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Walldius, Åke

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**E-mail of author:** aakew@nada.kth.se

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CID, Centre for User Oriented IT Design  
NADA, Department of Numerical Analysis and Computer Science  
KTH (Royal Institute of Technology)  
SE- 100 44 Stockholm, Sweden  
Telephone: + 46 (0)8 790 91 00  
Fax: + 46 (0)8 790 90 99  
E-mail: cid@nada.kth.se  
URL: <http://cid.nada.kth.se>

# Use stories as a way to turn pattern sequences into small, practical languages

Aake Walldius

CID/NADA/KTH

SE-100 44 Stockholm, Sweden

aakew@nada.kth.se

## INTRODUCTION

In this paper I want to articulate a few questions about how to use pattern languages (PL) in practical project work. The practice in which I want to introduce PL is an evaluation project centred on comparing different IT quality assessment methods (ISO norms, Quality award institutions, Quality certifications etc.). Since comparing these methods with each other would end up in a maze of unintelligible correspondences and differences, an overarching model of society is needed, into which each different quality methods can be inscribed. This is the main role of the PL method in this project. It is by no means an unproblematic role to play. But, in this paper, I will not directly address the "translation problems" of mapping conflicting/complementing quality standards onto a common pattern-based framework. Instead, I will address the practical problems of bringing in the pattern methodology into the daily work practices of such a rather abstract project. (Abstract in the sense that it has a subject that does not deal directly with construction, buildings, or towns; not even with IT services per se, but with user involvement in the formation of IT quality standards.)

Introducing a pattern language in a project in which the participating researchers and practitioners are unfamiliar with the concept of patterns raises a number of important questions. In the seminal book *A Pattern Language (APL)*, Christopher Alexander et al. give some advice about how to start working with patterns [1]. I will summarize a crucial element of their advice concerning "language sequences" and "planning" in the first part of my paper. In this part, I also present some possible additions to that advice, additions I think is relevant for patterns that deal with "inter-regional" subjects such as user participation in demand shaping. In the second part of my paper, I apply these proposed additions while constructing a "use story". (This is done for a set of patterns that will be used in the evaluation project mentioned above.) These two steps lead me to a conclusions about the possibility of adding the element of a "use story" to the PLML specification, a specification constructed by the Pattern Language workshop that convened at the CHI 2003 conference.

## USE STORIES AS ENTRANCES TO PRACTICAL WORK

The central pattern I will use for demonstration purposes is called *USERS' QUALITY NETWORK*. It has six supporting patterns, of which it is sufficient to mention two here: *USERS' IT PRIZE CONTEST* and *USERS' QUALITY CERTIFICATION*. (See [http://diac.cpsr.org/cgi-bin/diac02/pattern.cgi/public?pattern\\_id=92](http://diac.cpsr.org/cgi-bin/diac02/pattern.cgi/public?pattern_id=92) for an early version of this pattern set. Appendix I gives a summary of all seven patterns in their current form.) Where in the Alexandrian hierarchy of patterns do these three entities belong? Should they be understood as belonging, first and foremost, to regions, cities, towns, neighbourhoods or local communities? As they do not deal with the built environment it could be argued that the original Alexandrian socio-geographical framework is not really relevant for locating this kind of socio-technical patterns. In this paper I will argue to the contrary. Centralistic IT services have been very effective in aggravating exactly those problems of poor working and living conditions that the pattern methodology is meant to address. To my mind, it is hard to formulate a more comprehensive framework for *what IT service could be good for* than the vision outlined by Christopher Alexander et al.

Therefore, I think that APL should not only be regarded as "an inspirational book" for IT designers. To my mind, the book is an indispensable first contribution to a methodology that has proven to be of great value for disciplines such as computer science, media sciences, and IT design. Individual patterns in the book should be scrutinized, as well as the nature of their links to the patterns they support and are supported by. Only if they are deemed irrelevant or found to be misrepresentations of how things are actually done should they be disregarded. And, to my mind, never without some sort of explicit argument.

