## <THE DISSERTATION TITLE>

Ву

## <Your-name-here>

## A DISSERTATION

Submitted to

The University of Liverpool

in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

## <THE DATE>

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## **ABSTRACT**

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I confirm that I have not copied material from another source nor committed plagiarism nor commissioned all or part of the work (including unacceptable proof-reading) nor fabricated, falsified or embellished data when completing the attached piece of work.

I declare that the dissertation describes original work that has not previously been presented for the award of any other degree of any institution.

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#### **ACKNOWLEDGEMENTS**

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The first part of the acknowledgments, which must be included, should cite any person or the organization that supplied you the information that was used for the dissertation.

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The tables of content are included in the next section. Any changes to the ToC styles and levels of nesting, and so on, will require that the table of content be regenerated. Changes you make in the sections will be reflected in the table of content only after you regenerate it. This is accomplished either by right clicking on the entries, choosing "Update Field" and "Update entire table" and then confirming by a click on the OK, or by performing an Edit | Select All followed by pressing of the F9 key which will lead you to the same forms. This will make a new table of contents and update all captions and cross references. If the process completes with a message that all updates could not be done, simply do it again. Also we suggest specifying that all information should be updated every time. It is the safest though slightly slower approach.

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Also notice that all number of headings, tables, and figures is done automatically. These will also be updated automatically as you make changes, add, delete, and reorder material. Let that happen.

You do need to know about applying styles to use this document mainly because the different kinds of headings and subtitles are specified by using styles. There are settings in your Word configuration that also matter in whether this is easy or hard. Place your cursor in some of this material and notice what style it was created under.

The captions on figures are accomplished by Insert | Reference | Caption.... The cross-references to tables, figures, and headings are by using Insert | Reference | Cross-reference.... You can make more places to cross-reference by using Insert | Bookmark, as in the bibliography, and you can refer to those by Insert | Hyperlink..., as when making citations in the text. All of these cross-references will be implemented by unobtrusive hyperlinks in the resulting electronic document and the PDF.}

# TABLE OF CONTENT

	Page
LIST OF TABLES	viii
LIST OF FIGURES	ix
Chapter 1. Introduction	1
Chapter 2. Background and review of literature	2
Chapter 3. Conclusions	4
REFRENCES CITED	5
Appendix A. Pattern-Description Template	6
A.1 Pattern-Description Approach 6 A.2 Pattlet Summary Structure 7	
A.3 Full Pattern-Description Organization 9	
Appendix B. Navigational Data Model	10
B.1 Hierarchical Organization 10	

# LIST OF TABLES

	Page
Table 1 Principle Topics in Pattlets Table 2 Full Pattern-Description Organization	
{To update the LIST OF TABLES, right click on the entries, chose "Update ble" and click on OK}	e Field", choose "Update entire ta

# LIST OF FIGURES

	Page
Figure 1. Navigational Data-Entity Hierarchy (typical)	
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## **CHAPTER 1. INTRODUCTION**

{This is a potential introductory section. It has been included in this skeletal form just to demonstrate heading numbers, styles, and creation of the Table of Content. }

## Chapter 2. Scope

{Say what the scope of the dissertation is. This may say what is covered and what is not covered, and the extent/level of each.}

**Chapter 3. Problem Statement** 

Chapter 4. Approach

Chapter 5. Outcome

## CHAPTER 6. BACKGROUND AND REVIEW OF LITERATURE

## Chapter 7. Related Work

{Here is some specimen text just to illustrate citations of material in the bibliography. This is not offered as a correct way to provide background. It is more to show cross-references working. The cross-references on this page are made by first of all typing the reference in the REFERENCE CITED, then selecting it and through Insert | Bookmark | Add giving him a name (don't use spaces in that name). Then return to the text and select the text (e.g., "(2004)" and click the Hyperlink button on the Windows toolbar. Choose the "Place in this Document", find the name in the list and click OK. The advantage of a hyperlink is that the text of the link can be anything, no matter what bookmark is the target. Cross-references, on the other hand, use target material to make text that is part of the link. That is inconvenient for bibliographic citations.}

Susan addresses trust from the point of view of e-commerce sites providing reassurances of trustworthiness in their presentation and operation (). Although the focus is on user interface, the principles applied and the care shown in having the site be trustworthy is instructive for the software-development and deployment focus here.

Simson Garfinkel examines the connection between usability and security in his Ph.D dissertation (). A number of elements of security assurance can be extended to trustworthiness, such as those given by (). Several of the patterns that Garfinkel identifies are also appropriate for giving users confidence in the trustworthiness of software systems as well. There are also cautionary findings that raise concerns about intrusion on the user and in expecting that adopters will actually perform the confirmation and assurance actions that we propose to make available ().

