

DEVELOPING AN INSPIRATIONAL DESIGN BRIEF

S. Petersen

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1. Introduction

1.1 The client - designer paradox

During the time of my involvement with one hundred and forty plus projects, conducted at five design-driven US corporations, design proposals have overwhelmingly fulfilled the function of formal design briefs. The design proposal is an abridged design brief, excluding primarily strategic business logic, systems thinking and comprehensive decision-making procedures. Reasons given for not writing design briefs include the time and cost involved in the process, disagreement on allocation of resources between the participants and the lack of design brief writing experience.

Design proposals have limited usefulness beyond acting as a contract, establishing deadlines, budgets and deliverables. Design briefs as currently utilized, forego the opportunity to include the Four Powers Of Design [Nassbaum 2004]: Differentiator, Integrator, Transformer and Good Business. Unfortunately, the development of a business plan and the briefing of designers continues to be a linear process, without a feedback loop [Joziassse 2005].

In-depth interviews [Petersen 2005] reveal that designers lack a clear sense of their clients wants, while the clients look to designers to demonstrate their wants. This paradoxical paradigm indicates a lack of design understanding on behalf of the managers that is not just delaying the development effort but is also preventing design from strategically addressing previous project issues and vaguely formulated business - design issues.

1.2 Design briefing – concept synthesis today

When a new business development group formulates criteria for a new offering, their intent and reason is captured in a business plan. Following approval by the management group, the relevant content for concept creation is then relayed to the design team. Currently, this is accomplished through a request for a proposal.

An agreement on how to proceed is reached between management and the industrial design team manager following the debate of the proposal's assumptions, parameters, criteria, priorities and possible enablers. The project manager is essentially the design team's sole owner of the proposal due to the content format and lack of useful information included for the designer.

In the subsequent conceptual phase, the team immerses themselves in the technical and marketing material that has been provided. They then conduct limited need - solution research, discovering enablers and synthesizing concepts for review with management. These concepts reflect the designer's limited and elusive understanding of the client needs and the gaps are filled with semi random information from the designer's professional and cultural background. At this point, the competing concepts are presented using visualization techniques augmented with verbal storytelling.

Concepts are compared to the proposal following the presentation. Do the concepts conform to or differ from previously stated and unstated assumptions? If they do not conform, what is the reason? Do the concepts effectively balance the various criteria as related to sustainable growth? Finally, are the original implicit expectations met? Afterwards, an often heated and emotional discussion leads to a decision on how to proceed. A decision either formed by design team consensus or by one strong individual's opinion. In both cases, these decisions are largely based on gut-feelings rather than evidence.

The best outcome of this process is a revised agreement on how to proceed. This includes a selection of one or more concepts or a merger of different concepts forming a new stronger concept. In a worst-case scenario, the team is judged to have misinterpreted the brief and/or failed to synthesize acceptable concepts. The conceptual phase is then either re-executed or the design team is disbanded, however the assumptions behind the initial proposal are rarely challenged and modified.

1.3 Opportunity

Current development practices result in a 35-41% failure rate among newly introduced products [Cooper 1998]. How much of this failure can be assigned to the briefing process and the concept development phase is unknown. However, it has been established that the conceptual phase, which reflects only five percent of the development cost, results in decisions determining seventy per cent of the final product's cost. [Andreasen and Hein 2000].

It has also been established that execution is more important than strategy and it has been argued that this is due to an often undifferentiated and bland business strategy. [Pfeffer & Sutton 2006] The by-product of these strategies could be weak business plans and subsequent deficient requests for proposals and resulting design proposals. Design informed business plans might be able to highlight gaps in business-execution reasoning and aid strategic thinking, while providing focused and clear briefings to the design team. Restricting the effort to the application of traditional QFD is futile, due to the comprehensive and subjective nature of industrial design. Systematic up front inclusion of design could have significant financial benefits to the corporation. Benefits which might be realized by using a concurrent business and design approach.

2. Literature Research

2.1 Business strategy and planning literature

A comprehensive literature study was conducted covering business plans, design strategy and design briefs to provide insight into the current business and design approach. No evidence of integration of design considerations with business plans was found.

To investigate gaps in the current information flow, objective success criteria [Tang et al. 2005], management decision-making [Cooper 1998], design proposals and designers' competencies [Petersen 2009] were mapped, using the Design Quality Criteria framework. See Table 1.