Recently, there has been some important comments made about how PL can be applied in practical HCI project work[2, 3]. Here, I would like to add a not so unorthodox comment to that discussion. How do the authors of APL recommend that you start using the method? By making a story out of a pattern sequence, is the obvious answer, if you read the book. Immediately after having outlined the full language in a list that spans 16 pages, the authors starts

to generate a small language to help build a porch onto the front of a house. The language is generated from a sequence of 10 patterns. "[A]ny small sequence of patterns from this language is itself a language for a smaller part of the environment." (p xxxv) Here is an abbreviated version of the resulting "use story":

I started with PRIVATE TERRACE ON THE STREET (140) [which] calls for a terrace. [This pattern was] combined with a SUNNY PLACE (161) which intensifies a place on the sunny side. I used these two patterns to locate a raised platform. OUTDOOR ROOM (163) called for a roof overhang, a tree, and a wind screen. I used SIX-FOOT BALCONY (167) to determine the size of the platform. Now, PATHS AND GOALS (120), I used it in a special way, I cut the corner of the platform. The height of the platform was determined by CEILING HEIGHT VARIETY (190). Following COLUMNS AT THE CORNERS (212) the platform was carefully tailored in relation to three existing columns. Finally, we put a couple of flower boxes next to the front door bench, RAISED FLOWERS (245), and old chairs were already there, DIFFERENT CHAIRS (251). (Page xxxvi-xxxvii)

This story was generated with patterns from the middle part of the book, the part dealing with "groups of buildings and individual buildings". In the introduction to the first part "regional policies", the authors outline a way to plan a language for things that can not be designed, but has to grow in a piecemeal fashion. "[T]hey can emerge gradually and organically ... if every act of building, large or small, takes on the responsibility for gradually shaping its small corner of the world to make these larger patterns appear there." This amounts to "a planning process which we believe is compatible with this piecemeal approach." (p. 4):

1) Identify the "hierarchy of social and political groups" which are relevant for the plan. 2) "Each group makes its own decisions about the environment it uses in common. ... And higher groups only own and control the common land that lies *between* them, and which serves the higher group." 3) Each involved group takes responsibility for the patterns relevant to its own internal structure. 4) Each group is free to find ways of persuading its constituent groups to implement those patterns gradually. 5) "As far as possible, implementation should be loose and voluntary, based on social responsibility, and not on legislation or coercion." 6) Teams of users who build public structures should "try to build into their project any higher pattern that the community has adopted". 7) Individual acts of building may "begin working their way toward these larger communal pattern, even before the neighbourhood, community, and regional groups are formed". Examples of this would be a group of people seeking to get rid of noisy and dangerous traffic in front of their houses, or a group wanting to build a small communal workshop in a zone for residential use. These groups could "argue their case based on

SCATTERED WORK, SETTLED WORK, *etc*, and possibly get the city or zoning department to change the zoning regulation". (Page 4-5, Italics added in the last quote only.)

This last quote in step 7) of the proposed planning procedure is very helpful for our project on user mobilisation against centralistic IT services. The small pattern language we want to generate should ideally help end users organise in order to get the zoning departments of governmental IT standardisation and procurement organisations "to change the zoning regulations". Therefore, we have generated a sequence of 7 patterns that we now want to put to use. And our guess is that the way to go is to generate a use story for "our small corner of the world" which is *inscribed in*, i.e. which follows, the planning steps for things that can not be built. Here are one confirmation and three additions we propose for the construction of such stories:

- as APL strongly advises, go from general to concrete, thereby revealing the overall context and goal of the sequence as a whole,
- in all patterns, especially in the root pattern, describe explicit actors and explicit cooperative actions that takes place,
- in the APL story about the porch summarized above, local references to other patterns in the group were not made, but on the regional (and interregional) level such references can help account for the interplay between patterns,
- use small caps for pattern names, number the group from (1) for the root and mark references to local patterns by its number. (In APL the references in the beginning and in the end of pattern definitions include both name and number, but this formalism can be relaxed in a use story, since the connection can be made clear through using one or more words from the referenced name in the story).

#### **A USE STORY ABOUT USERS' QUALITY NETWORK**

This overview of a USERS' QUALITY NETWORK (1) is written for *students* who want more challenging IT services at school, at their community centres and at home; for *employees* and *civil servants* who want to exchange poor IT services at work with better ones; and for concerned *citizens* who want to participate in the redesign of the public IT services of their community.

An example of an emerging Users' IT quality network is the UsersAward network which was initiated in 1997 by a group of trade union activists and researchers who wanted to address the problem of expensive and centralistic workplace IT systems. Many such planning and control systems had become a bureaucratic hindrance for both employees and employers in Swedish firms. In 2002, the project, which by then engaged a consortium of researchers from four universities (3), had developed a quality certification method and demonstrated its viability by certifying two software packages in Sweden (7). This was made possible by a series of supportive activities, such as a

yearly Users' IT Prize contest (4) for gaining nationwide publicity for good workplace systems; Users' quality conferences (5) to keep a dialogue on quality criteria going between the concerned stakeholders; and User surveys (6) to ground this dialogue on empirical findings.

