Philosophy of Design or Design of Philosophy?

How scientists/engineers and artists can work together in co-designing a better world.

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"There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy"

Hamlet – Prince of Denmark, Act 1, Scene V

Abstract

Many artists and scientists/engineers struggle to work together in design. This is evident in IT, Architecture and many other areas. But they often end up in conflict. The paper presents an approach, the Ideal Oriented Scenario that has proven itself in practise and discusses a possible philosophical foundation.

The Aesthetics- Rationality dichotomy is often claimed to be the root of the problem. Aesthetics favours Uniqueness, while Rationality seeks the General. The conflict between the two often makes collaboration between artists and engineers difficult. To deal with this, the scientists, in vain, try to rationalise Aesthetics. The artist's on the other side bitterly resents and often sabotage formal methodologies. The Ideal Oriented Scenario, which uses a first person account of a persons experience with the artefact to be designed, has proven to be a vehicle for collaboration or Co-Design, letting the Aesthetics and Rationality be complimentary, rather than in conflict. Using fiction to build a scenario of an existing or invented persona allows for Aesthetics in the design. The scenario is open to analysis and generalisation and therefore can serve as "specification" for scientists/engineers. A way to understand the usefulness of the approach is that it allows for co-existence of Uniqueness and Generality in the co-design process.

My background

I have for many years lead collaborations between professionals with mixed background and training as CEO of the consulting firm Unusual Systems and project manager. My own background is also mixed, starting out as rock musician during high school and college, I've have a degree in informatics, including training in computer science, mathematics, and business administration. I mention this because a lot of the practise I will build this paper on is my own first hand experience.

During my mathematics studies I came across computers, who were large, dull and boring. But just a few years later something happened, lots of interactive computers came along, most well known is of course the Macintosh, but at the university there were a lot of other cool machines, lisp machines, small talk machines, etc. Suddenly computers were interesting to. With these you could change the world, or so I thought. These led me to do my "master thesis" (or the Swedish almost equivalent) and the Swedish Agency for Administrative Development, testing new ways to work within the government. The computer people there, however, were focused on adopting the technology to the way people worked in the government, which was very strange to me. The whole idea for me was, and is, using technology to *change* the way things are done! I did, however, find people in the private sector who were interested in doing both new things and in new ways, so I started Unusual Systems with the aim of it being the consulting firm for these people.

Around 1990 the need for an "artistic" perspective in computer systems development became evident in Unusual Systems. More and more of the systems we designed and built were used by organisations to communicate with their customers. Therefore we hired our first full time "artist" to work with user interfaces, graphic design etc.

The 10 years until I left the firm, with an "artistic" department of 5 full time artists and a number of "interface" programmers who were in a sort between the "artists" and the "real programmers", was a tour de force with many sleepless nights and a lot of fun. I have had the opportunity to work with interesting challenges in organisations like ABB, Volvo, IKEA, SEB, Telia, The Swedish Pharmacies, UC… I suppose they unknowingly became guinea pigs for the design of my design approach.

For the last ten years I have also attended various scientific conferences, learning much about the scientific perspective of my struggles.

Introduction

> In classical philosophy it was common to divide the task of the philosopher between into considerations of the meaning and significance of The Good, The True and The Beautiful. [1]

This paper concerns the practical and philosophical dealing with the interaction between two of them, The True and The Beautiful. Since my experience has been mostly with large corporations and the aim of earning more money, an aim that seldom recognises other ethical considerations. I acknowledge the limited ethical considerations in this paper.

I will intentionally (and sometimes probably unintentionally) mix the more traditional scientific language and form, with a more personal tone. This paper is suggesting, amongst other things, the usefulness of this mix.

The paper uses a design approach where it's reflecting upon practise in several case studies and the philosophical suggestions mentioned above, aiming at producing useful knowledge and suggestions for designers, engineers and philosophers.

This means that I will as a writer shift between the Aesthetical and the Truth ideals. I will further comment on this at the end of the paper.

