

**CROSS-DISCIPLINARY STUDY IN COMPLEXITY AND TRANSFORMATION:
A NEW FRAMEWORK FOR INDUSTRIAL DESIGN - BRINGING HUMAN-CENTRIC, COLLABORATIVE DESIGN INTO POST-LINEAR, BIG BUSINESS**

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Abstract

No Picnic Industrial Designers propose a framework of principles for industrial design and design management in a post-linear business context. We offer a definition of what role the industrial designer might play in this new business world, what conditions are required, and what it demands of us as industrial designers. The paper summarises the process and outcomes a year of reflective practice, and design-led research into the development of this framework. The study was carried out through workshops, informal conversations and participant observations, and is based on the body of design work of the No Picnic industrial and packaging design studio during the greater parts of 2004 and 2005. Among materials included are excerpts from two recent/on-going case studies, The Green Flagship future concept vessel design for Swedish-Norwegian-owned logistics and ocean transport provider Wallenius Wilhelmsen, and a collaborative effort with one of Scandinavia's leading market research institutes, Temo. The purpose of the latter collaboration is to explore in practice the interface between design research and market research, for a deeper, strategically useful understanding of users/customers, which is directly linked to design execution.

1. Introduction and background

These are tough times to be an industrial designer with a desire to really contribute to the world. People (in the western, developed world, at least) do not need more stuff. Yet there are still real problems in our everyday lives, and in the world at large, which need solutions, and human desires which need to be fulfilled in more sustainable ways.

As individuals and as the collective No Picnic industrial and packaging design group, we must keep asking ourselves the question 'why?', asking what our purpose is, in order to do design work which pushes creative boundaries while being relevant in the world.

We believe there is a major opportunity for industrial design to make a real difference in business as we enter a post-linear business era, if we can only harness it. In this paper, we outline challenges to harnessing this opportunity and present a set of proposed solutions and examples of tools and methods which we find useful in overcoming these challenges.

2. Objectives

The objectives of this paper, and our practice-based exploration, have been to:

- Explore what the role of the industrial designer might be in a post-linear business context, and to start to identify which conditions, skills and tools are required to succeed in this role
- Create knowledge and understanding of how four different modes of communication (numbers, words, images and three-dimensional form) might be integrated and transcended, using knowledge already available in industrial design

- Come up with creative, systematic and actionable ideas for solutions

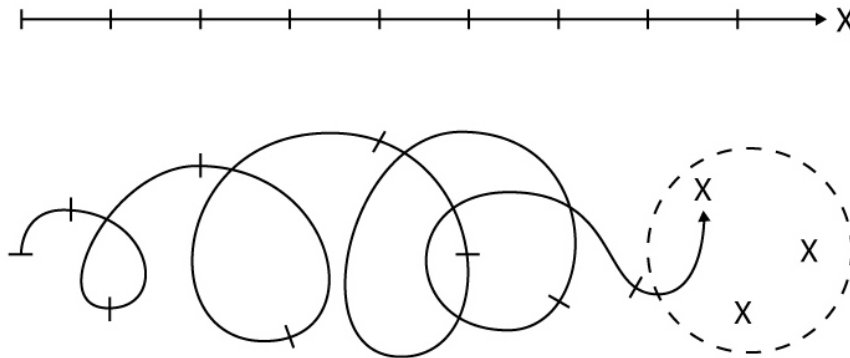
This paper summarises the process and outcomes of 12 months of reflective practice, and design research into the development of a framework for industrial design practice and design management.¹

3. Exploration issues/challenges

The results which we present here are a first iteration of our outcomes, and we continue to develop our framework through practice. The results are presented in the format of a research and design brief to ourselves comprising a number of exploration issues/challenges, with a set of ideas for solutions to these challenges.

3.1 Post-linear business – a new context for business strategy and industrial design

LINEAR STRATEGY & EXECUTION
VS.
POST-LINEAR STRATEGY & EXECUTION



In a post-linear business context, business leaders have had to find ways of developing strategy while on the move, thinking short-term and long-term at the same time, and being able to quickly adjust the course as it unfolds. Strategy development and execution is no longer a linear, one-

¹ Summary method description: Over the past 12 months, the No Picnic design team have been reflecting on our design practice, carrying out 'reflective practice', to gain access to and make explicit, implicit professional knowledge where it emerges (Schön, 1991). Through a series of workshops, informal conversations and participant observations, we have used industrial design methodology to explore a set of challenges for industrial design in business, and examine our own role. Our materials include a large body of design work for various clients – research, documents, designs, workshops, meetings and conversations, too numerous to list here.

dimensional process, but an iterative process, spiralling towards a roughly defined goal, with continuous adjustment of the course, in an environment of constant change.

