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# Fourth Order Design: A Practical Perspective

Tony Golsby-Smith

The essence of design is the nature of thinking it entails. It is integrative, rather than merely analytical; visual rather than merely abstract; and humanistic rather than mechanistic. It is fundamentally about invention, not research. It begins with love and passion, rather than mere problems and puzzles. In the end, design is intuitive and irreducible to component steps, but still tantalizingly capable of description.

All people taste it; a few excel in it. This design thinking, rather than just the practice and products of design, will become increasingly intriguing and attractive to a wider audience than that which currently uses the services of the design industry. The design industry specifically is focused on very narrow portions of organizations, and on a narrow set of organizations. There are many organizations which have no idea what a “designer” offers, and have never used one; but for whom design thinking is looming as a coming dawn.

The so-called fourth order of design is taking design out of its narrow, original boundaries, and preparing it for wider application. In this essay, I intend to investigate the nature and the tendencies of this fourth order of design. My vantage point will be practical rather than theoretical.

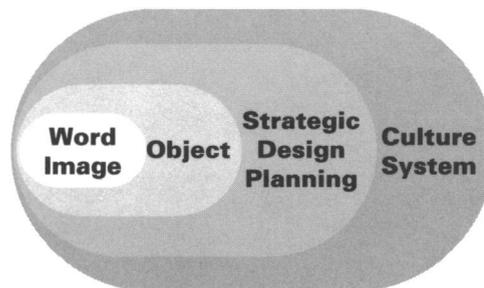
## The Origins of Design in the First and Second Orders

Richard Buchanan has described the changing places of design practice and thinking as moving through four orders of theory and practice.<sup>1</sup> While he presents the four orders as places of invention and discovery in design thinking, I would like to explore these places with regard to a widening *domain* for design. (Figure 1)

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1 Richard Buchanan, “Wicked Problems in Design Thinking” in *The Idea of Design*, Victor Margolin and Richard Buchanan, eds. (Cambridge: MIT Press 1995).  
Richard Buchanan, “Branzi’s Dilemma: Design in Contemporary Culture,” in *Design—Pleasure or Responsibility?* Paivi Tahkokallio and Susan Vihma, eds. (Helsinki: University of Art and Design Helsinki, 1995)10–29.

Figure 1



The widening “domain” is a widening of the influence of design outwards into the surrounding medium—the life of organizations in the modern world, or of governments and communities. This is a good typology of what happens as designers seek to exert wider and more energetic influence on the lives of organizations and communities.

This widening of domain could well be experienced quite practically in the work life of an individual designer who begins offering discrete skills but, as confidence and experience grows, and as they identify wider needs; expands their range of offered services. Without knowing it, they could well be tracking through just the transitions that Buchanan describes.

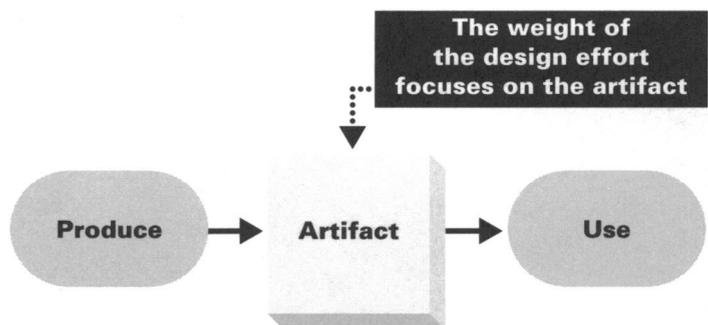
The first domain is the “word or symbol” of graphic design: crafting bits of paper to elegantly represent some of the ways the technological community sees itself through brochures, pamphlets, icons, and manuals such as “Help us navigate our way through the zoo” or “Create a marketing symbol.”

The second domain is the “object” of industrial design, which crafts *things* rather than words or images. These are elegant, functional and marketable things.

The graphic below (Figure 2) illustrates the point at which design adds value to a transaction. In domains one and two, the designer adds value to the artifact, itself. The weight of the design effort is to improve the shape of the product, and its fit with the world. It seeks to give better **expression** to the product concept. In the case of document design, for instance, this will mean, *inter alia*; adding elegance to the layout, clarity to the language, and balance to the distribution of the content within the document.

The designer assumes that the product boundaries (i.e., the concept and content) are stable and defined. The *form* of the product is, as yet, unstable and undefined. In these first and second domains, the concept of design is a proxy for “*shape*” or “*form*”—the value offered is, “You give me a product concept and I will ‘shape’ (i.e., design) it for you—it will be a better-*shaped* set of words, or a better-*shaped* object, as a result of my crafting it.”

