - opinions about VC/AS systems.
- The detailed questionnaire was used twice:
 - in the initial phase of system use
 - again at the end of the project.



Ascertaining and Observing (2)

- ☐ The “normal” way of observing the employees during visitations at the offices, watching sessions at different locations
- ☐ Interviews at all locations with employees and their superiors

- ☐ Video conferencing equipment used to stay in contact with employees
- ☐ An additional VC/AS system at the IAT to observe the ways employees behave during sessions while
 - technical support is provided
 - software (patches, updates etc.) is distributed

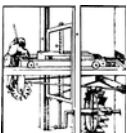


The State of Communication Technology in Public Administrations

VC/AS is nothing brand new, ...

- ☐ **...but VC/AS is new to most of Germany's offices and shop floors.**
 - **In 1995, less than three percent of the German employees had access to VC/AS systems.**

- ☐ **Public administrations are regarded as to be “conservative” concerning the use of innovative communication technology.**
 - **But how to be innovative with an annual budget of less than 25,000 €... ?**
 - **Communication technology usually means telephones and fax machines:**
 - **one fax machine per department – or less...**
 - **telephones in all offices, but long distance calls have to be ordered from the switchboard operator...**

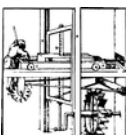


The State of Cadastral Surveying in Public Administrations

- ❑ Cadastral surveying offices have access to Unix workstations and PCs, but they are...
 - ...up to 15 years old.
 - ...dedicated to special tasks resp. services (databases, plot and print servers etc.).

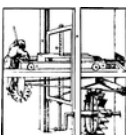
- ❑ Most of the official maps are analogue maps
 - painted by hand e.g. on lithography plates or special paper reinforced with tin foil
 - any change in reality (e.g. new roads or buildings) means to correct the referring plate with razor blades and ink.

- ❑ Years ago, Germany started a long-term programme to register land parcels in digital maps (automated legal parcel maps), which will not be finished before 2002.

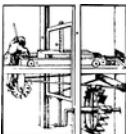


How Geo Data are made...

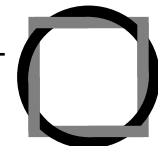
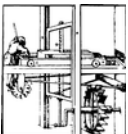
- ❑ **Geo data are brought together by Municipal Cadastral Surveying Offices:**
 - **Surveying of land parcels feeds data bases with billions of vectors: sides of buildings, plots, streets, railway lines, sewers...**
 - **A special visualisation software is used to generate maps of varying scales out of the data bases.**
- ❑ **When a land parcel is finished, the Municipal Cadastral Surveying Office has to contact the District Government.**
- ❑ **The Department of Cadastral Surveying at the District Government proves the data sets to be formally and legally correct.**
- ❑ **The usual way means...**
 - **to send tapes with the data sets by mail to the District Government,**
 - **to have a couple of telephone calls about detected mistakes and open questions,**
 - **to travel to Düsseldorf – bringing all printed maps and updated tapes to the District Government and discussing each item,**
 - **after fixing what has been complained the tapes are sent again to the District Government...**



At the Municipal Cadastral Surveying Office – Feeding the Databases

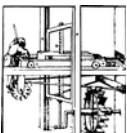


Application Sharing and Video Conferencing – Discussing Problems of Land Registration

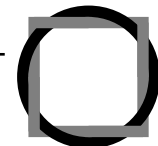
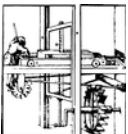
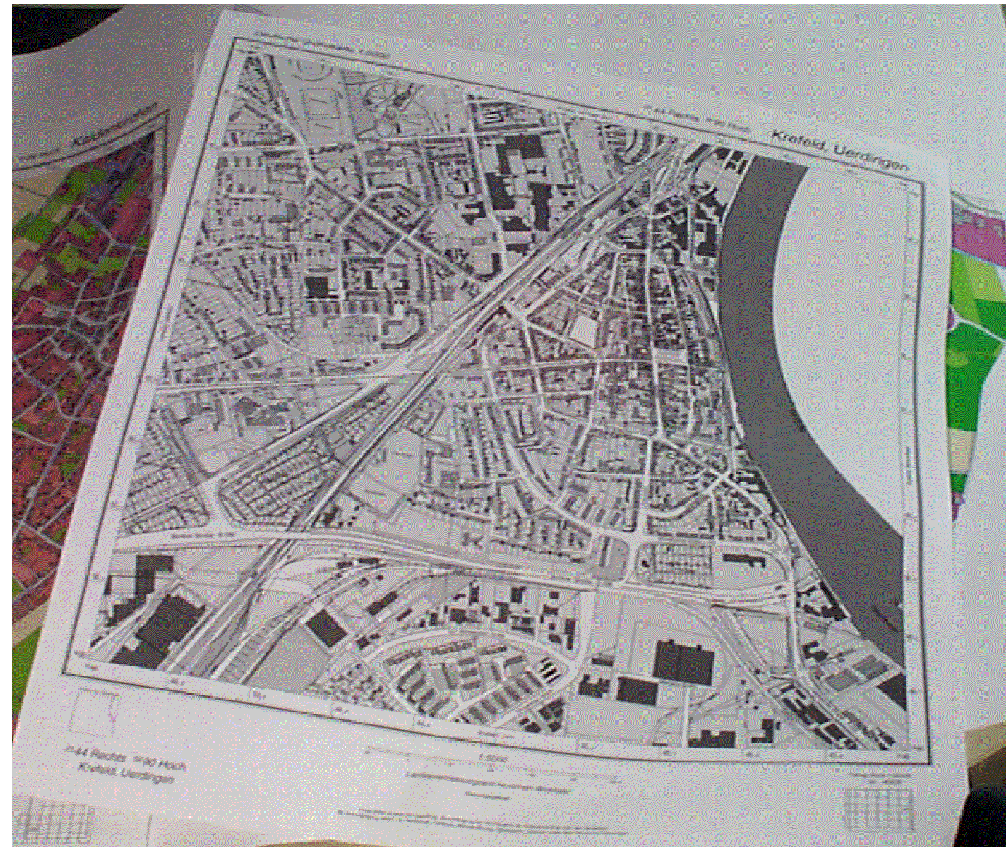