Arts and Science

There seem to be fairly commonly held view that arts and science are to two disjunctive activities. For instance in Aant Elzinga's "What is science?"[1], he presents "design and artistic developments" as "non-scientific elements in an activity". In the text he states the following, which I take as his reason for this:

> [Science] is characterized by systematics, articulation, repeatability etc. That is, that other researcher with similar starting points should in a given situation or experiment reach the same result.[2] [My translation]

Bo Dahlbom, Professor of Informatics observes:

> "The idea of science is wonderful and it is wonderful outside as well as inside science. This idea lies at the heart of modern Western civilization. It is our idea of rationality: of keeping to the subject, not straying into irrelevancies, of respecting evidence and reasons, of striving for objectivity, and getting down to business in a methodical fashion. This idea is as important in police investigations, in court, government, education, medical care, industrial production as it is in science. This idea can be summarized, as the philosophers of the Frankfurt school want to summarize it, as an ideal of instrumental rationality. But then one has to remember that underlying this ideal, and more important than this ideal, is a belief in the order of the universe. The universe is a clock work." [5]

Science is preoccupied with rationality, and rationality in seeking the general. The ideal is universal laws that describe stable relationships and repeatable phenomena. This rationality is not only the ideal of science but also of large parts of society, industry and engineering.

Art in the other hand is claimed to have a different ideal. First of all: Many artists resent definitions of art and creativity at all. Churchman states:

> Artists themselves tend to be frustratingly uncommunicative: if you don't see that this is a marvellous sculpture, a painting with a zing, a far out dance, then nobody can tell you so, and your failure to do so is sad but irrelevant. [1]

I have the same experience, nothing annoys many artists more than discussions on creativity and Aesthetics. He goes in on in the chapter on Aesthetics to deal with the undefinable nature of Aesthetics.

[1] Elzinga, Aant, *Vad är vetenskap?*, University College of Borås.
[2] Ibid.

> But suppose now that that which has alls these qualities declares that the act of trying to define them is unaesthetic – that is, it spoils the aesthetic quality [1]

This point is also made by Rem Koolhaas (architect and Professor in Practice of Architecture and Urban Design at Harvard Design School):

> Convergence [generalisation] is possible only at the price of shedding identity [uniqueness][3]

This is captured in the Swedish idiom "att prata sönder kärleken": "Destroying love by talking too much about it". Nevertheless Churchman states that a reasonable thesis is that the prime quality of experience is uniqueness. His struggle with finding a way to deal with aesthetics, and still not violate it, is crowned by stating:

> The force of the aesthetic image of uniqueness, and the pervasive, noncognitive quality that aesthetics generates in our experience, make a "theory of aesthetics" note merely a contradiction but an anathema. [1]

Obviously both his and my text is a violation of this notion of aesthetics, since we are trying to find a useful description of the qualities of Aesthetics. But there is more than one way to do this. The first would be a *Philosophy of Design* that tries to find a scientific, rational explanation of Aesthetics. This way would be a genuine violation of Aesthetics. Another way, which I will take, is to try *Design of Philosophy,* rendering a philosophy that allows for the co-existence of Aesthetics and rationality. (Which was Churchman's aim too, as I understand and knew him, using his "sweep it in" strategy.)

Therefore I choose to view the sides of the dichotomies Aesthetics and Rationality and Uniqueness and Generality as complementary rather than conflicting.

"Artists" and "Scientists/Engineers" always in conflict?

As indicated above I see rationality and aesthetics as different ideals. I don't recognise that persons belong completely to either side. The stereotypes say that "artists" are irrational, creative and above all Aesthetics; the "Scientist/Engineers"[4] are methodical problem solvers and above all Rationalists. My experience is quite the contrary. Member of both vocations have all of those characteristics. This should be no surprise as they are first and foremost human beings.

The people I met in my computer science training at the Royal Institute of Technology in Stockholm had very well developed Aesthetics for computer programming. Some of it was based on useful experience, for instance the dislike of Go To-statements, since its makes debugging difficult. But there wore also purely aesthetical considerations. For instance recursive programming was considered cool in the 80:s. At a certain time I wrote the shortest recursive program that could identify palindromes in a text. This rendered me admiration and credibility. But what was the use? None, the shortness of the program was a totally irrational and useless quality. But I still know the feeling that is was beautiful, it was actually beautiful!

[3] Koolhas, Rem and Mau, Bruce. (1995). *Small, medium, large, extra-large : Office for Metropolitan Architecture*. Monacelli Press. New York.

[4] In this context the grouping of "Scientists" and "Engineers" is based on engineering's strong roots in the scientific community, ideals and methodology.

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I had a printout on my wall for years. This is just an example, but writing programs were considered an art and held lots of aesthetics. And theses aesthetics were very important to many computer scientists. The Intel PC processors were disliked because they had an "ugly" memory organisation, while Motorola's were considered "clean" and "nice". Such aesthetics have a greater impact on IT-strategies than most executives will ever know.