The mapping below shows product development success criteria to be evenly distributed over all levels of Design Quality Criteria, corresponding to all "rungs" on the Danish Design Center's developed "Design Ladder". The Design Ladder's supporting national survey of Danish corporations shows that design integration on higher rungs corresponds to increased revenue. Design involvement at an expression (styling) level; outperforms no design involvement by 2%. Integrating design with the process outperforms no design involvement by 28%, while integrating design on an innovation level provides a 150% revenue gain. [National Agency for Enterprise and Housing 2003].

The table also shows that management tends to focus their attention on the upper "rungs" of the "ladder", apparently leaving lower "rung" content to be addressed by the design team. Designers' contribution to the process is evident on the Context level, including "Expression" from the lower "rung".

There are clearly gaps between success factors and management, management and brief, as well as brief and designer contributions. The only criterion, which all stakeholders perceive as mission critical and which is consistently transferred, is social/human criteria.

Table 1. Comparison of design brief attention, within management interest, objectively defined key success factors and designers professional contributions as defined by their areas of enhanced judgment

		Factors ICED 2005	Cooper 1998	Proposal content	Designers can discern
		Criteria important to success	Criteria important to management	Criteria covered in proposals	Criteria designers can discern
Strategy	Philosophy				
	Structure				
	Innovation				
Context	Social/Human				
	Environmental				
	Viability				
Artifact	Process				
	Function				
	Expression				

Increasing management’s awareness of success factors through the business plan creation process and subsequently facilitating improved design proposal creation could mitigate these gaps. This, in turn, could provide designers with a more useful brief, enabling them to provide their own core judgments in the process. This suggests that the briefing process could be improved by conducting concurrent business and design, creating feedback from design to business definition.

2.2 Design - opportunities in business plans

Providing an overview of how a stronger connection between business and design could be established, an aggregate of business plans for startups was compared to an aggregate of design briefs using the Design Quality Criteria framework. Startup business plans were used over established corporations business plans due to their higher degree of completeness. See Table 2.

In depth analysis of startup business plans that show Design Quality Criteria are included in two-thirds of the business plan content, while best practice design proposals contain all nine criteria. This considerable interdependency between business and design suggests that the current communication of only one of nine criteria could be expanded to include two-thirds to all criteria.

We now know that high performance in the organization relates to design’s upstream participation. Integrating design on a strategic level outperforms design integration limited to the performance level. Does the exclusion of Design Quality Criteria from business plans, which informs design proposals, impede concepts synthesis? Studies of the relationship between designers’ design argumentation and Performance and Context Design Quality Criteria, suggest these are correlated. [Petersen 2009] Furthermore, auditing of industry and student projects suggests overemphasis on planning in lieu of user focus, is detrimental to design team performance [Petersen 2009]. Communication of all nine Design Quality Criteria could represent a considerable competitive advantage. What remains, is to establish how Design Quality Criteria inclusions in design proposals will affect the design team’s success.

3. Audit of industry design proposals

3.1 Analysis of design proposals

Design proposals behind thirty development projects (N=30) from top design corporations were examined. These proposals were used to ascertain how design proposal formulation related to

inclusion of Design Quality Criteria and their effect on design team performance. The projects covered businesses ranging from transportation, construction, consumer and medical products. The products designed were all confined next generations of established products. They represented the work of nine seasoned senior proposal-writers' who did not participate in the execution of the projects. The proposals were created in the period between 1999 to 2005.

Table 2. Mapping of Business plan and Aggregated design proposal content to Design Quality Criteria framework

		Business plan	Aggregated proposal	
Strategy	Philosophy	History, Vision/Mission/Values	Business, structure, belief, vision, mission, strategy, accomplishments	
		Startup strategy	Ambition level, Risk-profile	
			Competitive advantage	
	Structure	Management team	Authority, Team type, Tasks and competency required	
		Business model/strategy	Business / category, Position, size, Porter's 5 Forces	
			Knowledge-building and/or acquisition	
Innovation	Technology and trends	Finance, Process, Offering, Delivery, Innovation type Legal (patent, copyright, trademark, regulatory)		
Context	Social/Human	Customers	Niche market (demographics, psychographics, geography, behavior)	
			Brand	
			Sustainability-meta	
	Environmental		Sustainability-meta	
Viability	Value creation	Value proposition (creation, value capture) Balancing Time, Quality, Price		
Performance	Process	Objective, Activities and milestones, decision-criteria, time table	Time horizon, coordination, product strategy (Platform, modular, custom)	
			Problem/Solution description, goals, Requirements	
			Schedule + sensitivity, phases, stop/go criteria, collaboration, tracking	
	Function			Product performance, place, promotion, price
				Ergonomics, GUI, sustainability (LCA, visualization), packaging
				Manufacturing, shipping,
Expression			Design criteria, attributes, language, archetypes, proportion/surface/details	
			System, architecture, package, features, graphics, logo, color, USP, SKU	
			Inspiration, family resemblance, perception, design principles	