Design is contextual. When the context of business changes, industrial design changes. When brands, innovation, manufacturing and consumption are at once more distanced from one another, while being more globally distributed and uniform, with multi-national corporations increasingly hard to steer due to sheer size and cultural differences - what is our task as industrial designers? Strategic management consultants? Or multi-disciplinary collaboration facilitators? Or is it back to the roots of industrial design? What conditions are required to enable whichever role we make for ourselves?

3.2 Losing sight of the customer / user

In our experience, many corporations have already lost sight of the customer or user due to size, distance and complexity. This not only de-humanises one of the most powerful forces for change we have in the Western world, but also undermines the very purpose of these corporations – to create value *by serving customers*. However, it is possible to place human beings right at the heart of business through the appropriate use of design. As designers, we are customer/user/human-obsessed through our very core process, but how can we make corporations understand, value and use this?

3.3 Losing sight of design purpose and vision

There is a significant risk in strategy-savvy designers over-simplifying the core practice that makes design unique, in order to be understood better by business people. Yet it is as designers we can bring new and more human-centric values into industry. We must be *both* strategy-savvy and self-aware about our unique purpose and talents as designers, and cultivate these.

When there is too little self-awareness and self-insight, vision is often lacking. Too many Swedish industrial designers are content in their craft as it is, and lack the necessary analytical tools to really ask themselves the question 'why?'.

3.4 Forging new partnerships

Marketing and market research have long been seen as the enemy by industrial designers, but we can not leave it to them to make design decisions, so we need to get involved with marketeers, and find ways of collaborating with them. This does not mean we should start to think like marketeers, but that we should learn how to interface with them, and all the other business functions on which designers are inter-dependent.

3.5 The value of design

When one starts to compare design investment with the return (in sales figures, share price, brand equity or customer delight) in actual cases, there seems to be at least one zero missing on the quote for that design work. In order to really change the way business managers value design, we as industrial designers can do one (or both) of two things:

- Hire or collaborate with people who have extremely well-honed sales and negotiation skills

- Establish a measurement model for the return on design investment²

3.6 The heart of the matter – conclusion on the key issues/challenges

So the key issues then for us to solve, are:

Collaboration

How can we collaborate with other disciplines and functions in business and creatively while fiercely protecting the integrity of our craft - those subtle, inexplicable, personal and unique qualities which make design such a powerful tool for change? No Picnic has a long established culture of collaborating amongst the design team, but how may we take this outside the design studio?

Communication

In new collaborations, how can different world views and different languages, truly understand each other and create together? What kind of interpretative interfaces and exchanges enable these multi-disciplinary collaborations? What communication enables collaboration? How might we explain the inexplicable in ways which transcend the medium of design?

4. Proposed solutions and discussion of results

4.1 A complex role for industrial designers in a post-linear business context

If we accept that the post-linear business context for industrial design and development of strategy can be described as in the model above (section 3.1), it is hard not to see the similarities with the iterative process which is at the heart of any design process. Why not make use of the very people who are experts in iterative processes to support business strategy? Taking the above challenges/issues and new aspects of the role into consideration, the role of industrial designer could thus be seen to be threefold:

1. Industrial designer

The very core of the industrial design role, which is in itself a multi-disciplinary endeavour, spans at least two different paradigms in its own right – the more creative, aesthetically and behaviourally based form-giving practice, and the more technical knowledge of the possibilities and limitations of materials, construction and production technologies and tools. It is imperative that we keep deepening our own insight into the creative aspect of our craft, and that we protect the integrity of this, as this is the very thing that makes design thinking and doing unique.

2. Multi-disciplinary collaborator-communicator/facilitator

Design itself is a language that transcends language, knowledge, discipline and corporate function barriers. However, not everyone is trained in or has the experience to be able to judge design by

² We do not have a proposed solution for this particular need, and there is already a body of knowledge and models in the marketing and branding field on return on investment which we might draw upon. We would welcome a collaborative effort to come up with a practical and universal model for return on design investment which can set a standard in business.

any other standard than personal taste, so in order to communicate clearly and effectively beyond our own discipline, we should not just ‘show’, but ‘show *and* tell’.

