Abstract
The aim of this study was to address the need of further studies on researchers’ expectancies and attitudes towards open access publishing. In particular we wanted to focus on acceptance and user behavior regarding institutional archives. The approach is domain specific and was based on a framework of theories on intellectual and social organization of the sciences and communication practices in the digital era. In the study we apply a theoretical model of user acceptance and user behavior (UTAUT) developed by Venkatesh et al. in 2003 as an explanatory model for developing a survey form for a quantitative empirical research on user attitudes and preferences. Thus our research approach is new and cross-disciplinary in the way we combine earlier research results from the fields of organizational theory, information science and information systems science. This is in our view a fruitful approach broadening the theoretical base of the study and bringing in a deeper understanding of the research problems. As a result of the study we will present a model framework and a web survey form for how to carry out the empirical study.

Keywords: end-user attitudes; methodological study; web survey

1. Introduction
In recent years we have seen quite a few studies on open access publishing. Among others, large survey results on a cross-disciplinary level on author opinions to open access journals have been published [1], [2], [3]. Also author perceptions towards the author charges business model has been studied in the domain of a medical journal [4]. In studies on institutional repositories the attention has mainly been for several years on implementation, technical features and interoperability of systems using the OAI-PMH standard. It is a natural development, that now at a time when institutional repositories have been in function for some time, we have seen studies focusing on evaluation of repository content by genre and type of the included documents, as well as growth rate for submissions [5], [6].

However, even though the concept of open access is known among academic researchers their research and publishing practices have still not undergone a radical change. The important question regarding non-use of institutional repositories has lately been raised by [7]. There is a need for deeper understanding of to what extent open access practices have spread among academics and what are the main incentives and barriers to acceptance and use of new systems for open access dissemination of research results for example institutional repositories.

The aim of this study was to form a methodological part of a project on research on open access and in particular acceptance and user behaviour regarding institutional archives. The approach was to focus on the end-users, in this case researchers in business schools in Finland. As the approach of the project was to limit the collecting of data to a specific field, the framework of theories was based on intellectual and
social organization of the sciences and communication practices. [8], [9], [10]. We also relied on previous studies on open access publishing in the domain of biomedicine [11]. In the study we applied a theoretical model of user acceptance and user behavior (UTAUT) developed by [12] as an explanatory model for the construction of a questionnaire directed to the researchers in business schools. The framework will naturally also be used in the continuing project as a mean for analysis of results from the empirical surveys directed to business school researchers. Thus our research approach was new and cross-disciplinary in the way we combined earlier research results from the fields of organizational theory, information science and information systems science. This is in our view a fruitful approach broadening the theoretical base of the study and bringing in a deeper understanding of the research problems.

In the study we addressed the following questions:

- What are the prevailing attitudes toward open access among business school researchers in Finland?
- What type of incentives and barriers for use and non-use of open access publishing channels can be identified.
- Do factors such as the social influence of the faculty and the organization have an impact on acceptance and use of open access and institutional repositories?
- Do personal factors such as perceived usefulness for the research career and perceived ease of use have an impact on acceptance and use of open access and institutional repositories?

The structure of the final paper will start by an introductory section on theories describing domain specific features in scientific communication and scientific publishing in the fields of research typically carried out in business schools. In the following section we will build up the framework of theories and models on end-user attitudes and the diffusion of new technology. In the section on study settings we described the methodology for the design of a web questionnaire and the survey to be carried out in business schools in Finland, followed by an analysis, discussion and concluding remarks.

2. Theoretical Background

For the study on the scientific disciplines represented in business schools we will rely on Whitley’s (1984; 2000) theory on the social organization of the scientific fields as our starting point. Whitley’s theory characterizes the differences between scientific fields into two main dimensions

- **Degree of mutual dependence**
  Associated with the degree of dependence between scientists, colleagues, or particular groups to make a proper research contribution

- **Degree of task uncertainty**
  Associated with differences in patterns of work, organisation and control in relation to changing contextual factors

Relating Whitley’s taxonomy of scientific fields to economics and the related subject of business administration we could define the following pattern. A high degree of mutual dependence would indicate that scientific communication patterns become more controlled as competition arises. For example publishing in journals with high rank within the community is favoured among researchers. This trend is enforced also in business schools where research evaluation and meriting of researchers is focusing to an increasing degree on publishing in journals with high impact factors.
The degree of task uncertainty, according to Whitley associated with differences in pattern of work and publishing patterns, might also indicate that a scientific field with a high degree of task uncertainty is less controlled regarding its scientific output. In business schools several different patterns of work and different contextual factors are naturally present since several different subjects are represented in the departments and faculty. The long tradition within the field of economics in publishing working papers can for example be associated with the need to communicate research results at an early stage of the research process.