A **USERS' QUALITY CENTRE (2)** was formed, first as a research project, initiated by the blue collar trade union central LO (Landsorganisationen), then as a non-profit company, fully owned by the LO. The centre invites all interested members to participate in the UsersAward network by nominating their favourite service to the yearly IT Prize contest (4), by taking part in quality conferences (5), and by answering questions in webbased national satisfaction surveys (6).

The **USERS' QUALITY RESEARCH CONSORTIUM (3)** is a group of researchers from different disciplines and universities (Stockholm, Uppsala, Gävle) who formed a consortium to support the quality network (1) with overviews of state-of-the-art methods and with focussed investigations. These overviews and investigations are based in research projects that result in presentations which are used by the quality centre (2) in their organizing work, at quality conferences (5), in designing user surveys (6) and in certifications of IT services (7).

UsersAward's yearly **USERS' IT PRIZE CONTEST (4)** is the most public and visible of the quality network activities. To this event, students, employees, and citizens can nominate their favourite IT service in order to attract attention to its outstanding qualities. Panels of users from the involved communities help arrange the contest, document the nominees, and raise resources for the event. A jury of respected experts from the user communities selects each years winner who is presented, along with all the other finalists, at the well publicized finals.

In UsersAward's regional **USERS' QUALITY CONFERENCES (5)**, some of the IT services which have been nominated to IT prizes (4) through the years present their services in workshops and panel discussions. Software suppliers, researchers, and consumer groups arrange seminars on quality issues based on documentation from prize contests (4), from consumer surveys (6), or from recent quality certifications (7).

The **USER SURVEY (6)** of users' satisfaction with IT services is performed periodically or as an ad hoc activity by the users' quality centre (2) in cooperation with researchers (3). The survey is based on questionnaires to workers and clerks in industry, health care, and the service sector, and to civil servants and citizens. With carefully articulated questions on the diverse quality aspects of the IT services, the survey establishes a common understanding within the network in regards to the strengths and weaknesses of the IT services surveyed.

The **USERS' QUALITY CERTIFICATION (7)** is the most research intensive activity of the network. The quality criteria that underpin the certification are based on a long-term research effort (3) and by an ongoing dialogue (5) between researchers, service providers, and users networks.

Service providers that register a particular service for certification has to go through a hearing with certification staff and get their service scrutinized at three independent sites of use through a standardized interview and questionnaire procedure. While winning the User's IT Prize (4) gives publicity, the Users' certification gives a thorough quality documentation of *how satisfied users actually use the certified service*. For service providers who want to retain their customers, and thereby gain new ones, this kind of "open source" documentation of users' satisfaction is hard to beat.

## CONCLUSIONS

The pattern language workshop at CHI 2003 resulted in the specification of a Pattern Language Markup Language (PLML) [4]. I think this specification can be of great value when designers from different fields want to work together and draw on each others' experiences. To formulate my conclusion from this paper in relation to PLML, I think that, at least for pattern projects that address problems on the regional and interregional level, the concept of use stories or scenarios could be a fruitful addition to the specification. This addition, which is strongly grounded in the original presentation of the method, could either become a formal "part" of the pattern language (sequence, collection, compilation), perhaps as an element of a "preamble" to the pattern definition. Or it could be mentioned as a recommended way of working, in the preface to the PLML specification.

## ACKNOWLEDGEMENTS

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**APPENDIX 1: USERS' QUALITY NETWORK**

**Users' quality network \***

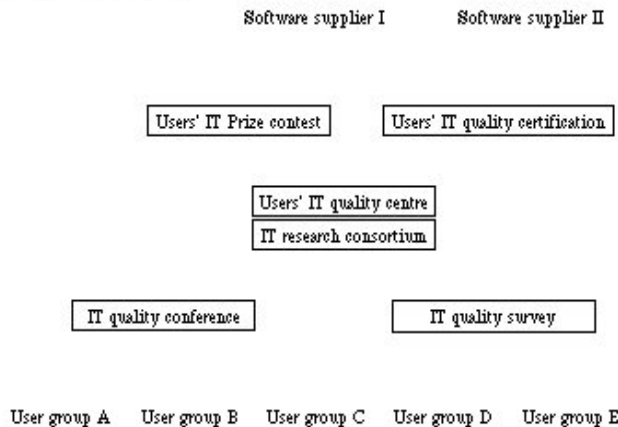
*Context:* The competition between suppliers of communication services is different from that between suppliers of physical goods, since what the former deliver is not just a platform for communication, but the access to service providers and to other users who have already invested in that platform. Other economic forces tend to further decrease competition in the software market. This makes it even more important to support the articulation of end-user quality demands.