Design proposal descriptions of the conceptual phase were coded by an industrial design expert, with extensive experience in design quantification coding. Repeatability of the coding will require extensive practical experience and knowledge of the industrial design process. Using the nine Design Quality Criteria, a content distribution profile for these Design Quality Criteria were established. The proposals were then analyzed regarding:

1. Length of brief & expert-novice teams vs. budgeted cost
2. Design expression criteria vs. design process criteria
3. Complex vs. simple projects
4. Design process experts vs. novice
5. Design performances: time, budget and quality

3.2 Findings

3.2.1 Length of brief vs. budgeted cost

Comparing the length of the design proposal (N=30), measured as number of words used, with the budget size, show these to have a strong positive correlation, with $\text{Corr.} = 0.82$, confidence at a $p < 0.01$ significance level. See graph 4.

Comparisons of design proposal lengths from experienced (N=13) and novice (N=17) design team projects' show expert teams (approximately 700 words) operating with roughly half the proposal length of the novice teams. (Approximately 1500 words)

These findings might reflect a need to validate cost, increase scope, project detail and dynamic complexity, which would require intense coordination. However, further research is required to establish the exact reasons.

Comparing budget size from experienced (N=13) and novice (N=17) design team projects', corrected for inflation, show expert teams operating with roughly half the budget (approximately US\$ 70,000) of that of the novice teams (approximately US\$ 120,000). With confidence within a $p < 0.05$ significant level.

A proposal writer would be expected to take into consideration their knowledge of the team structure, skill set and experience and make adjustments for this in their budget estimate. If writing a proposal for a largely unproven team, uncertainty about their performance would most likely lead to a padding of the budget. However, further research is required to establish the exact reasons.

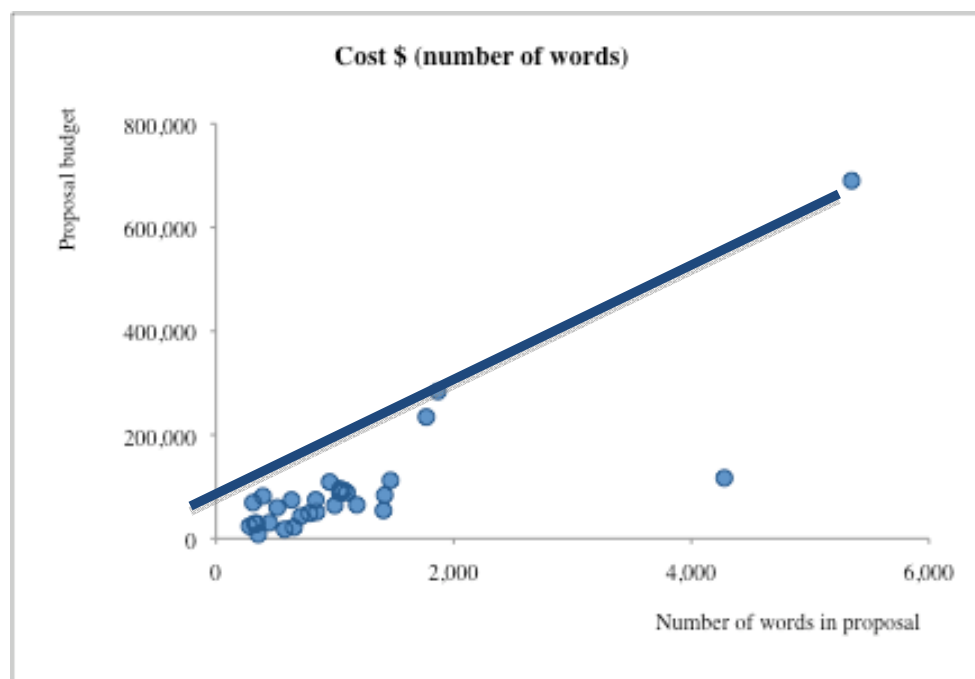


Figure 1. Design proposal budgeted cost and brief length, number of words, has a positive correlation. Budget is corrected for inflation and listed in 2008 dollars. $\text{Corr.} = 0.80$, with a $p < 0.01$ significance level

3.2.2 Design expression criteria vs. design process criteria

Comparing design proposals' Design Expression and Design Process Criteria content (N=30), measured as number of words used, show these to have strong negative correlation, with $\text{Corr.} = 0.90$ and confidence at a $p < 0.01$ significance level. See graph 5. This suggests a tradeoff between knowing what criteria to use and planning exploration of the discovering of relevant criteria. Further qualitative research is called for to determine the exact reason behind this.

