nijmeegs instituut
voor informatica en informatiekunde

Research Plan

Communication and visualisation of information with an information architecture approach to system development.

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Student

Written by: Gerben Hoogeboom
Education: Information science
Status: Master graduate
Student nr: 0319929

Radboud University of Nijmegen

Supervisor: Prof. Dr. E. Proper
Referent: Dr. S. Hoppenbrouwers

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Preface

This research project is being carried out in order of the IRIS group at the Radboud University of Nijmegen (Netherlands). It is part of undertaking my master dissertation in Information science at the faculty of Informatics and Information science. The faculty of Informatics and Information science is a sub-faculty of the Natural sciences, Mathematics and Informatics department. Supervising this project will be Prof. Dr. E. Proper.

The main focus will be on researching how information is classified and communicated with an information architecture approach to system development, and how upper management can use this information to govern. I address this issue after having followed a course in information architecture taught at the Radboud University of Nijmegen. The field of information architecture is relatively new and its worth has not yet been scientifically proven. Yet, there are some research projects running such as the Archimate project, in which the Radboud University participates. In fact, this research converges with the interests of the Archimate project.

Chapter one will give a short description as to what the projects background entails; this is continued in chapter 2 by an exact description of the research that will be conducted for this dissertation in. In chapter 3, the ensuring of the quality of research will be addressed. Chapter 4 is concerned with the project organization. Finally, in chapter 5 a planning for this project can be found.

1. Background

In the fall of 2003 I started at the Catholic University of Nijmegen to get my taught master degree in Information science. During the first semester I followed a course in Information Architecture and found it to be interesting. The method of system development with an architecture approach is starting to spread throughout businesses all over the world, yet its potential has never been scientifically proven. The aim of this project is to research the efficiency of a small part of the information architecture approach, namely communication and control. Visualisation has an important role to fulfil in this approach and it is the fundamental means of communication. Visualisation is chosen because it appeals to all stakeholders, be it from a technical or a business point of view.
When developing a system within an information architectural approach:

- It is mandatory that an integration of departments within the company is established, to achieve this, visualisation of the whole is made.
- The possibilities of making a flexible system are researched
- The developed system, with the information it delivers, allows upper management to control and govern their organisation.

Information architecture is meant as a tool to communicate and govern. However, is it possible for the stakeholders to govern with the tools given to them, and in what way do these stakeholders wish to communicate and govern?

- Architecture should shape the environment of the company
- Architecture should allow for its users to communicate with each other.

This communication process is what will be researched on, and if possible suggestions for improvement will be given. When communicating, data is only information if it is communicated properly between the different parties in and outside the company, but how is this data converted into information and how is it communicated? How do the stakeholders and the architect communicate, and what approach is used to classify and communicate information so that it becomes useful information with which can be governed?
In order to answer such questions and to determine the correctness and usefulness of an architectural approach, this project has been founded. In the next section, an exact definition of what the project entails will be given.

2. Thesis objectives

Information architecture is a method for system development and for controlling business afterwards. One of the key points of information architecture is to visualise information in order to make it comprehensible to all stakeholders. Although the method is much used, there is no model for visualising information nor is there a model for governing with this information. The question arises then, how does an architect visualise information? What is the process that precedes the visualising of information? A scientific solution to this approach is needed. And the proficiency of the existing methods must be researched.

Intent of thesis: The intent of this thesis is to come up with a well defined answer for the thesis issues, where possible to make suggestion on how to improve on the current work, and suggestions for a model for visualisation.

Theme: Communication and visualisation of information with an information architecture approach to system development.

Thesis issues: How can one best communicate information through the different layers of the corporation? Is visualisation the best method and is it possible to have a model for visualising information? Once the proper visualisation method has been derived, can upper management govern with it?

Main question
In what manner does visualisation and communication of information take place with an information architecture approach to system development and how proficient is it?

Sub-questions:
- How is this data converted into information and how is it visualised and communicated?
- How do the stakeholders and the architect communicate?
- What approach is used to classify and communicate information so that it becomes useful information with which upper management can govern?
- How is misinterpretation of information prevented?
- Can a model be made for visualising information?
- Can one communicate to all stakeholders with this model?

3. Quality of Research

This chapter is concerned with the approach to the research that will be performed for this project. The research methods that will be used, the variables and the validity will be addressed.

3.1 Research methods

In order to ensure the quality of the research done in this thesis it is important that it is known from the start how the research is going to be performed. This research will be largely inductive, as its purpose is to research the current methods and possibilities to improve on them. The issues that will be addressed in the thesis require different conducts of research. In this chapter the research methods for each issue mentioned in the questions of the previous chapter will be addressed.

- How is this data converted into information and how is it visualised and communicated?
  To answer this question, research must be done after the present methods of visualising and communication of information. There are several possible methods. To begin with, a literature study can be done to inform about the several methods, often these are books published by service industries that specialize in information architecture. A second approach will be to interview architects on the topic, this will be an open interview, as to find out why and how information is visualized and communicated.