The employment of patterns and pattern language by Garfinkel is in the style of software design patterns (). Garfinkel's chosen patterns are more in-the-world in the spirit of *A Pattern Language* (et.al., 1977). This ability to shift attention from the formal workings of machines and software systems to the world of the software's adopters and users is seen as critical to the achieving of trustworthiness in software, allowing us to address the "domains of action in which the customers of software systems live and work" ().

Consideration of patterns and their levels leads to questions about the difference between artifacts and the situations in which they serve as instruments of human purposes. Hal Pierson speaks of the difference between the problem space and the solution space, noting that most of what is done in software development and engineering is focused on the solution space (). Although the thesis pilot project is deep within the solution space, the distinction is already critical.

Chapter 8. Literature

**Chapter 9. Industry Sources** 

## **CHAPTER 10. CONCLUSIONS**

{Again, this offered as a typical breakdown without providing the needed intermediate chapters.}

Chapter 11. Lessons Learned

Chapter 12. Future Activity

Chapter 13. <u>Prospects for Further</u>
<u>Work</u>

## REFRENCES CITED

{This section will be the Harvard-style bibliography for the entire dissertation. It must use the required format described. We have included some samples so that the use of cross-references from citations to the bibliography entries is illustrated.}

- Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., Fiksdahl-King, I., Angel, S. (1977). *A Pattern Language: Towns, Buildings, Construction*. Oxford University Press, New York. 1171 pp. ISBN 0-19-501919-9.
- Denning, P., Dargan, P. (1996). Action-centered design. pp. 105-127, Chapter 6 in ()
- Fallow, S. (2004) Maximizing Consumer Trust in e-Commerce by means of Usability Concepts in Web Design. M.Sc dissertation, University of Liverpool, August. 94 pp. Available by request to the author,
- Gamma, E., Helm, R., Johnson, R., Vlissides, J. (1995) *Design Patterns: Elements of Reusable Object-Oriented Software*. Addison-Wesley, Boston. ISBN 0-201-63361-2.
- Garfinkel, S. (2005) Design Principles and Patterns for Computer Systems That Are Simultaneously Secure and Usable. Ph.D. dissertation, Massachusetts Institute of Technology, May. 473 pp. Available on the Internet at: (accessed on: 2005 July 21).
- Pierson, H. (2004) Models. *Hal 9000* web log entry, May 17. Available at (accessed on: 2004-06-06).
- Stoneburner, G. (2005) Developer-Focused Assurance Requirements. IEEE *Computer* **38**, 7 (July 2005), 91-93
- Winograd, T. (ed.) (1996) *Bringing Design to Software*. ACM Press, Addison-Wesley, Boston. ISBN 0-201-85491-0

**APPENDICES** 

APPENDIX A. PATTERN-DESCRIPTION

**TEMPLATE** 

{This section shows how to start an Appendix and also to illustrate tables and figures. These are extracts from actual material. In this particular project dissertation, a large part of the project was carried out on the web. Some of these particular appendices were abridged accounts that supported the thesis without requiring on-line access for the material and that allowed a print version to be self-contained.}

**Latest version:** <> provides the latest material on the TROST Pattern Description Approach.

**Version: 0.30** <> is the version of the approach that this appendix is based on.

A.1 Pattern-Description Approach

Pattern descriptions are based on a detailed template that aligns with a variety of pattern de-

scriptions in common usage.

The minimal pattern description consists of a pattlet providing a compact summary of a pat-

tern's essential characteristics. The principles of the overall template are honored but the

content is abbreviated.

For pattern descriptions with extensive content, a pattlet summary is used as a cover, with

detailed description and supporting materials on supplemental pages. In these cases, the

pattern description will provide detailed coverage of topics and subtopics. Variations will of-

ten be introduced at the detail level to accommodate different situations and methodologies.

There is provision for patterns being specialized variations of more general patterns. It is also

possible for patterns that are focused on realization in concrete implementations to be based

on more-abstract patterns. The different forms will be cross-referenced. The differences are

in placement of emphasis and detail more than differences in the overall format. The same pattern description structure is drawn upon.

## A.2 Pattlet Summary Structure

Pattlets are summaries of pattern descriptions. The ten key topics of the full pattern template are addressed briefly and selectively (Table 1).

