Design Processes

Learning from Associated Professions

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DESIGN PROCESSES – LEARNING FROM ASSOCIATED PROFESSIONS

SYNOPSIS

Inspiration for most research and optimisations on design processes still seem to focus within the narrow field of the traditional design practise. The focus in this study turns to associated businesses of the design professions in order to learn from their development processes. Through interviews advantages and challenges of agile processes in mobile software and web businesses are identified. The applicability of these agile processes is discussed in regards to design educations and product development in the domain of Industrial Design and is briefly seen in relation to the concept of dromology and emerging production methods.

Keywords: Development processes, Agile processes, Flexible product development, Iterative cycles of sprints, Products in perpetual beta, Changeability.

INTRODUCTION

Throughout the years great efforts have been made to clarify and describe the various elements in the process of designing, and design educations all over the world have benefitted from this in the teaching of the enrolled design students, preparing them for the real world of fast paced design practises. But even as the needed design and management skills of the next generation of designers are as numerous as never before, the research and optimisation on design processes still seem to focus within the narrow field of traditional design practise.

Furthermore, looking at the last one year it has also come very clear that the design profession is extremely fragile and vulnerable to financial deflections as we have experienced during the recent and worldwide financial crisis. Some would say that the explanation to this

has to be found in the fact that design is purely a luxury good, and therefore the first element to leave out when funds are low. The inherent stance in this paper is to believe otherwise. Design is important, and it will continue to be it even during crises and beyond year 2050. Without putting too much emphasis on this, let's just make it clear: Design shapes our lives, and the quality of design profoundly affects the quality of our lives.[1]

In the considerations about how to strengthen the design profession and its robustness towards future challenges, we turn our attention towards other professions dealing with similar processes of creation in order to learn about their way of working. This is initiated believing that we, as a design profession, can learn from these associated professions when it comes to robustness towards the state of the market and the future in general. Implicit in this idea underlies a notion of some weaknesses in the way we, as designers, organise our working process, but equally important to mention is the fact that this study is also motivated by a positive curiosity in learning from others and thereby improving our own way of working within design.

Recognising the fact that there are a large number of professions loosely related to the area of design, dealing with similar and even overlapping development processes, interviews of a number of professionals in peripheral businesses of design are performed. Spanning from a movie director to a mobile software developer and others, it has thereby been possible to gather data on their respective design processes.

The findings from the interviews show trends and similarities in the workflows of the different professions, and they reveal possible elements suitable for being applied to the traditional design profession.

METHOD: DRAW YOUR PROPLEM-SOLVING PROCESS, PLEASE.

The data for the study in this paper has been collected through a series of four interviews with professionals representing a spectre of different businesses selected in accordance to several aspects. A high priority and selection criterion has been to involve representatives from very diverse professions doing work ranging from highly artistic activities to very restrained projects within highly technical domains. This is preferred in order to include the wide field in which the industrial designer normally navigates. Another priority and selection criteria has been to include both traditional as well as relatively new professions in order to include a presumed variety in ways of working.

From these priorities the following interviewees were selected:

A CASE	**THE ARCHITECT** Nordahl Architects	Describing the process of developing a residential house
B CASE	**THE MOVIE DIRECTOR** Working freelance	Describing the process of authoring and producing a short movie
C CASE	**THE WEB DESIGNER** Advice Digital	Describing the process of developing a website
D CASE	**THE PROJECT MANAGER** Nokia software development	Describing the process of developing mobile software

Fig. 1

The selected interviewees are asked to communicate their respective development processes with pen and paper, thereby forcing them to depict the process in a graphic form.

FOUR DEVELOPMENT PROCESSES

During the interviews with the four representatives from four different businesses we have succeeded in getting their own graphic illustrations of their respective development processes. In the following these processes are briefly described supported by figures. It is important to mention that the development processes described below by no means are general to the businesses but solely depicting the processes of the four interviewees in the current study. This, however, does not make them uninteresting in our attempt to learn from these professions.