Hedlund and Roos [11] characterize, in their study on incentives to publish in open access journals, factors depending on the social environment and factors depending on personal factors of the researcher.

Social factors:

- Policymaking, governmental policy in science and technology, policy of other funding bodies, interest groups and officials
- Increased demands for productivity and accountability
- Internationalisation and strong competition in the scientific field
- Geographical location
- Availability of subject-based and institutional archives and open access journals
- Institutional policies that promote open access publishing
- Communication patterns of the scientific field and the field’s willingness to early adoption of new techniques

Personal factors:

- The importance of reputation and meriting to the researcher
- Speed of publication and visibility of research results
- Personal communication patterns and willingness to adopt new techniques

![The UTAUT model](source: Venkatesh et al. 2003, p. 447)
Personal values

In studies modelling user acceptance and behaviour, [12] develop a theoretical framework that is well suited to use as an explanatory framework for the intended statistical analysis of the results from a survey directed to business school researchers in Finland. In the formulation of the Unified Theory of acceptance and Use of Technology (UTAUT) [12] identified four constructs as direct determinants of user acceptance and usage behaviour (see Figure 1). The four constructs are: performance expectancy, effort expectancy, social influence and facilitating conditions. The above four constructs in [12] are defined shortly as follows:

- **Performance expectancy** – “the degree to which an individual believes that using a system will help to attain gains in a job performance”
- **Effort expectancy** – “the degree of ease associated with the use of a system”
- **Social influence** – “the degree to which an individual perceives that important others believe he or she should use the new system”.
- **Facilitating conditions** – “the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system”

Until now the above constructs have been used mainly in research on acceptance and intention to use of IT-systems. In the present study we will adapt the above constructs to the study of acceptance and use and eventually also non-use of open access publishing systems as for example institutional archives.

In the following we have modified the constructs in the UTAUT model to the needs for a study on end-user attitudes (researchers) towards open Access publishing.

- **Performance expectancy** – as the degree to which the researcher expects gains with OA publishing in research performance and thus increasing his/her personal merits
- **Effort expectancy** – as the degree to which the researcher expects ease of use of an OS system. This naturally has to do with system technology and design but also with personal factors as willingness to learn and use new systems. Experience from use of other information and communication systems on the web is probably an effecting factor.
- **Social influence** – as the degree to which a researcher is influenced of fellow researchers and organization
- **Facilitating conditions** – as the degree to which organizational and technical infrastructure is provided to support use of the system

3. **Design of questions for the survey form**

The survey form is designed as a web survey form with the intention to be directed to faculty members and doctoral students in business schools. In the beginning of the form explanations are provided of concepts related to open access publishing such as open access journal, university publication repository, subject-based publication repository etc. The survey form contains four sector headings; demographic questions, questions on awareness and use of open access services, questions on open access publishing and questions on reasons and barriers for open access publishing.

In the following the factors in the model and their representations in the questionnaire are described.

First section of the questionnaire is described in Table 1. The table includes examples of how the moderating
factors in the theoretical framework were depicted in the survey

3.1 Determinants of user acceptance and behaviour

Factors depending on the social environment

- Social influence of fellow researchers and organization
- Policy of funding bodies, university organization and officials
- Differences in patterns of work and changing contextual factors
- Facilitating conditions (organizational and technical infrastructure to support use of the system)

Personal factors of the researcher

- Performance expectancy (expected gains in research performance, personal merits)
- Effort expectancy (expected ease of use of a system) not reflected in the survey

3.2 Examples of social influence

How does your research community or fellow researchers react to open access publishing? Please indicate on a scale from 1-5 how well you find that the following statements reflect your opinion. 1 = I totally agree and 5 = I totally disagree

- Researchers that are important to me tend to have a copy of their publications on their home pages
- I can find publications on my research topic openly on the web
- My fellow researchers ask me to publish copies of my research papers if I do not have them publicly available in full text

3.3 Examples of differences in patterns of work and changing contextual factors

What are in your opinion the main reasons to publish in an open access publication archive of your university?

