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

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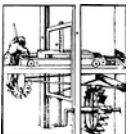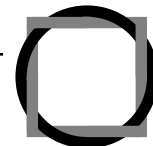
Awareness (1)

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.**
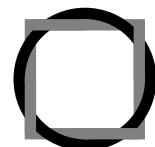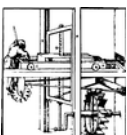
Awareness (2)

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.**
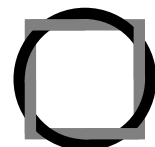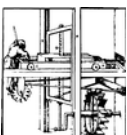
Awareness (3)

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.

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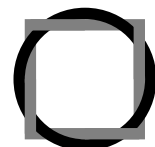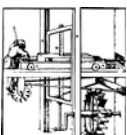
The Mission of TEAMS (1)

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,
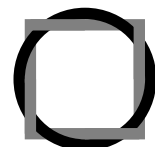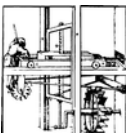 - ➢ Oberhausen and
  - ➢ Neuss District,

accompanied by the
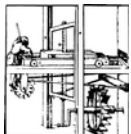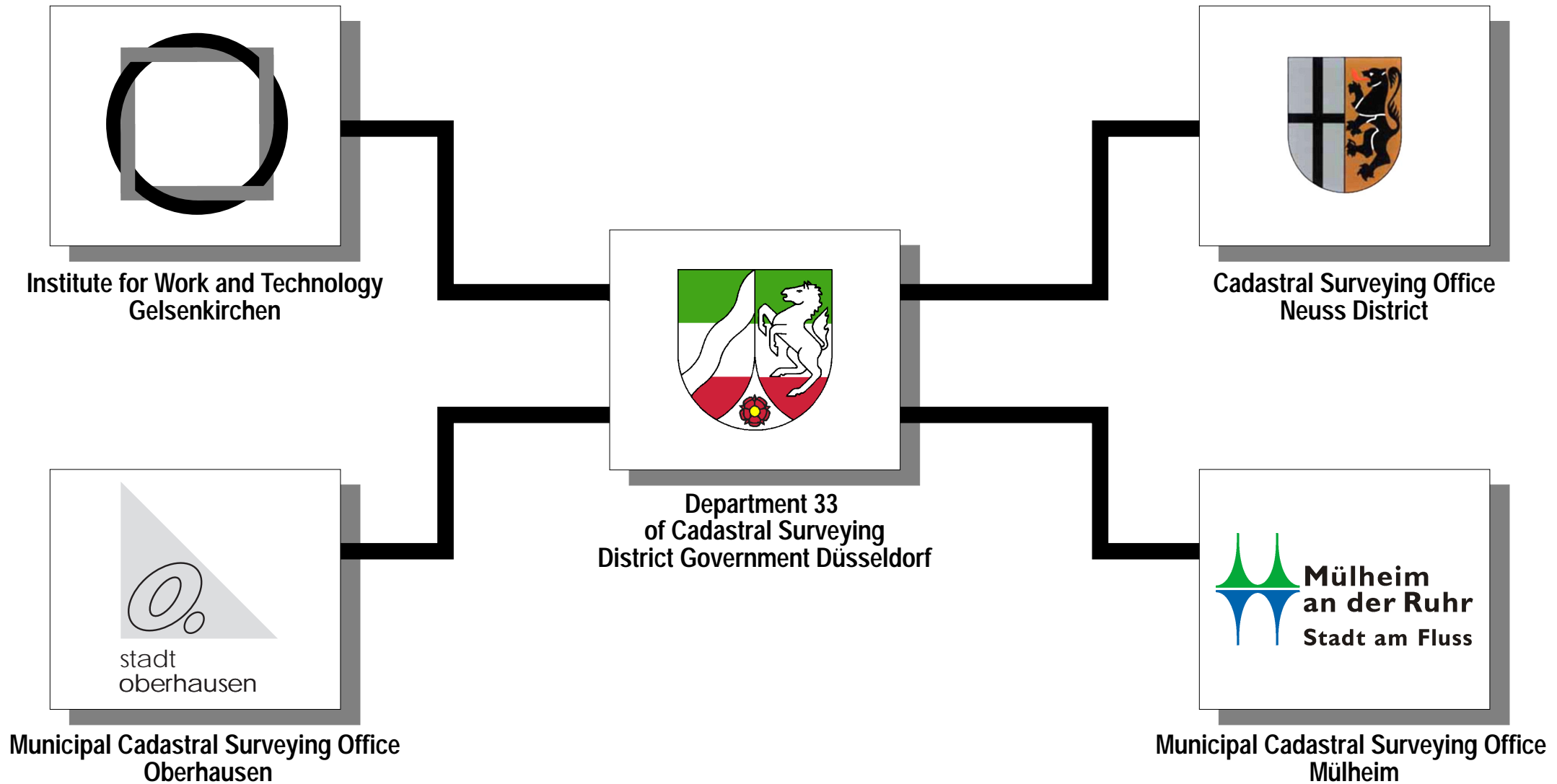
- ❑ Institute for Work and Technology (IAT).