*Examples:* TCO Development, [www.tcodevelopment.com](http://www.tcodevelopment.com), Krav Organic Labelling, [www.krav.se](http://www.krav.se), Users' Award, [www.usersaward.com](http://www.usersaward.com)

*Problem:* Competitive software suppliers need demanding customers who can articulate sophisticated user requirements for the software they will use in their daily work. However, it takes cooperation between different professions to articulate requirements that meet the needs of employees, (co)owners, and customers of tomorrow. If the contacts between the end-users and the procurers of their software is too loose, then the procurers will only get their information from the dominant software suppliers of today.

*Forces:* An example of an emerging Users' quality network is the UsersAward network which was initiated in 1997 by a group of trade union activists and researchers who wanted to address the problem of expensive and centralistic workplace IT systems. Many such planning and control systems had become a bureaucratic hindrance for both employees and employers in Swedish firms. In 2002, the project, which by then engaged a consortium of researchers from four universities, had developed a quality certification method and demonstrated its viability by certifying two software packages in Sweden.

Users' IT quality network



The Users' Award network is open for employees who want to take part in efforts to raise the quality of software for use in the workplace. The network arranges User Conferences where Exemplary software is showcased and discussed. It initiates periodic User surveys to gain hard

facts about user satisfaction with the major software services in the marketplace. A yearly Users' IT Prize contest has been held since the year 2000. Since 2002 the User Certified 2002 certificate has been issued to software suppliers who have passed the certification process developed by the research consortium.

Donald Norman, the former software design manager at Apple, HP, and UNext, sums up his design philosophy in the epigraph of his book Things that make us Smart, "People Propose, Science Studies, Technology Conforms." This is a sharp criticism of what Norman claims to be the dominant division of roles today, that industry proposes, science studies, and consumers conform. The critique is elaborated in the book The Invisible Computer where Norman argues that 1) the typical computer user the last ten years has been a person with substantial technical expertise, 2) that, due to the fast dissemination of IT services, the typical user in the coming years will be a person without technical expertise, 3) that this will force a fundamental reorientation upon the hardware and software industries, bringing policies of user orientation to the fore.

Donald Normans analysis of the role of end-users has been one of the inspirations for the UsersAward initiative. Another inspiration, that to some extent has proven Norman's point, is the successful TCO environmental certification program of Visual Display Units (TCO'92, TCO'95, TCO'99) that today cover more than half of the global production of VDUs, (see Users' quality certification, below). The following "proactive social forces" can be identified, in order to analyse how end-users can influence the long-term quality of software in workplaces and offices:

- User groups complain about recurrent software problems and point out alternatives,
- popular media inform the general public about complaints and alternative solutions,
- research groups study the complaints and invent solutions,
- trade press scrutinise the research results,
- national media comment the research results,
- user oriented software suppliers implement proposed solutions,
- regulators and standards organisations confirm principles behind the solutions.

*Solution:* Support initiatives in workshops, offices, schools and universities to articulate user requirements for the software you work with. Take part by formulating concrete demands that enhance the quality of the software you use in your group. Make it fit the decentralized teamwork organisations of tomorrow. If a Users' IT quality centre already exist in your region, support it by participating in its many activities. If it does not exist, take part in forming one.

*Related patterns:* From APL [1]: Network of learning, University as marketplace. From this proposed language: Users' quality centre, Users' quality research consortium, Users' quality certification, Users' quality conference, Users' IT prize contest, User survey.

### **Summary of patterns that support Users' quality network**

#### *Users' quality centre \**

*Problem:* Employees have a very limited negotiating power as isolated individuals against hardware and software suppliers. The lack of media channels for expression of user preferences further weakens negotiating power in domains where independent measurement and critique is hard to access.