CASE A: Developing a residential house

As Donald A. Schön states in his work *The Reflective Practitioner* that the architect profession is maybe one of the oldest and acknowledged professions within the broad field of design. In this regard, the development process of the architect can be seen as a prototype to the general design process.[2]

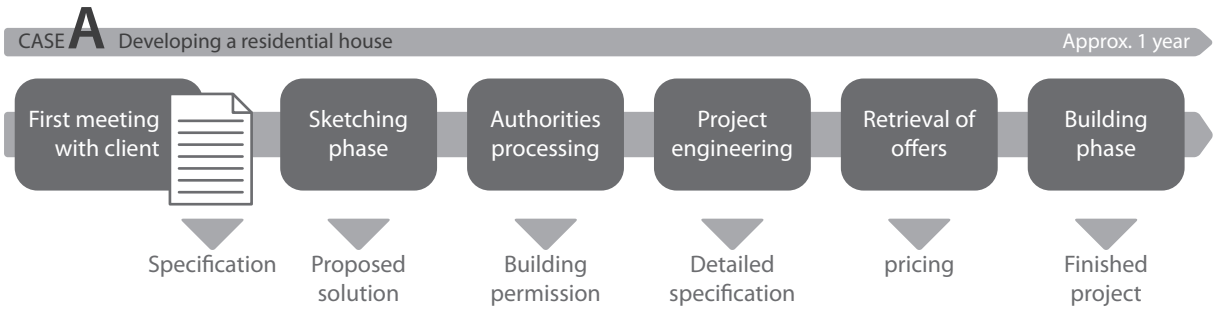

Fig. 2

The development process of a modern architect has obviously changed and is still changing in order to adapt to surrounding influences, but figure 2 shows a rather sequential process from project specification to finished product. The process is representing the Waterfall model. The specification from the client is static and forming the process from start to finished result.

CASE B: Authoring and producing a short movie

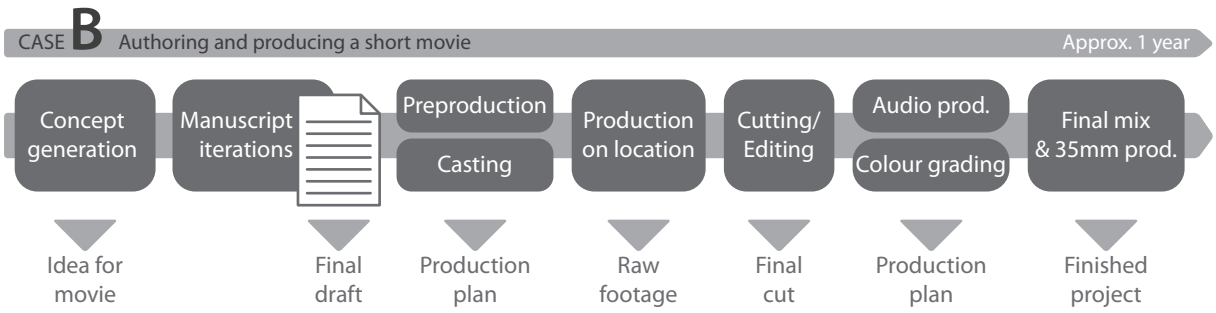

Fig. 3

In case B we meet a writing movie director. Apart from the first stages, this development process is similar to the one of the architect. As a writing director he is not only “architecting” the movie, but he is also developing the governing manuscript. After deciding on the “final draft” of the manuscript (the specification) some parts of the following development process are performed in parallel. What characterises these parts, however, is that the parallels are not mutual independent. They do not directly influence one another although they are all parts of the final result.