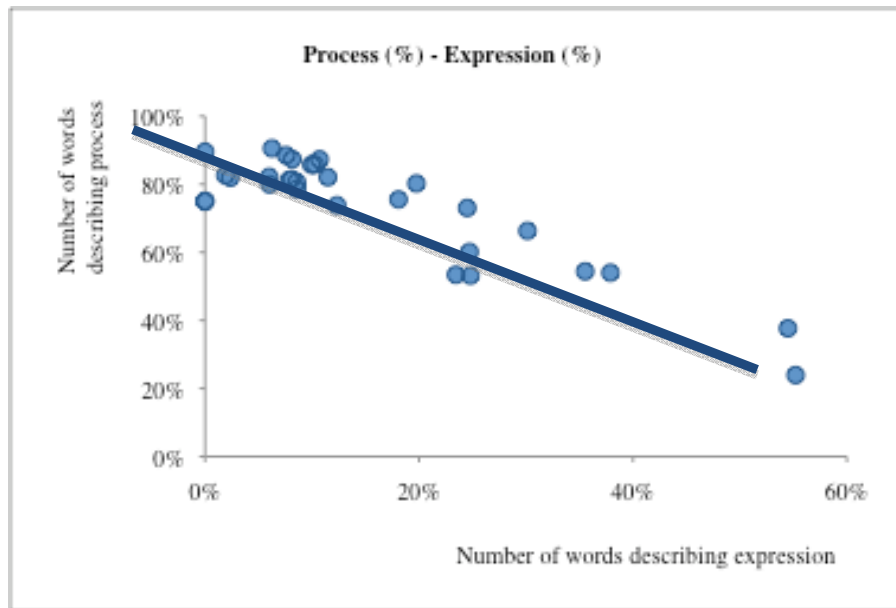


Figure 2. Process & Expression. Corr. = -0.78, p<0.05 significant level

3.2.3 Complex vs. simple projects

Comparing design proposals' from complex (N=12) and simple (N=18) projects, their content of Design Quality Criteria as measured in number of words used, shows to be significantly different at a $p < 0.05$ level focus between the two categories. Complexity is defined here as a combination of the number of components and participants involved. Complex projects have a higher content of Social and Process Design Quality Criteria compared to simple projects. Simple projects on the other hand, have higher content of Philosophy, Structure and Expression Design Quality Criteria. This suggests Performance and Context Design Criteria are important in design proposals.

Table 3. Mapping of proposal content from complex and simple projects to the Design Quality Criteria framework

	Complex projects	Simple projects
Philosophy	1.7%	2.4%
Structure	1.5%	2.2%
Innovation		
Social	4.2%	1.7%
Environmental		
Viability	0.5%	
Process	78.9%	69.7%
Function		
Expression	9.8%	19.8%

3.2.4 Design process experts vs. novice

In comparing design proposals from experienced (N=13) and novice (N=17) design team projects' their content of Design Quality Criteria, as measured by number of words used shows significant differences, at a $p < 0.05$ level, with a focus between the two categories. Expert team proposals, using comparable phrasing as in the proposals for novices, emphasize Viability, Function and Expression Design Quality Criteria, while novice team proposals emphasize Social and Process Design Quality Criteria. This suggests that Performance and Context Design Criteria are important in design proposals.

Table 4. Mapping of proposal content from expert and novice project teams to the Design Quality Criteria framework

	Expert	Novice
Philosophy		
Structure		
Innovation		
Social	1.6%	3.5%
Environmental		
Viability	1.3%	0.4%
Process	66.8%	78.4%
Function	3.7%	2.1%
Expression	22.6%	10.6%

3.2.5 Design performance: time, budget and quality

Comparing expert and novice teams along performance schedule, budget and quality parameters show differences along budgeting only. On average, expert teams are within budget on 85% of the examined projects, while novice teams are within budget on 24% of the examined projects. This is statistically significant at a $p < 0.05$ level. All projects but one were on time and all were on target regarding Quality.

It is noteworthy that staying within budget does not relate to the design proposals distribution of Design Quality Criteria content. This makes sense intuitively; since the major drivers behind this are probably cost prediction, project management, team skill and an implicit or explicit established level of ambition.