According to international and long-standing leaders on multi-disciplinary design collaboration, Imagination Ltd. ”the essence of teamwork is that people contribute selflessly. They rise above themselves, and they are committed to their goal and to one another....all team members are expected to come up with ideas outside of their own areas”, which works only because ”all members also know what their role on the team is”. (Fishman 2000, p. 5)

Facilitation techniques for this kind of teamwork can be taught, but it is also a matter of studio culture, personality and personal chemistry in the multi-disciplinary teams of designers, clients and partners.

3. Iterative strategy partner

The iterative process comes naturally to industrial designers, secure in this mode of starting to work and build something without having 100% information and an exact goal. From the continuous learning, building, and sharing, new questions form, and entirely new answers emerge, which in turn may alter the goal and course altogether.

4. Some tools for the job

- A design brief based in strategy and research – which requires collaboration with market researchers and strategy owners
- Executive level, inter-functional design workshops, preferably continuously throughout a design project
- Well-timed post-rationalisation – i.e. protecting the iterative, intuitive, sometimes chaotic, and partly invisible process of design until the moment when it is possible to post-rationalise intuitive ideas and creative decisions made, and after the event make sense of them in a linear, verbal way

5. New partnerships – an example

As a step towards really becoming the new iterative strategy partners we believe we can be, we have initiated collaboration with Temo, a leading Scandinavian market research institute. Instead of distancing ourselves from marketing and market research, we need to develop tools and methods together, which allow us to complement each other in a way that is beneficial to our clients and their users/customers. Our collaboration takes place on two levels: firstly, we have participated in consumer focus groups and concept development workshops, where we sketch up and modify concepts for new products and packaging, ‘live’, in response to consumers thinking out loud during research.

We have then taken the collaboration a step further and jointly explored our values, methods and tools and come to the conclusion that there is indeed a match, and so we have started to develop a joint service offering. By working with a tight team of members from both Temo and No Picnic, client organisations get access to an outsourced and effective bridge across the all too common, and often highly politicised, gap between brand communication and product/packaging design execution.

4.2 Skills and tools for collaboration and communication across disciplines

In search of good industrial designers, we need to look not only for talent but also people with a strong sense of their own identity, a level of self-awareness and a verbal ability, or if this is asking too much not to compromise on raw design talent, we must at least find design managers and strategists who can intuitively understand and verbalise designers' thinking. Our interpretation of Robert Hargrove, founder of the Institute of Creative Collaboration and expert on collaboration in the workplace, is that collaboration boils down to two things: People and conversations. (Hargrove 1998, pp. 159) The medium for collaboration is conversation, in industrial design with the additional medium of 'show and tell' throughout the design process - sharing early sketches and prototypes wordlessly, literally designing together.

If we are to take this tried and tested collaborative method beyond our design studio, we need to make the wordless and implicit, explicit and communicable, and create new partnerships with those who can help us 'export' it. The collaboration with Temo as described above, in section 4.1.3, is one such partnership.

Transcending the four worlds: Making the implicit explicit

Industrial designers must become the new master-multi-linguists, interface between other disciplines and highly politicised corporate divisions. Interpreters between four modes of communication, which are also four different frames of reference – four worlds:

Numbers – words – images – three-dimensional form

We can not be the best at each of these four languages, and our mother tongue is three-dimensional form, but we need to understand enough of the four taken together to be able to interface and work together with experts in the other three, accountants as well as graphic designers and writers. This can only be learnt through experience, but certain basic communication skills (such as verbal, sales and negotiation) could be taught in design colleges, rather than pseudo- marketing and branding. (There are others who are qualified to do that work.) We need to find ways of making the implicit explicit if we are to succeed in playing any significant role in the future of industry and business. The business world is not about the subtle, the implicit, so we as designers must be able to lead the process of transcending the boundaries between the four worlds, *without* abandoning the integrity of our craft.

A recent No Picnic case study, where we had the opportunity to really utilise and develop our skills and tools for collaboration and communication, is our future concept green flagship for an environmentally friendly cargo-carrier, for Swedish-Norwegian-owned logistics and ocean transport provider Wallenius Wilhelmsen.³ The design brief was based in Wallenius Wilhelmsen's environmental vision for the year 2025, rather than starting with existing technologies, and required total, design-facilitated collaboration between ourselves, naval architects, environmental experts, naval engineers and technical specialists, and marketing and communications managers, as well as Wallenius Wilhelmsen's communications agency and the Nordic pavillion designers. Our learnings from this project are synthesised in the proposed framework for industrial design below, in section 4.4.

³ Currently being exhibited as a model, in the Nordic Pavillion at the World Expo in Aichi, Japan.