- How do the stakeholders and the architect communicate?
  This can be researched best by observation. In order to find an answer to this question, I will follow and observe possibly two information architecture projects. In this all communication and methods between the client and the architect will be observed.

- What approach is used to classify and communicate information so that it becomes useful information with which upper management can govern?
  Again observation and analysis is an important strategy to find an answer to this question. The approach used must be studied through observation, because it is part of human nature and cannot easily be understood when presented in writing, nor is such information currently available. Another method will be interviewing upper management asking specifically after the means with which they believe they can govern their organisation.

- How is misinterpretation of information prevented?
  The answer to this can be found by analyzing the current methods and by interviewing architects and their clients. If the possibility of misinterpretation does not become clear when analyzing the current method, it must be researched by interviewing clients of architects and asking after their first contact experiences.

- Can a model be made for visualising information?
  Interviews with architects and possibly their clients should provide information, which is needed to provide specifications for such a model. Criteria (or part of the criteria) for such a model should be made by the researcher. This is the creative part of the research.

- Can one communicate to all stakeholders with this model?
  Answers to this question are derived from interviews and observations of projects. Analysis of the findings is required

3.2 Criteria

In order to ensure the quality of the research that will be performed, the specifications for the research must be drawn up. These specifications can be divided into the research domain, the variables involved and their values. In this project a method (communication and control with information architecture), and the possibility of a model for visualizing will be researched. The domain is communication and control with information architecture. The main question contains four variables; these variables are indicated in the table below.

Variables	**Values**
Information	➢ Business and ICT
Communication	➢ Business processes ➢ Principles ➢ Human interaction
Visualisation	➢ Approach to visualisation ➢ Model for visualising
Information architecture	➢ Communicating with stakeholders ➢ Principles ➢ Means to govern

Functionality:
This project will have two functions:

- To research and evaluate the method of communicating information with an information architecture approach and the usability of the information for upper management.
- To define a model for visualising and communicating information.

Generalization:
When performing research, the researcher can generalize the findings. The statements made in the research cover more then has actually been researched. The researcher should indicate if he is going to make generalizations in the research. This research will kick-off with researching the current method of visualising and control. This will be done by

- literature study and analysis
- interviewing architects and other involved staff
- observation of an information architecture project

There will be an observation of at the most two information architecture projects. Hence, a generalization must be made. The observations made will be analysed and the findings reported in the thesis. These findings will indicate the possibility of generalizing.

4. Project Organization

In this chapter an overview is given of the people involved in this project and their contact details. The project is supervised by Prof Dr. E. Proper. There will be regular communication between the supervisor and myself. The aim is to inform the supervisor of the progress made on a weekly basis.

Supervisor:	**Prof. Dr. E. Proper**
Address:	University of Nijmegen Institute for information and computing science 6524 ED Nijmegen The Netherlands
Phone number:	+31-24-3653456
Email:	E.Proper@acm.org
Referent:	**Dr. S. Hoppenbrouwers**
Address:	University of Nijmegen Institute for information and computing science P.O.Box 9010 6500 GL Nijmegen The Netherlands
Phone number:	-
Email:	stijnH@cs.ru.nl
Graduate coordinator:	**Dr. P. van Bommel**
Address:	University of Nijmegen Institute for information and computing science 6524 ED Nijmegen The Netherlands
Phone number:	+31-24-3652696
Email:	p.vanbommel@cs.ru.nl
Graduate student:	**G. Hoogeboom**
Address:	St. Anthoniehof 56 7232EB Warnsveld The Netherlands
Phone number:	+31-575-524171
Mobile number:	+31-615132918
Email:	GerbenHoogeboom@hotmail.com

5. Planning

In appendix A, the global planning for this project can be found. In the table below the deliverables are indicated. The kick-off of this project was at the first of September and will have an estimated duration of six months. This means that the project should draw to a close at the end of January.

Deliverables	
Date	**Activity**
Kick-off 2nd of September 2004	Introduction on research project
7th of October	Draft research plan
14th of October	Final version research plan
23rd of October until 31st of October	Fall break
November	➢ Interviewing architects and/or other relevant staff ➢ Active research in projects ➢ Draw up thesis
16th of December	Draft Research plan
24th of December until the 9th of January 2005	Christmas break
20th of January 2005	Final version thesis
End of January 2005	Presentation of findings in thesis
1st of February 2005	End of project

Appendix A: Planning

Planning for project: Communication and Classification of Information

Activities	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	2	3	4	5
Introduction	■																					
Specifying project details		■	■																			
Draw up Research plan			■	■	■	■																
Draft of Research plan **Deliverable**						■																
Research plan **Deliverable**							■															
Researching literature							■	■		■	■											
Interviews and active research in architecture driven projects							■	■		■	■											
Fall break									■													
Draw up thesis											■	■	■	■	■	■						
Draft of thesis **Deliverable**																■	■					
Christmas break																		■	■			
Thesis **Deliverable**																				■	■	
Presentation of finding during dissertation																						■