## **Table 1 Principle Topics in Pattlets**

- 1. how the pattern is known
- 2. the setting in which the pattern can occur or be desired
- 3. what is to be accomplished
- 4. issues to be balanced and addressed
- 5. how to satisfy the intention what to do
- 6. strategy for specific implementations of the approach
- 7. additional matters to be aware of
- 8. the result of achieving the pattern: benefits and limitations
- actual cases, related patterns involved in completing the approach of this pattern
- 10. acknowledgment of source materials and contributions

The pattlet format is convenient for determining whether it is promising to examine the complete pattern description.

Pattlets are also convenient as summaries of patterns having detailed descriptions provided elsewhere. In that case, the summary saves the reader from having to track down additional sources simply to see how the pattern is being applied in an immediate situation. The pattlet is a summary-level stand-in and connection to further detail.

# A.3 Full Pattern-Description Organization

The following table illustrates the complete set of subtopics currently identified in the Pattern-Description Template.

**Table 2 Full Pattern-Description Organization** 

1.	Identification	3. Intention	6. Realization	8. Consequences
	1.1 Name	3.1 Intent		8.1 Benefits
	1.2 Version	3.2 Background	7. Considerations	8.2 Limitations
	1.3 Summary		7.1 Testing	8.3 Trade-Offs
	1.4 Also Known	4. Concerns	7.2 Safety/Failure	8.4 Risks
As			7.3 Deployment	8.5 Next Chal-
	1.5 Type	5. Approach	7.4 Security	lenges
	1.6 Archetype	5.1 Key State-	7.5 Operations	
	1.7 Keywords	ment	7.6 Usability	9. Usage
		5.2 Rationale	7.7 Support/Repair	9.1 Known Exam-
2.	Situation	5.3 Prerequisites	7.8	ples
2.1 Perspectives		5.4 Sketches	Performance/Scale	9.2 Variants
	2.2 Context	5.5 Detail	7.9 Trustworthiness	9.3 Related Pat-
	2.3 Applicability	5.6 Models		terns
2.4 Indications		5.7 Diagrams		
				10. Sources
				10.1 References
				10.2 Contributors
				10.3 Attribution

#### APPENDIX B. NAVIGATIONAL DATA MODEL

{This Appendix is included to show how section numbering is preserved in the Appendices, how figures are captioned and cross-referenced, and to verify that the table of contents is still being correctly produced.}

When expressing a pattern that involves organizations of data, especially documents, web pages, and software-deployment materials, navigational data models are employed. The following conventions apply to the reading and creation of the diagrams.

Latest version: <> provides the latest material on the TROSTing Navigational Data Model.

Version: 0.75 <> is the version of the definition that this appendix is based on.

## **B.1 Hierarchical Organization**

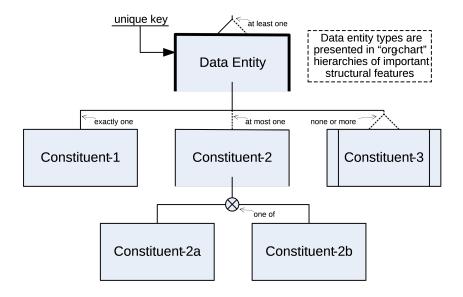


Figure 1. Navigational Data-Entity Hierarchy (typical)

The diagrams express organizations of data. Types of data entity are named and their composition in terms of constituent data-entity types is portrayed via a hierarchical connection of rectangles. The appearance is similar to that of organization charts.

Figure 1 illustrates a typical hierarchical composition for a data-entity type. Different cases are indicated by variations in the rectangles, in connectors among the boxes, and in special attachments in the diagrams. Each rectangle signifies a data entity type, with the connecting lines establishing their hierarchical composition of constituent data-entity types.

**Example.** The modeling of parts explosion for manufactured assemblies in Figure 2 illustrates the use of converse associations in reflecting how parts may be assemblies that are used in specific places as subassemblies of further assemblies. The symmetry of details in the converse associations is valuable in making the relationship unambiguous. The notation also makes the converse-association pairs easy to locate, especially in extensive models where the mated associations appear on separate pages of the model's diagrams.

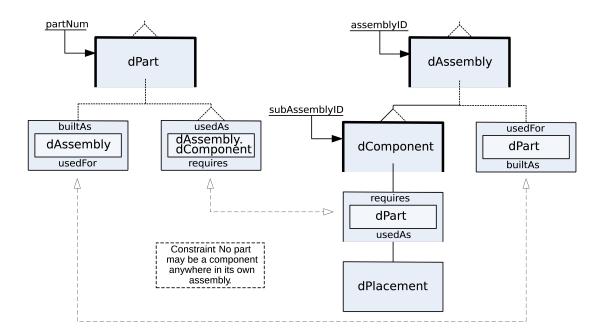


Figure 2. Converse Matching of Association Types in Data-Entity Relationships