4.3 Deepening our knowledge of the core of the design craft

Design institutions/colleges should not try to turn designers into economists, marketers and strategists. Nor should design responsibility be handed over to brand and marketing people. Instead, designers need to honour and deepen our craft and learn how to collaborate with other disciplines and functions.

4.4 A framework for industrial design and design management in post-linear business

1. Respect the monkey

Design for users' hearts, minds and instincts to cut through brand noise, and give some real value back to the end-user, in a better product experience with a human, humorous or unexpected twist. By designing for our inner monkey (our previous iteration, whose instincts are still ingrained in some parts of our brains), we create products which not only sell themselves, but also appeal to a part of the buyer's brain which we hope will instinctively help the buyer make a choice that is better for his or her own emotional well-being.

2. Create the (right) rich conditions for design

The pre-requisites, physical as well as mental, for good design to take place. We will not list these here in the manner of a handbook, as this is done in many other places. What we will say is that even in the creation of the right conditions, environment and culture for design, one must allow a little space for that which can not be defined, quantified and bottled, labelled and sold – the magic of design and interpersonal relationships. There is always an element of for example personal chemistry which will affect the outcome of the design process. A fundamental building block though, is for every design practitioner to develop his or her own self-awareness – i.e. to know how one's own creative process works, what one's needs are, how one's sub-conscious works when one's hands and mind are doing something else, what kind of boundaries one needs in place in order to be creative etc.

3. Get senior level management buy-in

Ideally, enable them to understand the process through first-hand shared experience, not just fund a project. To succeed at this it helps to understand how to transcend the four worlds and make the implicit explicit (see above, section 4.2), and make full use of these techniques.

4. Unleash the power of design for lateral innovation

Use design to create what you can not even imagine, to meet needs users/customers are not aware of yet.

5. Walk at least a mile in your customer's shoes

The designer is your acting user/customer, and the customer experience is everything in a successful business.

6. Co-create or die

Early involvement of industrial designer and of any 'difficult' people or functions you can think of internally or among relevant partners. Use input from 'difficult' people constructively/as a positive force for change. Harness the multi-disciplinary monster by learning to facilitate the necessary conversations! The bringing together of the right people and facilitation of the conversations of creative collaborations must be fully put to use.

7. Communicate effectively across boundaries

Collaboration and communication across discipline boundaries is not about consensus. It is about translating/transforming, empathising, respecting differences and learning from each other and this process requires facilitation when people are not used to this way of working. Authorship from the collective rather than individuals, but the collective is made up of fierce individuals who are not uncomfortable with diversity and friction, in the name of design excellence.

8. Use design to deliver on the brand promise

As touched upon in the description of our collaboration with Temo (above, section 4.1.3), a major marketing and branding challenge for corporations competing in a fierce brandscape, is to deliver on the brand promise, in all the brand meetings with the user/customer which are three-dimensional and are characterised by action or experience rather than purely communication (of which the product and packaging are perhaps the two most crucial). Design delivers the brand promise, if design and communication are integrated.

9. A little less conversation, a little more action

Continuous prototyping, and lots of early mistakes in any project. Where Power Point charts fail to enthuse and kick into action employees of vast corporations, prototypes have a catalytic power that incites passion and action, from a shared, embodied vision.

10. It's No Picnic (but the grass is greener!)

5. Conclusions

We propose a complex, threefold role for the industrial designer in a post-linear business context: designer, multi-disciplinary collaborator/facilitator and strategist. As it is rare to find all three talents in one individual, intuitive, collaborative partnerships across these three areas are crucial to the success of this industrial design practice.

The tools and skills for this job include, among other things, design briefs based in strategy and research, facilitation of executive level, inter-functional design workshops, and well-timed post-rationalisation. Other specific conditions required to succeed in this role are outlined in our framework of principles above (section 4.4)

The possibilities to integrate/transcend four different modes of communication (numbers, words, images and three-dimensional form) which we have identified include: learning basic skills of each 'language' and becoming expert at collaboration and communication beyond our three-dimensional form mother tongue. Forging the right partnerships is crucial, as well as broadening

the already multi-disciplinary role of the industrial designer further without losing depth, through building on the body of knowledge already in existence in the industrial design craft.

Creative, systematic and actionable ideas for solutions to the challenges we have explored, are presented in chapter 4 above.

Much of the knowledge summarised in this paper has so far been implicit in the past 12 years and 4-500 or so design projects completed by No Picnic, and has never been articulated and structured, and we have yet to verify the explicit framework in its entirety, so our framework and the No Picnic design studio continue to be works in progress...

6. Bibliography

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