Changes made by TEAMS

- ☐ **VC/AS is used to shorten the longish processes of geo data proving**
- ☐ **Selected Municipal Cadastral Surveying Offices and the Department of Cadastral Surveying at the District Government were equipped with a PC including**
 - **a video camera,**
 - **an audio system,**
 - **Intel's ProShare,**
 - **Hummingbird's Exceed.**
- ☐ **The geo data visualisation software is shared between Municipal Office and District Government**
 - **both sides see the same geo data at the same time**
 - **both sides can act on the same geo data at the same time**
 - **questions about the surveying and registering of objects in the data bases can be discussed.**

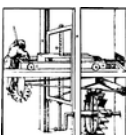


Printed Version of a Digital Map: A Cadastral Map Composed of Cadastral Plans (Scale 1:5,000)



Findings and Results (1)

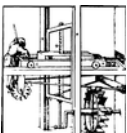
- ❑ VC/AS do work with cadastral surveying – beyond the expectations of the project.
- ❑ VC/AS is used to improve productivity, especially when *solving problems* and *making decisions*.
- ❑ Most of the problem solving processes in cadastral surveying require a visual impression of geo data.
- ❑ Average time of problem solving and decision making: *half an hour*
 - ...for what has taken days before and what has delayed other processes for weeks is now finished right at the working place...
- ❑ Quality of service has increased
 - The Department of Cadastral Surveying at the District Government is able to give better and more adequate support to the Municipal Cadastral Surveying Offices.
 - Problems are understood easier, solutions are found faster, and information is provided when and where it is needed.
- ❑ Quality is “produced”, not “proven” – better data are produced, less errors are made, less proving has to be done.



Findings and Results (2)

- ❑ **The employees have widened the spectrum of tasks which are done by using VC/AS systems: they...**
 - ...exchange applications for checking geo data,
 - ...discuss project organisation questions,
 - ...decide on the need of field checks,
 - ...provide information about new legal standards and their adoption,
 - ...use VC/AS for all tasks which require shared use of software and visualisation of geo data.

- ❑ **Communication has improved and become more intense:**
 - VC/AS systems are used when the reasons for communication require computer applications.
 - Relationship to “local” colleagues did not deteriorate.
 - Telephones are still used and employees visit each other, e.g. to discuss long-term strategies or to provide context information.
 - The employees emphasise that the relationship to their “remote” colleagues would not become that familiar and personal without VC/AS systems.



Findings and Results (3)

The use of VC/AS systems fosters the development of...

❑ ***Organisational Awareness...***

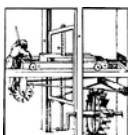
- The department of cadastral surveying at the district government gets a qualified, time and task narrow impression of the current state of the municipal cadastral surveying offices.

❑ ***Functional Awareness...***

- A functioning of the department learns about the state of the referring functioning in the municipal offices.

❑ ***Personal Awareness...***

- Individuals are provided with awareness information about what has been understood or not, about what can be done by somebody or cannot be done.

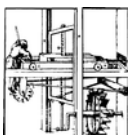


At the District Government...

- ❑ **At the District Government employees now have a more challenging job (direct support, problem solving, preparation and presentation of general solutions).**

- ❑ **VC/AS systems had some organisational impacts for the department of cadastral surveying at the district administration**
 - **Most of the decisions now are made during the VC/AS sessions, not during the meetings of the department**
 - **less time is spent in meetings,**
 - **queue of pending decisions is remarkably shorter,**
 - **head of the department has much more time for his original tasks**
 - **members of the department are working on the department's internal processes.**

 - **VC/AS has initiated a “little” process of organisational renewal within the Department of Cadastral Surveying at the District Government.**



Increase your Awareness...

Increase your awareness about TEAMS
by contacting

Lothar Beyer

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Hansjürgen Paul

paul@iatge.de

or
by surfing to

<http://www.connect.to/teams>