Aesthetics is also often appreciated in the most formal of theories, mathematics and logics. Just consider Fermats famous last theorem. He wrote about this in 1637 in his copy of Claude-Gaspar Bachet's translation of the famous Diophantus' Arithmetica:

> I have discovered a truly *remarkable* proof but this margin is too small to contain it. [My emphasis.]

One would have thought that the existence of any proof for the theorem would have been enough, but here Fermat points to the aesthetic quality in his particular proof.

Many of my mathematics teachers wore talking about beauty in proofs. Especially I recall a professor teaching a theorem in algebra, a theorem that would be "nice" if it held, but from the face of it probably did not. He spent the whole morning preparing with corollaries, still with no indication of a proof. Then he took a break, during which he was almost jumping of excitement. At last he would put the proof as a single line of the blackboard and sigh: "Isn't it beautiful?"

So aesthetics' is not something that is lost on scientists and engineers.

The same goes for rationality and artists. Many artists are famous for their strong adherence to a particular process. One graphic designer stated to me:

> My ideal process is that I start with the client brief, and then I leave it to 'incubate' for two weeks. At that point I produce a number of very different ideas, which I present to the client. The favoured one I work out in detail. I get frustrated if my process is altered too much.

Architect Frank Gehry, well known for amongst others the Guggenheim Museum in Bilbao, says:

> Consequently I'm designing with specific conditions and I don't go out of bounds. Because you know, when you design without knowing the boundaries, you find a form and you become enamoured with it. It crystallises. It's a fixed image. It's really hard to go back and cut, cut, cut. But if your cutting as you go, you don't get fixed until you know you can do it. When your fixed, your fixed. You know you can afford it.[5]

Gehry has worked a lot on changing the entire construction process, reducing the need for en an external executive architect and established new kinds of relationships to sub-contractor. Things he claim absolutely necessary for being able to realise his buildings.

So rationality is not lost on artists.

[5] Friedman, Mildred. (1999). *Gehry talks: architecture + process*. Rizzoli International Publications, New York.

Therefore Aesthetics and Rationality should be viewed as ideals, and not a base for categorising people. People are of course born, raised and trained in relation to ideals. Consequently individual's will/can have a disposition for different balances in their ideals. (I myself was born in an engineering oriented family; both my father and brother are engineers, and strongly favouring rationality in their work. But I have gradually during my life shifted my position towards acknowledging the value of Aesthetics of and in my work as a consultant.)

When I refer to "Artists" and "Scientists/Engineers" in quotes I refer to their professions and the role they are trained to take.

People seem to be able to work with both ideals co-existing, on their own and in their life. It is when working together, in professional roles that this co-existence often disappears and even seasoned professionals fall into swearing by one of the ideals only.

The Ideal Oriented Scenario

During the early nineties my company and I were working in the field of Market Oriented IT, partnering with Volvo, IKEA, Pharmacia in developing new ways to use IT in customer relations as well as developing new ways to develop IT systems used in this particular situation. An important input to that work came from Olov Forsgren [3] and several universities like Umeå and Linköping to mention a few. The challenge was to a large extent how to involve new groups in IT systems development, groups that had never been part of those projects before, particularly people with a background in marketing, sales, advertising, graphic design, as well as the companies' customers and clients. When these groups were brought into the IT projects there were many clashes, especially between the "marketing people" and the "technology people". During three years I was the project manager of an industry/university consortium that was working with finding a way to run this type of project successfully. A part of the result is called the Ideal Oriented Approach [2].

The ideal oriented scenario [2, 3, 4] is a fictional first person story, describing the person's life and what it becomes like, when the artefact to be designed is ready and in use. The idea is to make a fictional story that captures not only the artefact itself but also its use, as well as its effects and consequences. The ideal orientation points at the use of people's ideals as a driving force in innovation. In this text "artefact" means physical objects, but also ideas, concepts, services, theories, etc. Any human invention would be an artefact. [5]

A basic idea is that innovation based on extrapolation of the current (historical) situation often become too limited. There will be too many implied constrictions. On the other hand future scenarios with few limitations tend to be utopian and unrealistic. The ideal orientation addresses this by focusing what really *could* be done today, with little concern for how things *are* done right now. It's the right now ideal situation, without assumptions on future developments, and little respect for history.