- By submitting my publication into the open access publication archive of my university I can reach a broader audience
- People interested in my research ask me to have my research available on the Internet

What are in your opinion the main reasons to publish in an open access journal?
• Open access journals reach a broader audience and especially professionals that do not have access to databases in the university libraries
• I can choose open access journals of good standard in my research field
• My research community favour publishing in open access journals

3.4 Examples of policy of funding bodies, university organisation and officials
• My research funders recommends or require me to have my research results available freely to the public
• My university recommends or requires open access publishing in the publication archive of the university
• My research funders recommends or require me to publish my research in an open access journal when possible
• My university recommends or require me to publish my research in an open access journal when possible

Free comments are encouraged

3.5 Facilitating conditions (organizational and technical infrastructure to support use of the system)

What are in your opinion the main barriers for publishing in an open access publication archive managed by your university?

You can choose several alternatives from the list below

• I do not know if my university has an open access publication archive
• I do not know how to submit a copy of a published article
• I believe that copyright issues are difficult to cope with
• I do not know which version of my article I am allowed to submit

Free comments are encouraged

3.6 Personal factors of the researcher

Performance expectancy

How well do you find that open access journals meet the following criteria

Please indicate on a scale from 1-5 how well you find that the following statements reflect your opinion. 1 = I totally agree and 5 = I totally disagree

• They provide accessibility to the right focus groups
• They increase visibility
• The speed of publishing is increasing
• The quality and impact factors meet the standard of traditional journals
4. Discussion

This conference paper is part of a project on open access institutional repositories carried out at the Swedish School of Economics and Business Administration. Thus the framework for the study that was presented in the theoretical part took into account discipline specific factors of earlier research. The research questions involved the modelling of the constructs of researchers’ attitudes to open access publishing and institutional archives for an empirical survey and in practice a web survey form to be directed to researchers as end users of open access services.

The survey form was tested on two separate occasions; firstly, to get a picture of the methodological soundness of the constructs depicted in questions in the survey form and secondly to get feedback on what inconsistencies and hardships there might be in the actual answering of the survey form. To test the methodological soundness a presentation was given for a group of researchers and doctoral students from the Swedish School of Economics and Business Administration. It became clear that the concepts on open access publishing and institutional archives were not familiar to the audience. Therefore explanations and definitions were added to the survey form. The researchers’ main concern was where to publish (in which journal) and in what type of publications (book chapters, journals etc) not mainly in open access format. However, the factors depending on the social environment were seen as relevant for publishing practices. Getting merits for a future career as researcher was also important.

The survey form was also sent to a group of 8 test persons (researchers and doctoral students). They were asked to fill in and return the form and to comment on problems and design features as well as on the relevance of the questions. The test respondents provided good comments and suggestions for improvements. The main structure and the questions in the survey were found rather easy to fill in and submit. The survey contained a suitable number of questions and did not take too long to fill in. Of the test answers that were collected we could conclude that the main reason to publish in an open access journal was that you are able to reach a broader audience and also professionals interested in your research. One of the main reasons to publish in a university publication repository was also to reach a broader audience, the other main reason among test respondents was that people interested in a persons research results asked to have them published on the web. The main barrier to publish in an open access journal was that the department of the researcher did not consider open access journals meriting for a research career. The main barrier to publish in a university publication archive was that copyright issues were considered difficult to cope with.

Also the project group developing and managing the open access publication archive named “DHanken” were asked to comment on the survey questions. Some clarifications and improvements were suggested to single questions but on the whole the feedback was positive. Many of the comments were on a general level and pointing to the fact that open access publishing might not be so very well known among researchers. Therefore some definitions on concepts were added to the survey form.

Based on the comments from the test of the survey form we were able to develop an updated version of the form. The survey will now be sent out to researchers in business schools in Finland and the initial results will be collected and analysed.

5. References

[1] Nicholas, D and Rowlands, I. Open access publishing: The evidence from the authors. The Journal