Figure 2



As for the *place* of work, the designer works within the scope of the artifact, chiseling and finessing it. A graphic designer will see his or her space of work as within the page—interacting with the text and the typography as a thing, with a sense that the designer’s sphere of interest and of influence is in the thing. They will have passion for and opinions on the thing, itself; often expressing purist technical views (“this typeface never works as a heading”), and being dogmatic about them. This is proper, given the above model of their conception of how they add value. “Better” means better, according to technical and aesthetic criteria that the designer is privy to as a skilled artisan. They are hired for that technical expertise, and that is the boundary within which they are pleased to work.

This sense of place is exemplified by the work pattern of the centralized design studio, where everyone has neatly defined work stations; and where the account executive brings the jobs in and the design studio does the work according to those specifications.

### The Move to the Third Order

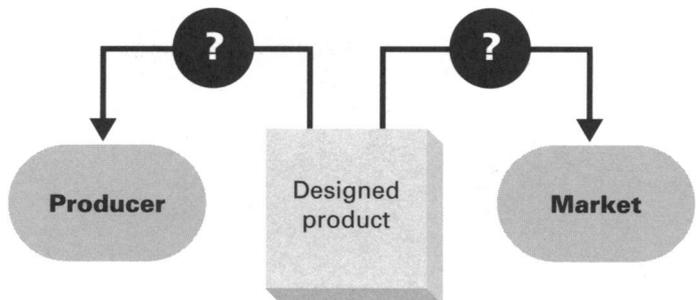
Both “words” and “things” live at the interface of two communities—a producer and its public. They function in a place of natural tension. Hence, they mediate the relationship between the two communities. (Figure 3)

The upshot of this mediating tension is that there are natural magnets at work which will pull the designer’s interest outside the scope of the artifact; for mediation cannot remain in an inert, static

Figure 3



Figure 4



position. Therefore, the designer's interests and competencies are pulled out beyond the object to the interests and needs of the two communities. (Figure 4)

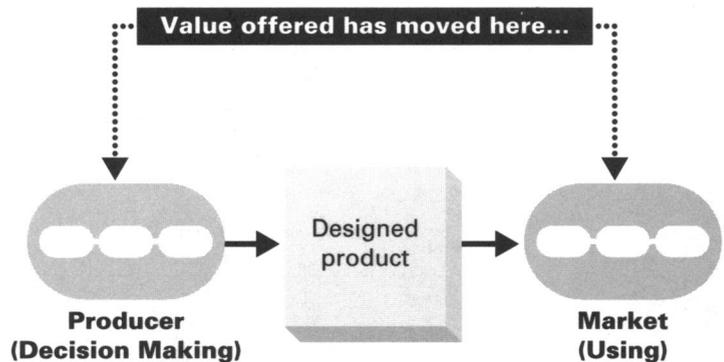
Thus, the enlightened industrial designer researches the market and its needs, the producing company and its processes of manufacture, as well as its market aspirations. The designer is unwittingly undergoing a metamorphosis, since the interfacial role is shaping a wider set of competencies. To produce a fine object, the designer must go outside his or her craft (though not abandoning it); and manage *processes*, not just *products*.

These processes particularly are those of *strategic decision making* leading to the product choice. This is quite a natural transition because things do not exist in a vacuum—they are *created* and *used*. They ride on the wave of processes and activities. Thus, it is only to be expected that some designers will wish to influence these wider process-related issues around the products they design. (Figure 5)

In the case of document design, a third order designer will move outside the document boundaries to the readers who will process the document: the designer will analyze readability, and take this into account in the document design.

But not only are documents read, they often are intended (however dimly) to be the source of action. The designer now sees the document not as dead information, but as the catalyst to reduce uncertainty in human activity. For instance, an investment policy document can be assessed for *readability*, but it also can be analyzed for *useability*. What behaviors does it seem to encourage; and what behaviors would we like it to encourage? (Figure 6)

Figure 5



The thinking process on the producer's side is a different matter. It is the process of actually determining the *content* of the product, rather than its *use* in the world. For instance, in the realm of documents, what are the processes by which ideas and data are generated, decided upon, and then included as content in the product? The third domain designer will move explicitly into this area of the thinking process of composition, and will offer expertise in the planning of the document.

