Interaction with Information Technology Seen as Communication

Chickens and Eggs and Meta-applications

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Abstract. Applications are still getting more powerful and complex. This is potentially useful for the user, but it puts a burden on the users too. Information handled by one application can be difficult to use with a different application. Developments in structural computing could be useful to address this problem, but applications that use structure services and make them available to users are rare.
Most of the things I am going to say are or should be rather obvious. The intention with this paper is to try a slightly different view and to emphasize an interaction between IT and users that has been neglected.

1 Chickens and Eggs and Meta-Applications

In this paper I comment on two points from MIS'02 [1]. The first one is about the discussion about the roles of structure and data. As with the discussion about what came first, the chicken or the egg, it might help to step back to get a better view. Instead of trying to find rather specific definitions of these terms, I want to look at information and how we use it. The other point is about applications and the roles of both their users and their developers. Applications are build by the developer to handle certain kinds of information. How does an application look like, that helps users to works with information in general (including information about the kind of information) and who can develop it?

The idea is to find some kind of basic concepts, that can be common to both IT and us as potential users of IT. The implementation of these concepts will be quite different because of the different kinds of system, but common concepts should help, especially when users are going to be more active in the development.

2 Information and Behaviour

Behaviour is another term that has been discussed at the MIS'. In this section I want to mention a few aspects about both information and behaviour that I consider to be relevant for applications. Maybe the most important point is

that information and behaviour are inseparable. They determine, modify and supplement each other. This is in contrast to the relation of functionality and values.

Information is about something. Information stresses certain aspects of some object. This object can be a physical thing, a thought, another information or whatever. We use the information to deal with the object. The particular form or representation of an information depends on where it comes from and what it is to be used for, but it is not relevant in this context.

Behaviour is how we react in a given situation. We use our senses to get information about the situation. We interpret this information and use the interpretation to react. We can express and represent information, so we can exchange, safe and reuse it. Structuring information leads to other information and related behaviour.

An important aspect of both behaviour and information is when and how we can access and use them. We can not be aware of everything at the same time, instead, in a given situation we choose a certain view and focus on information we consider relevant. Information out of focus still is relevant though, because it has formed our behaviour. Being aware is part of our behaviour.

3 Applications

IT is used to help carry out different kinds of tasks. These tasks involve manipulation of information. Both the tasks supported and the information handled have been becoming more and more complex over time.

Computation of values does not require any understanding or interpretation of these values. It does not matter what the values are used for, only the rules for treating the values are of interest. Examples are simple spreadsheet or textprocessing applications or a calculator application. Such applications provide some functionality.

Working with data requires an understanding of how the data is related to each other. The developer of an application analyses the task that is to be supported and builds a data model. The application has to ensure dependencies and constraints. A simple example can be an addressbook application. This kind of applications still provides functionality.

The kinds of applications mentioned both put a load on the user, especially when a user has to use different applications at the same time. The user is responsible for organising different information and the user has to prepare the information so they can be manipulated with the different applications. He could use a meta-application to deal with the other applications. Applications that work on information in general could take some of this load off the user

4 Interacting with Information Technology

The application that I am missing is an application that helps to deal with generic information. It has to deal with information about information. Infor-

mation will be supplied and used by the user and it should be supplemented by the application. The degree to which the application can contribute depends on the extent to which it can attach functionality to the information, that is how the application can behave. A very important part of the applications behaviour is to identify information and to trigger the behaviours related to this information. Triggering a behaviour means to find some basic functionality and to modify it according to the given metainformation (information about the information and about the context). This basic functionality is provided by services. Identifying information involves finding structures. Several different structures can be useful. A spatial structure service can provide the functionality needed by behaviours that analyse and build the interface. Taxanomical and ontological services can support behaviour finding context information. A navigational service can help to maintain trails and provide links to related information. An important point is, that the services only provide the functionality. The actual behaviour is determined by additional information about and from the information, the context, the application and not at least the user.

A problem with many of the existing end user applications is, that they interact with the user directly and that they only deal with information internally. The application is between the user and the information. The information is availble only in an application specific representation. Other applications can access this information, but the connection to the user or more general the origin is lost. Possibly relevant behaviour can not be attached. Instead of using their own interface, they should reuse existing information and the related behaviour. An even better solution would be to contribute functionality as a service. The application can and will still have its own internal representation though. The information as it was perceived through the interface could make the process more comprehensible. Logging and versioning could be managed in a consistent way.

5 Conclusion

Focusing on information instead of tasks leads to a different description of the levels of work discussed at the MIS'02 . A-level work deals with the application and preparation of information. B-level work deals with the characteristics of information and how information can be providet. C-level work deals with the underlying funtionality. Even though A-level and B-level work deal with information, the the focus and the point of view are different.

Considering the amount of available information, IT is going to play an active role. The trend to personalisation demonstrates this [2]. The question is how we can control this. Regarding the interaction with IT as communication can be useful. Communication with technology will be missing many of the qualities that we know from communication between people, but then again we do not have to expect to achieve the same results either.

References

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