The Ideal Oriented Scenario is not the only approach using thinking like this. Architect William Alsop states:

> In order to avoid the trap of preconception, I prefer to talk about behaviour rather than functions. Behaviour is a less precise word which allows me to understand what people actually do in a building as well as what they are supposed to do.[6]

Case: The SEB Internet Branch Office

In the mid nineties the SEB bank in Sweden started a program called "K2". The banks management had come to understand that in order to maintain the service level customers would expect, using the same branch office based service model, would require them to have 2000 offices. At that time they had around 350 offices. Realising that competition was likely to force them to lower the cost of service, they seemed to be caught between a rock and a hard place. The aim of "K2" was to come with ideas to dissolve this hopeless situation. My company and I were engaged to look into if PCs could be utilised in this.

Today bank services on the Internet are widely used, and many of us have to think hard to remember what is was like before. But in 1995 the idea of an Internet Branch Office (IBO) was not that obvious.

At the start of the project we where presented with many different perspectives:

- Various employees of the bank would go into lengthy descriptions of the complexity of the banking business and maintained that even ordinary people would of should have several different accounts for different purposes. Each department did emphasise their own importance in the overall business of the bank.

- The bank's IT people would show us maps over the IT systems flora (or should one say fauna?). They stated the integration of different services was more or less impossible or at least very expensive.

- The security department did, when the possibility was brought to their attention, explicitly forbid us to even consider transactions over the Internet.

- The marketing people were concerned with how the digital medias would impact the customer perception of the bank.

- Of the customers only ca 2 percent thought that electronic self-service was important when choosing a bank[7].

We started by constructing a scenario. But what do people do that involves their bank?

The most frequent service was paying their bills. The customers pay their bills 12 times a year, other business like house mortgaging or loans only happened once every 2-5 years.

So we would design an ideal scenario, a story of a customer sitting down on a Sunday evening after football on the TV to do some work on hers/his PC at home and pay the bills. The scenario would allow the customer to make payments in advance so that the system performed the actual transfer as late as possible. The process of paying was extremely simple.

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[6] Steel, James. Et al. (1994). *Architecture in Process*. Academy Editions. London.
[7] *Kundmonitorn, Bank och Försäkring*, 1995, SIFO

The scenario raised a lot of questions within the bank. Are payments really that important? How could payments on the Internet be secure? What do the visual presentation of a branch office look like in a pc? What feeling do we want the whole to create?

A workshop resulted in a lot of homework for different departments. The advertising agency started working of visual concepts. Marketing people were trying to decide if the general feeling should be modern or trustworthy or both? The IT department started looking into which systems and processes that needed to be involved. A separate project on Internet security started. The branch office people started worrying about what would happen to the physical branch offices.

The outcome of the work was brought into the scenario, giving lots of details. The scenario would also include the role and services at the physical branch office. A prototype was built based on this new scenario, including the visual concepts. When testing prototypes with customers they would claim they felt more comfortable when using the computer systems, since they would see that there where actually enough money in the account. They stated that this comfort was well worth the extra time it took to start and connect the PC.

Asked about security, they said security was very important, but not in the way the bank thought. The Customers didn't care about theft or intrusion, that was the bank's problem; they were only concerned with whether payments they thought they dealt with actually were processed. What if the computer crashes or the connection hangs up? The customer would also state that they felt the PC thing was definitely modern and hi-tech but it shouldn't be hi-tech in the sense that it had lots of knobs and switches. Hi-tech should mean that it was automatic.

New workshops were organised where a lot of issues were designed during the workshop and others were put up as tasks. These workshops would always include people from marketing, IT and business departments. These lead to the payment process being actually more complicated, but transparent. The customer would know the exact status on any payment, even the computer faulted. In other parts a lot of "bank jargon" was stripped away in favour of directness and simplicity. So the design of the IBO was not an "imitation" of a physical branch office, nor was it futuristic. It became an office type of its own. Neither oak panelled walls nor Star Trek.

Later the scenario would include basic stock market trading and a few other services that were easy to build and helped give the image of a more complete branch office. It did also include cross-organisational matters so that the whole bank could be prepared to respond better. At this time the IT-department realised it could use the integrations mechanisms developed for another project, thereby saving more than a million dollars.

The goal at the launch was to have 10 000 customers using the service in a year. It took 3 weeks to reach the goal. After a year more than 100 000 customers were using the Internet Branch Office, which made it the most successful in the world.

Discussion

The case illustrates that many professionals including engineers, designers and business managers could work together with the ideal scenario. The designers did not feel alienated they often would feel in traditional IT projects. The IT people could use the scenario as a requirements specification. Therefore the Ideal Oriented Scenario did satisfy both the Aesthetical and the Rationality ideals. I will here discuss a few questions and problems that can be noted.

Does the Ideal Oriented Scenario approach constitute a Rational methodology or is it fundamentally Aesthetical?