4. Formulation of Inspirational Design Briefing

4.1 Consequences of design proposal research

It is now established that the inclusion of the complete set of nine Design Quality Criteria in business plans and subsequent design proposals, positively influences return on design. How Design Quality Criteria can be integrated into business plans is outside the scope of this paper. The focus here is on integrating knowledge of Design Quality Criteria and success in design proposals and then fashioning the brief so that it inspires the design team rather than being restricted to act as a checklist. Learning from the literature research and study of best in class industry design proposals provided the following useful insights for design proposal writing.

- a. Design proposals are created with the experience level of the development team in mind. With declining experience, the proposal's description is lengthened and budget cost increased.
- b. Clear direction, decision of Viability, Expression and Function Design Quality Criteria are preferable to Process Design Quality Criteria. Lack of direction has to be compensated for with an equal increase in Social and Process Design Quality Criteria description.
- c. Best practice, for experienced teams, on low complexity projects, is to primarily focus on Philosophy, Structure and Expression Design Quality Criteria.
- d. Complex projects need to include extended emphasis on Social and Process Design Quality Criteria.
- e. Primary concern, expect approximately 15% of your projects to be over budget for experienced teams and approximately 76% of your projects to be over budget for novice teams. Meeting deadlines and meeting client expectations is a secondary concern.

With these insights, a new Inspirational Design Brief format can be formulated.

4.2 Formulation of model

The next step is to propose a new Inspirational Design Brief format. A format, whose content will include all Design Quality Criteria, research insights and will be formulated to be conducive to concept synthesis.

As an overall guide for structuring the brief, the Design Quality Criteria framework in conjunction with the aggregated proposal is applied. The most reliable way to relay the essence of complex contextual information is through storytelling. The content of the Design Quality Criteria framework and its heretical structure happens to lend itself to storytelling. Storytelling procedures are therefore applied, utilizing those widely used in screenwriting [Seger 1990]. To ensure the relayed content is memorable, the formulation applies the “Made to Stick” approach [Heath & Heath 2007]. The Inspirational Brief contains:

- a. The complete set of Design Quality Criteria
- b. Information included as described in the aggregated proposal
- c. Storytelling format
- d. Stickiness elements: Simplicity, unexpectedness, concreteness, emotional and storytelling

4.3 Evaluation of model

To provide a first hand impression of the usefulness of the new Inspirational Design Brief, a preliminary assessment was conducted, using an expert panel (N=5). A blind test, based on three versions of a fictitious design project was selected. The design assignment was formulated as two traditional design proposals, one including nine and one including five Design Quality Criteria. These were presented together with an Inspirational Design Brief, which contained all nine of the Design Quality Criteria. It was important that the design objective for the test be non-business specific and requires only general design knowledge and skills in order to level the playing field for the various experts. Also, the design objective was chosen to have low complexity and high abstraction requirements while being demanding regarding concept synthesis, so the expert would be able to give off-the-cuff evaluations. The brief objective used was designing products, services and/or experiences promoting peace awareness.

Upon reading the two briefs, all experts involved expressed the opinion that the Inspirational Design Brief was the most inspiring and effective brief.

5. Summary and Conclusion

5.1 Summary

This study reveals the lack of literature covering the translation of business plans into design proposals. Using the Design Quality Criteria framework, the study discovers and describes the significant gap in management perception of objective success criteria and the subsequent translation and communication of these criteria to the design team through the design proposal. Auditing of design proposals detects the characteristics of successful proposal content. A new Inspirational Design Brief is proposed including these characteristics, applying positive, action oriented design brief storytelling procedures. Initial qualitative evaluations by design professionals’ suggest that the Inspirational Design Brief includes relevant information and is more inspirational than current proposal formats. Further qualitative and quantitative testing on concrete product development projects in diverse industries are needed for final assessment of the new brief’s performance improvement over current practices.

5.2 Conclusion

The paper’s contribution to the design briefing process is the mapping of gaps in the current briefing process. It identifies a set of nine key Design Quality Criteria whose inclusion and distribution are critical for providing the design team with relevant information. The content findings are supported by an audit of top tier industry design proposals. Finally an Inspirational Design Brief content and format

is suggested for increasing comprehension and recollection of brief content as well as improving concept synthesis along concept diversity and quality.

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Soren Ingomar Petersen
President
Ingomar&ingomar – consulting
511 Prospect Avenue, South Pasadena, CA. 91030
Telephone: +1 (626) 441 4862
Email: soren.petersen@ingomar.net
URL: <http://www.ingomar.net>