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

**Institute for Work and Technology
Gelsenkirchen**

**Cadastral Surveying Office
Neuss District**

**Department 33
of Cadastral Surveying
District Government Düsseldorf**

**Municipal Cadastral Surveying Office
Oberhausen**

**Municipal Cadastral Surveying Office
Mülheim**

stadt
oberhausen

Mülheim
an der Ruhr
Stadt am Fluss

HAAMAHA 2000

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.

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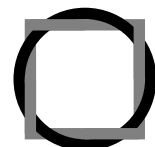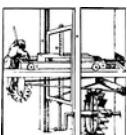
The Mission of TEAMS (3)

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.
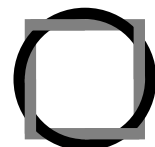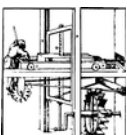
Researchers and Roles

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.**
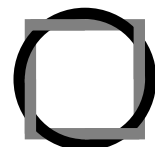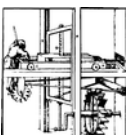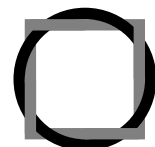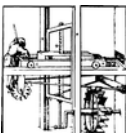
Ascertaining and Observing (1)

❐ **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.**

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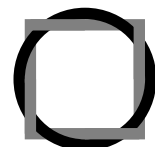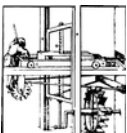
Ascertaining and Observing (2)

❒ **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…**
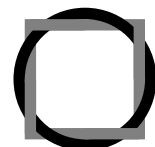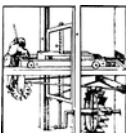
The State of Cadastral Surveying in Public Administrations

- ❑ **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.).**
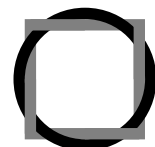

- ❑ **Most of the official maps are analogue maps**

    - ○ **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.**
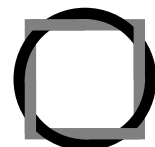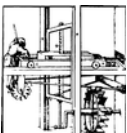
How Geo Data are made…