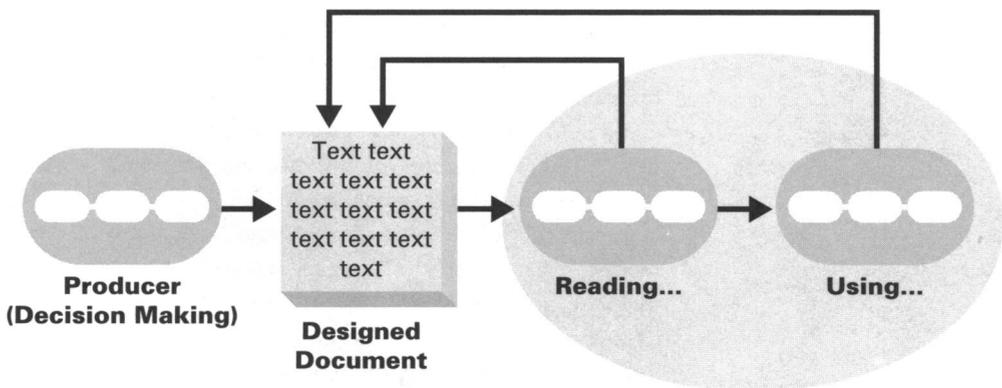
This expertise could include the skill to interview or to facilitate discussions from which product decisions are made.

### Case Study

The competencies of the third order designer are well exemplified in a major project we are undertaking with the Australian Tax Office and the Australian Office of Parliamentary Counsel. Both these organizations are undertaking the largest project of legislative design ever attempted in Australia, and quite probably in the Western world—the rewriting of the Australian Income Tax Act. The Act is one of the largest in the world, comprising well over a million words; much of which is close to incomprehensible; and the structure of which is long buried under the barnacles of successive revisions, amendments and additions to the law. The project leader has aptly described the task as a kind of “urban renewal.”

Second order skills for this task would include skills of plain language, layout and document design. We have broadened the range of appropriate second order skills by the explicit use of *schemata* and *models* to express aspects of the content. We believe

Figure 6



that information is better considered as a two- or even three-dimensional space and, as such, is better characterized as models than merely as words. Words operate physically in a linear plane, but models operate in a two- or three-dimensional plane. As such, they are more able to represent subtleties of structure than words alone.

Hence, we view the act as an “information city,” and the team’s design efforts as a kind of “information architecture.”

Since cities are made for people to live and move in, this realization paves the way for the move to the third order of design. The processes which a legislation document mediates are reading and writing. Most people have little sense of writing as a process, and are instinctively bound to the concreteness of the text as a “thing.” This attitude makes the writing process very inefficient, because people have few tools to help them through the thinking and planning processes which will create the finished document. They also do not have a sense that they will *decide* to finish the document—rather people tend to harbor the notion that a document “preexists,” and that the writing task is a matter of uncovering that preexistent document. They view the task of writing as the transfer of a defined body of content.

These unsophisticated views of the writing process are troublesome enough when one writes as an individual; but when the writing process is organization wide, they become quite debilitating. Having little sense of process means that the status of a draft as a useful “in-process” tool simply is not appreciated; people insist on commenting on a draft as if it were a finished product. Whereas, in fact, the draft is often merely a useful externalization of early thoughts. Thus, commentary on drafts often is too sweeping and pedantic.

We reposition the writing task as a “product development” exercise. Thus, drafts can be viewed more like early prototypes than predictions of the finished product.

To reinforce this appreciation of process in the Tax Law Improvement Project, we introduced readability evaluations—not as final “inspection” testing, but as a key part of the conceptual design phase. Once the content<sup>2</sup> became stabilized, we generated several design devices to help communicate some of the more difficult concepts of the law. For instance, we used schemata and models, as mentioned above, to capture the relationship of the major sections of the bill, and also to model the four methods of deduction allowable in this section of the law. These graphic devices were quite revolutionary to use in such a formal context as the law; normally there would be quite some hesitancy to use such devices. But we framed their use as merely part of a conceptual design phase during which we were developing options. As such, they were reversible; this freed people to experiment with more vigor. They were assured that the evaluation would pick up devices that were failing, so we could afford to be adventurous. In fact, testing often

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2 This work was done on the first section of the Income Tax Law to be rewritten. A short section of about 40 pages, it was deliberately used as a prototype to test communication ideas.

encourages more adventurous options because designers become curious to see if options will actually work.