CASE C: Developing a website

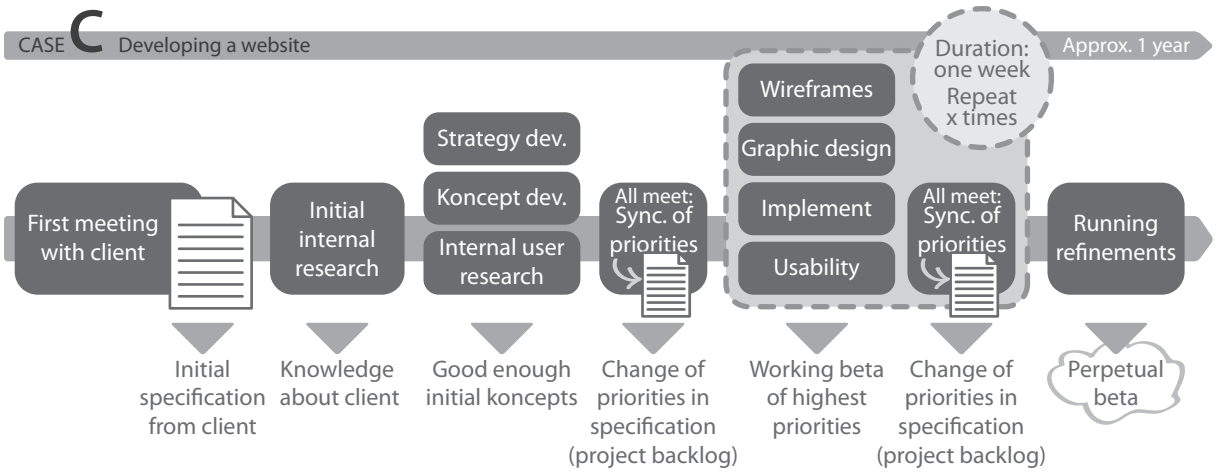

Fig. 4

Looking at the development process of a website in Case C, we see an increasingly complicated process characterised by many mutual independent part of the development being performed simultaneously. Another significant difference from Case A and Case B is the project backlog – a dynamic project specification with priorities changing from week to week according to the changing end user needs and client enquiries. Furthermore, the development process is highly iterative and client-involving. The project's cross-disciplinary team is working closely together and high priority features are simultaneously designed, prototyped, usability tested and implemented within the extremely short "Sprints".