☐ **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…**
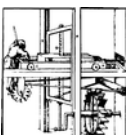
At the Municipal Cadastral Surveying Office – Feeding the Databases
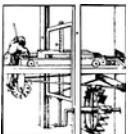
Printed Version of a Digital Map:
# A Cadastral Map Composed of Cadastral Plans (Scale 1:5,000)
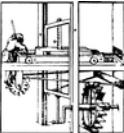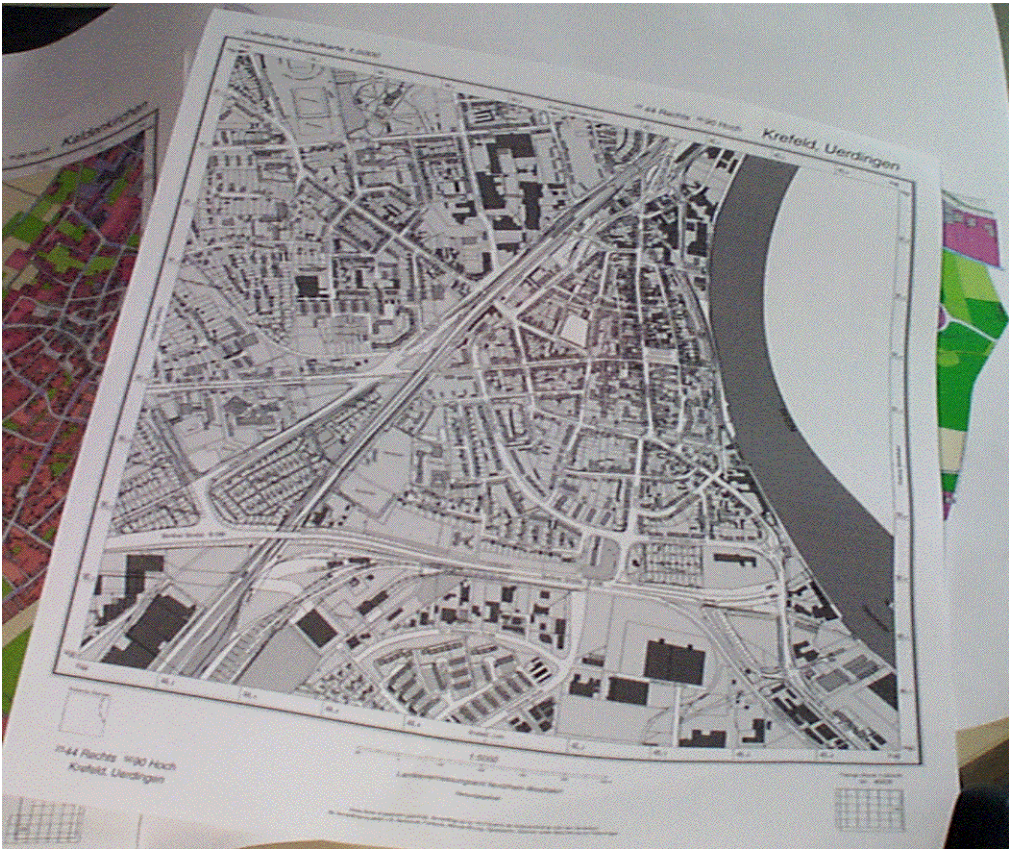
Changes made by TEAMS

❑ **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.**
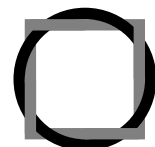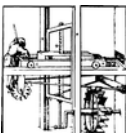
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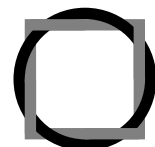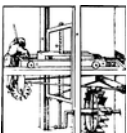
Application Sharing and Video Conferencing – Discussing Problems of Land Registration
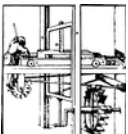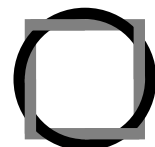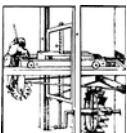
Findings and Results (1)

❒ **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.**

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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.**
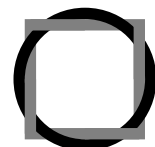
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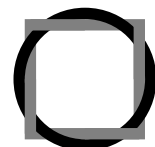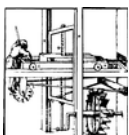
At the District Government…

❐ **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.**
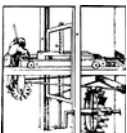
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Increase your awareness about TEAMS

by contacting

Lothar Beyer   **beyer@iatge.de**

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