I don't think it should or could be a "formal" methodology. There will always be un-scientific parts of the successful application of the approach. There is certainly no guarantee that great ideas automatically emerge in the process. Therefore I don't think its lives up to all the Rational ideals. On the other hand I don't see its as Aesthetical in sense that its qualities are necessarily lost when talked about or defined. But clearly there is more work down this path, for those who which to venture.

Does it represent a philosophy without Ethics?

I do, again, acknowledge the lack of ethical considerations in this paper. The ethical stance, at least from the case seems to be: Whatever the customer and the corporation likes, is good. The openness towards different perspectives, however, should indicate that it's possible to introduce more stakeholders than in the SEB case. The whole Ideal Oriented Co-Design approach does address the necessity to select stakeholders, which forms a possible ethical dimension. [4]. But this an area that needs more attention, how do one deal with ethics in a case like this?

Isn't this just another rational methodology?

Since it does not live up to all the Rational ideals it's not a "scientific methodology". That does not automatically make it "Aesthetically good". But since the approach is open and does not a priori divide, define or put a hierarchy on the scenario, it allows Aesthetical qualities. These may well be destroyed later in the process; there is no guarantee that the originator of aesthetical qualities will have the last say. But it does not suffer the shortcomings of traditional scientific methodologies, where the demands for generality, order, hierarchy and division destroys the Aesthetics. But where do we draw the line?

What about completeness?

There is no guarantee that the scenario will be complete in a formal sense, so the use of it as a rigorous requirements statement is problematic. As of today this has to be dealt with by the design process leader. When is the scenario complete enough? At which point, if at all, do the project start using other artefact description languages and methodologies? These questions are not addressed in this paper.

What is the role of the Designer

Who is the Designer? How is the process run and who are to run it? Is a democratic process? The role of the designer is very important. Only approaches and methodology swearing by total Rationality would claim to be completely person-independent. This issue is however beyond the scope of this paper. An incomplete suggestion can be found in [6].

The Design of Design?

Since it's less formal, the first thing an Ideal Oriented Designer has to do is to design the design process itself. Choosing to view the "planning" of a design effort, as design will also allow Aesthetical considerations in the process itself. This is expanded further in [4], but here is also an opening for co-design of the approach itself.

Conclusion

The Ideal Oriented Scenarios allows for different perspectives to co-exist in a design process. The scenarios can be made to address many different qualities in an artefact and its use, effects and consequences. It does not restrict the design to consider only form or only function. A graphics designer can use it as a brief, a technician can use it as requirements statement, a controller can use it as basis for an analysis, etc. The whole of the design may be addressed or parts.

This makes Ideal Oriented Scenarios useful in co-design, where Aesthetics and Rationality both has to be considered. As to weather the approach itself belongs Aesthetics or Rationality, my suggestion is that could be part of the new scientific approach suggested by Churchman, Forsgren, Dahlbom and others, where good science includes trying to change the world for the better. Therefore it's more of "Design of Philosophy" than "Philosophy of Design".

When reflecting upon myself as designer of this paper, I have been struggling with the two different ideals. I want it to be an acceptable paper in the scientific community, but I cannot, will not, give up the hope, need and longing for something *more*, that is associated with Aesthetics. If that is lost, the approach is useless. On the other hand I will not give in to the notion that since Aesthetics can't be defined, we shouldn't talk about it. In the same way love can be enhanced by poetry, maybe Aesthetics will be strengthened if given a surrounding moat of Rationality?

References

[1] Churchman, C. West. (1979). *The Systems Approach and its Enemies*. Basic Books.
[2] Albinsson, L., & Forsgren, O. (1996). *MIT-marknadsorienterad informationsteknologi-Företag och aktionsinriktade forskare i samverkan* Stockholm: Nutek.
[3] Forsgren, O. (1991). *Co-constructive computer applications: Core ideas and some complementary strategies in the development of a humanistic computer science.*: Umeå University, Dept. of Information Processing.
[4] Albinsson, L., & Forsgren, O. (2004). *Ideal Oriented Co-Design of e-Services - How to, and not to, run meaningful R&D projects.* Presented at The first Scandinavia conference on eCommerce, Örebro University.
[5] B. Dahlbom, S. Beckman & G. B. Nilsson, *Artifacts and Artificial Science*. Stockholm: Almqvist & Wiksell International 2002
[6] Albinsson, L., & Forsgren, O. (2004). *Who's at the wheel of user driven projects when users can't drive?* To appear at the 3:rd International Conference on Systems Thinking in Management, University of Pennsylvania..

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