CASE D: Developing mobile software

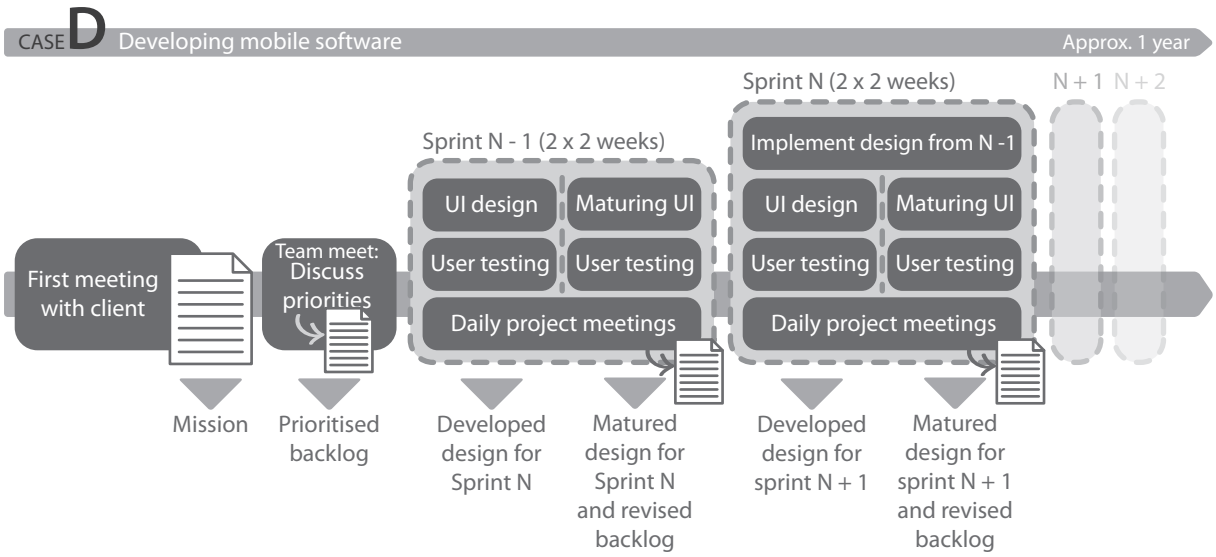

Fig. 5

As in Case C the governing concept in the mobile software development process is a series of short cross-disciplinary iterations with a very high level of team communication. The daily project meetings gather the 25 team members and ensures consensus about priorities and progress in the project. Furthermore, in this case exists a balancing of developing and maturing features in two-week intervals within an overall cycle of design and implementation. The backlog is dynamic and the prioritising of features to be developed is managed in cooperation with clients (internal client and product marketing groups).

Similarities and differences:

The four development processes laid out above are all roughly running over one year, but this is probably where the similarities end. We notice a growing complexity in the development processes from Case A to Case D ranging from a sequential process in Case A to agile development processes with iterative phases of simultaneous and mutual independent parts in Case C and D. These iterative phases are short and followed closely by clients that are

highly involved throughout the development process. When looking at the initial specification, that to some extend are present in all cases, it is evident that there is a shift from a rather static specification in Case A and Case B to very dynamic backlogs in the cases C and D. The pattern repeats itself in respect to user involvement during the development processes.

DISCUSSION: WHAT CAN WE LEARN?

Obviously there are differences in the studied businesses that dictate the ways of working. The development processes from Case A is a streamlined and agreed upon process influenced externally by authority processing and building standards proven by many years of tradition. In the business of website development as in Case C, the demands and user trends often moves faster than implementation through traditional Waterfall models, forcing development teams to find new ways of working. When considering the various ways of working from a modern industrial designer's point of view, there are a number of aspects from the study to dwell upon. In the following we will make an attempt to identify these aspects.

Learning 1:

MARKETS AND USER NEEDS WILL MOVE FASTER

The development processes in the software and web industries described in the cases C and D are chosen in order to accommodate the rapidly changing markets and shorten the development time. Rapid changes have traditionally been explained as paradigm shift, and to some extend the explanation can be applied here. One could say that we are experiencing a paradigm shift in the way we communicate with each other as result of new digital technologies.

To get an idea of how this change will influence other areas of design, it is useful to look at Dromology – the science of speed founded by the cultural theorist Paul Virilio. The core concept of Dromology is that the speed of a development will always attempt to rise, and that the organisation of the world changes with this acceleration of speed. According to dromology we will therefore see other markets than just the ones within software and web change faster.[3]

In a near future perspective a consequence of this is that designers have to be able to adapt to faster changing markets and user needs in order to continuously develop successful designs. The nearby industry of fashion is a living example of this.

Learning 2:

PRODUCTS IN PERPETUAL BETA

As stated above, the fast moving marked is already a reality in the domains of mobile software and especially web. In the last few years web developers have overcome this by continuously releasing beta versions of their web services in order to reach the markets in time. The trend is part of the concept coined as Web 2.0 by Tim O'Reilly[4] in 2005 and this way of development allows for instant and continuous improvements based on user feedback.

Again, assigning the learnings from our casestudies to the domain of industrial design while also taking the consequences of dromology into account, this concept of products in perpetual beta could prove useful. Acknowledging product as being in the state of perpetual beta is fundamental to continuous improvements and market alignments. Even though not a new aspect of the typical industrial design process, users as co-developers are increasingly important as markets and user needs change more rapidly.

Learning 3:

FLEXIBLE PRODUCT DEVELOPMENT

Seen in the light of the learning 1 and 2 the methodologies of upfront planning of a development process seem inadequate. In a moving market the product of a traditionally planned development process will fail as demand has moved. On the other hand, the agile processes from Case C and Case D with their built-in dynamic backlogs allows for products in perpetual beta and are therefore interesting if adaptable to other areas than software.

