

# Classification in Common Information Spaces

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## 1 Introduction

A range of structures supporting cooperative work has been investigated in the CSCW literature. Classification schemes in various forms appear as such structures. Even though a number of investigations of the nature of these types of structures have been made, the research does not provide a thorough understanding of the area as yet. Thus the basis for constructing information technology that appropriately support activities involving classification structures is unclear.

Until now research in this area has pointed out many problems associated with cooperative use of classification schemes, especially when they are partly built into technology; but the research also points to the many valuable uses. In fact classification in some form or another can be said to be inextricably bound up with most, if not any, human action. It thus seems to be an area that is worthwhile studying, maybe even an area that has to be studied on the way towards a satisfying degree of understanding of cooperative work.

In the following pages a few experiences with the uses of classification schemes in relation to information systems in a large medical company selling and producing medical drugs are presented. This serves two purposes, it illustrates the heterogeneity of classification and it points out valuable uses.

## 2 Common Information Spaces and classification

Classification schemes are found in many shapes and are used in many different types of activity. Here the focus is on classification in Common Information Spaces. A very good reason for doing this is that this is an area where the problems associated with different perspectives among users or tasks and with technology embedded schemes has been shown to be prominent.

A good starting point is Wittgenstein's idea of family resemblance. Common Information Spaces as well as classification schemes are examples of concepts that cover a broad and heterogeneous group of phenomenon. Instead of attempting a definition of either, an example is approached to see what can be learned of examining a specific socio-technical system. This view of a concrete setting however concludes with a few tentative ideas for more general uses of classification.

## 3 Experiences from a field study

It should be noted that the results below are the based on the initial exploring part of a field study. They point to some issues that appeared after a few hours of observation and a short series of semi-structured interviews. An extended period of participatory observation will follow to gain deeper insight into what is outlined here as interesting issues.

Due to the limited space in this paper the focus will be on the classification schemes related to the work of one individual in the organization. Since the heterogeneity is one of the central points of this first phase the presentation is very condensed, the data shows the many uses not the specifics of any of them.

### 3.1 A laboratory assistant's use of classification

A laboratory assistant's main function is to perform and document a range of well-specified and quality approved tests on samples from other parts of the organization as part of the development of new medical drugs. The documentation is vitally important since approval of drugs by official authorities depends on this being according to regulation and it is required for potential product liability cases. Documentation takes many forms including laboratory books, procedures, manuals and test results.

In the studied company the importance of form and availability of documentation has led to the development of a huge central storage of all the relevant documents and chemical samples. All of the documents are paper-based and kept in a physical storage. Some of the documents are in digital form as well. They are stored digitally and accessible throughout the organization. Several work units with various functions access the documents, produced by the laboratory assistants, in the central storage facilities. For instance a) for re-use of document layout, test setup, general methods, b) for inspections by authorities and legal uses and c) by high level management to get an overview of the activities.

Another system, a central storage for all the quality approved test specifications, is used to "provide the right person with the right information at the right time" and mainly serves to supply a version of the current specifications and make people aware of upcoming changes. This is a critical function because of the importance of using the right procedures and being able to document this.

Classification schemes are central resources in the interaction with any part of the field of work. Many local classification schemes are used (e.g. rarity of samples, binder structures, current vs. old studies). These may be personal or used on group level. Here a few explicit, embedded, shared schemes used in relation to durable shared data (mainly textual) are sketched.

Material is classified before it is sent to the documentation storage, where material from the entire organization is kept. The classification used by the laboratory assistant is only a subset of the classification system used by the storage support unit. The system for ordering the documents is inspired by standardization in the medical industry. This classification is used to organize the cooperation locally as well, e.g. similar project binder structures allow the laboratory assistants to access the work of other persons, to find information in other persons offices and binders and to create general procedures.

An organization wide numbering scheme of experiments and products is used - both to allow access to work by other departments and to structure the personal archives of earlier work. This system however meets problems in the early development phase where it may be impossible to anticipate which product a result will later be related to.

It is worth noting that the reuse of information created by other persons is possible through the system, but is at times mediated through personal contact - the creator is asked about information.

The central system for operational documents has a distribution function based on classification of documents and departments. All documents are characterized in relation to a set of classifications. Each department has a profile with which the documents are compared allowing correct distribution. Here, among other things, organizational structure is used to distribute documents. This has recently lead to problems. Organizational re-arrangements led to minor adjustments of the system. Currently a major de-merger and the resulting organizational changes causes serious problems for the system, since potentially every old documents has to be re-classified according to the new structure. The structure is also coupled to external standardization in the health area and to some extent follows this.

### 3.2 Uses of classification

Classification schemes are in many ways related to the laboratory assistant's work. Dominant uses are:

- Distribution - e.g. aided by a match between information properties and a list of potential receivers
- Finding specific data - data that you know exists
- Finding data related to a subject - and thus also finding data you did not know existed
- Statistic impressions of an area
- Support certainty that things are as they should be - by providing a template or an overview
- Re-use and interpretation - it is possible to have a good idea of what the creator of the data meant, because of the place the data is put contains information about the data
- Output standardization making interfaces that support cooperation (e.g. reducing transaction costs)
- Sorting things (in accordance with a scheme) may be a valuable activity in itself (for instance certain documents relating to specific individuals must, by law, be kept in special secure facilities)

### 3.3 Classification issues

A few interesting observations about the nature of the used classification schemes are listed here:

- Schemes are growing wild and they are layered and meshed in relation to the various areas of shared material
- Shared information and the schemes are heterogeneous and involve several levels
- Historical layers are of importance both in relation to evolution of schemes and in relation to use of information
- Surrounding structures in shape of projects, departmental organization, production types, sites and external standardization is fundamental to understanding classification
- Mediators play an important role by teaching about using the system, helping people use schemes or even helping people finding information using the schemes and knowledge of the archive
- The same scheme may be put to different uses in different areas and situations

### 3.4 Some general functions of classification schemes

Classification is a valuable tool in various task types. On a more general level it for instance facilitates:

- overview - e.g. used to ascertain that things are as they should be, a checklist function
- finding and re-finding - push as well as pull methods, specific items as well general enquiry
- re-use of information - by creator as well as other persons, interpretation
- interaction - for instance through standardization of output
- and it can be valuable in itself - sorting potatoes according to size, use of a designed scheme

## 4 Conclusion and further research

Common Information Spaces and classification are both heterogeneous concepts. Classification is a valuable part of work with information in a multitude of ways. As yet the actual use of classification schemes is not well understood.

Approaching the phenomenon from a range of field studies is probably a good way to get closer to a useful understanding of the area. This position paper briefly outlined a few tentative results from such a study. The task ahead is a thorough study of the way the classification schemes are used, emerge and evolve.

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