*Forces* (in terms of "proactive social forces", see the supported pattern Users' quality network):

- Local work-groups complain about usability problems and propose solutions
- local and regional union or professional associations help shape new demands
- regional and national bodies debate, initiate research, and decide on policies
- national and international bodies take contacts and form alliances

*Solution:* Initiate, join, or support national and international professional or union organisations where shared user demands are expressed through coordinated membership activities.

#### *Users' quality research consortium \*\**

*Problem:* Quality arguments and evaluations always depend on underlying social values and world-views. In order to make these underlying values transparent, they have to be contrasted to conflicting values. The way of the university is to make this reasoning in an open and traceable manner. But the way of the marketplace is very different, and often more influential.

*Forces:*

- Researchers at the edges of neighbouring disciplines meet
- user groups, usability experts, and software suppliers take part in practical projects
- interdisciplinary research-groups with participating practitioners articulate shared usability problems
- alternative solutions get tested, analysed, and documented

*Solution:* Initiate, join, or support activities in university and research settings where the match between user requirements and alternative technical and organisational

solutions are empirically tested, discussed and documented from a range of scientific perspectives.

#### *Users' quality conference \**

*Problem:* IT conferences seldom focus on the pressing quality issues of IT services at workplaces, offices, and schools.

*Forces:*

- software suppliers present new, useful features and architectures
- user group present experiences from new services and debate them in group discussion
- researchers report new findings and debate them with users and suppliers
- the media reports about old and new quality debates

*Solution:* Arrange local quality conferences or take part in the Users' quality centre's work to arrange regional and national conferences about the pressing IT quality issues of the day.

#### *Users' quality certification \**

*Problem:* Due to the rapid development of information technologies, the public agencies whose role it is to watch over quality performance – journalists, researchers, standards organisations, regulators – have difficulties to reach consensus about quality deficiencies and to validate solutions to common problems in IT software.

*Forces:* The TCO Labels (TCO'92, TCO'95, and TCO'99) are today tagged to more than 240 million Visual Display Units, representing more than half of the global market for display units. It was initiated by the white collar workers trade union central, TCO, and is regarded as one of the most important Swedish IT innovations during the 1990's. UsersAwards software certification is a direct follow-up of the successful TCO initiative. It is the most research intensive activity of the Users' quality network. The quality criteria that underpin the certification are based on a long-term research effort and by an ongoing dialogue between researchers, service providers, and user panels throughout universities, industry and user networks. Service providers that register a particular service for certification has to make a self-declaration of their software, go through a hearing with certification staff and get their software-in-use scrutinized at three independent sites through a standardized interview and questionnaire procedure.

*Solutions:* Support initiatives in which user organisations such as trade unions, professional associations or consumer organisations work together with research organisations in order to label software products or services on grounds of publicly declared measurements.

*Users' IT prize contest \*\**

*Problem:* In the markets for workplace software and services, the experiences and demands of end-users do not receive much attention, although it is their needs most stakeholders tend to see themselves as representatives for.

*Forces:*

- the quality centre invites employees from industry, the service and the health care sectors to take part in the contest
- employees nominate their favourite software by filling out questionnaires about its features and its everyday use
- a user panel at the quality organisation selects which nominees should be visited, visits them and interview users and employers about how the software is used
- the user panel presents their inquiries to a jury of independent, trusted IT personalities who select the winner(s)
- the quality centre arranges the award ceremony at a Users' conference where all finalists get to present their use of the software
- the media reports from the event and the winning software supplier(s) refer to "the voice of the user" in advertising about their ultimate quality label, proven user satisfaction

*Solution:* Initiate, or take part in the already ongoing work with IT Prize contests in your own community. If a Users'

IT quality center does not exist, work to form one. If it does, help to spread the word about the Prize, take part in reviewing the nominations and organising the final event where the nominees are presented.

*User survey \*\**

*Problem:* The prerequisites for perfect market competition is largely absent from the market for workplace software, a fact that makes customers and end-users dependent on other interest groups as far as expressing their demands on a fair quality at a fair price.

*Forces:*

- the quality centre periodically initiates, plans, and performs user surveys in cooperation with consumer, professional, and/or trade union organisations
- the participating user organisations send out questionnaires or present them on their respective web sites
- users of all kinds respond to the questionnaire, read about the results, and engage in local usability activities

*Solution:* Create or support initiatives in which research-based organisations and user organisations work together in order to measure and communicate concise, relevant information about the quality of software in use.