Adapting this flexible and iterative way of working to the area of industrial design would furthermore change the paradoxical relationship between knowledge production and decision influence as shown in figure 6. Through the iterative process of short sprints and the continuous prioritising in the dynamic backlog, the large hump of influential decisions can be spread across the whole development period.[5]

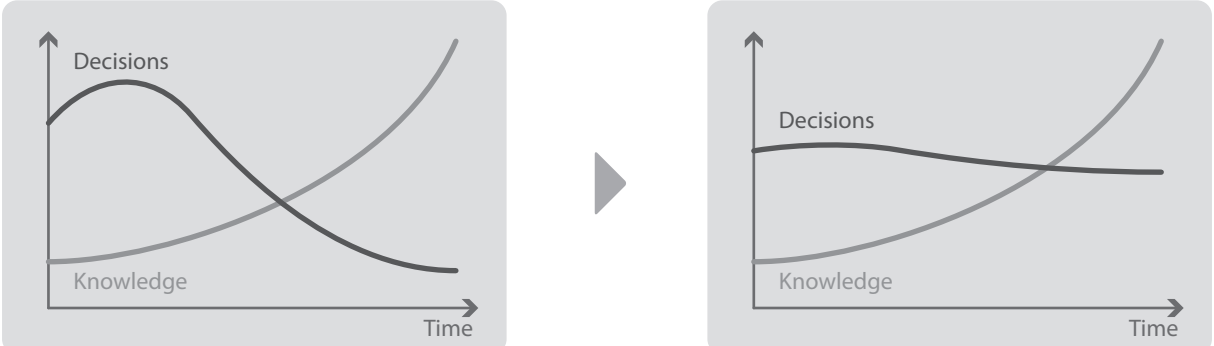

Fig. 6

With supporting technologies, such as rapid prototyping, a process of ultra short prints on high priorities including all phases from rough concept to physical and working prototypes is not fiction. Additionally, the promising rapid manufacturing technologies might get us closer to physical products in perpetual beta being continuously improved in same way as done in the domains of web and software through numerous smaller releases.

CHALLENGES

In the learnings above, the agile processes from software and web development are considered applied on product development in the domain of industrial design in order to secure fast development and a continuous market alignment.

Although these thoughts are interesting, there are some implications to overcome. In Case C and D where the agile processes are found, the development teams are challenged in new ways. The interviewee in Case C refers to reluctant team members preferring traditional ways of working and hesitating to commit to the new process of development. The interviewee from Case D also notes that the highly dynamic prioritising of tasks and short sprints over long periods influence some team members negatively. Furthermore, the cross-disciplinary and highly team oriented ways of working invoke generalist rather than specialists as team members are forced to communicate closely together and thereby relate to other parts of the development outside their primary expertise.

Another challenge in adapting the agile processes to product development in the domain of industrial design considers the client relationship. The agile process requires a high level of involvement from the client. Meetings with the project team are usually scheduled every week during long periods and it can be difficult to allocate that kind of resources. Lastly, as learned in Case C, the clients experience difficulties in establishing funding projects that fall outside traditional project progress.

CONCLUSION: TOWARDS “CHANGEABILITY”

In this study we have looked at four different businesses and not surprisingly identified differences in their respective development processes. As the most significant finding, we have seen how some businesses are turning towards agile processes as a result of faster moving markets and a demand for shorter development and implementation cycles. This has resulted in project teams working with dynamic backlogs rather than only the initial and static project design brief and projects structured in sprints of durations from one to four weeks.

We have also learned how the software and web products hence the dynamic backlogs and project sprints are continuously improved and recognised as perpetual betas.

Returning to the initial scope – the claim about a fragile design profession – this paper indicates that we might benefit from looking towards other professions and learning from their ways of handling accelerating markets and changing user needs. Considering the findings in the current study in combination with new and emerging production technologies the product development within our own domain of design seems to go towards “Changeability”.

The trends is probably allready affecting the practising designers of today, but will almost certainly affect the next generations of designers to an even greater extend. Therefore, as an ending point of this paper is the encouragement of preparing design students for accelerating markets. Maybe, one way of doing this is to find inspiration and tools in faster moving industries as done in this study.

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