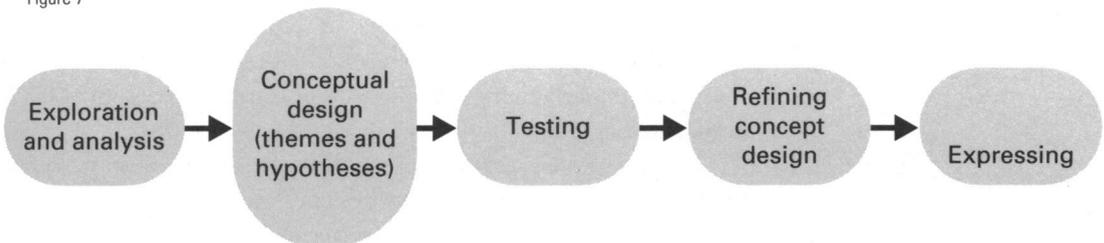
We then submitted the options to readability testing, using the “think aloud protocol” method.<sup>3</sup> The think aloud method was developed by cognitive psychologists to observe the process of comprehension as it happened clear of the filtering and forgetting that mars other measurements of comprehension. The results of the readability evaluation were then fed back into the final choices which were to be made about the document. One of the key findings of the evaluation was that the use of schemata was universally successful with the readers—including the sophisticated specialist whom we feared would treat them as condescending.

The exact nature of the think aloud method and the document design devices is not my key point here, though; the key point is that the client began to realize that this task was indeed a development process, and, as such, it could be separated into component processes that fed into each other. Thus, the process could be managed and guided with more precision than they had realized up to this point. (Figure 7)

This emphasis on process is a hallmark of third order thinking. Process is not a concept that people in organizations readily understand: they are more comfortable with structures and outputs. But the TQM movement and its later developments, such as Business Process Reengineering, have lifted the profile of the concept of process significantly; albeit their approach is rather a mechanistic and quantitative one. However, the processes that the TQM movement addresses are invariably very much more tangible than the writing process that I have been discussing. This makes the challenge of getting clients to realize the process nature of the writing task doubly difficult. The point about this difficulty is that document designers and writers who aspire to work in the third order must develop a strong sense of what the writing process consists of; and they must be able to articulate that confidently to a client, and then adapt that process understanding to a client’s context. This is where the study of rhetoric is potentially so powerful. Ancient though it is, the art of rhetoric is the writing art. The work to be

3 This evaluation was done by a joint team led by professors from the Design and English departments of Carnegie Mellon University.

Figure 7



done is to adapt it to modern organizational needs; to translate it into terms and concepts that are readily accessible to businesses and organizations.

### **Two Modes of Service in the Third Order**

In my experience, there are two main methods of working which occur in the third order of design. The first is when the designer intervenes in the decision-making process directly; the second is when the designer intervenes indirectly. The first occurs when the product is a once off product—in the case of document design this could be a significant policy document, manual, or brochure. The point is that the product is produced once only, and the real need of the client is that this product really works. Hence, the focus is on the artifact, itself. The second occurs when the product is not one-time only, but is produced regularly—so the client does not want the designer perpetually designing all the products. They want the designer to demonstrate the product as a prototype, and then to describe the process in a way that makes it transferable to the client organization. The legislation project is of this latter kind. The client does not want us to write the entire law for them—it is too large, and the task is a perennial one since amendments come in every year. Therefore the value to be delivered in this third order domain is ongoing capability to handle the designing process.

The second of these services (transfer of skills) will tend to the fourth order of design, because it begins to involve issues of people and cultural change quite explicitly.

The above case illustrates, in practical terms, the evolution of design services. It serves to show how wider in scope the third order of design is than the second order; but also how one does not obviate the other. The skills of the second order are just as relevant to underpin and give credibility to the skills of the third order. Nonetheless, they are quite discreet, and one could certainly offer one without the other to a client.

### **Third Order Widens Accountability of the Designer**

In the third order, the designer decides that the client will benefit from an earlier intervention of design thinking, at a more strategic and crucial time. The value proposed by the designer becomes: “You will make a better product decision as a result of my leading you through the process of design.”

The outcome of this intervention will still be in the artifact, but more properly in the specifications or conceptual design of the artifact rather than in its finished mode.

And so the place of working for the designer will shift, both metaphorically and literally. The designer now works much more with the client, and becomes *accountable* to design and manage the process of decision-making that will create the specifications. I use

the word “accountable” deliberately. Everyone can have opinions on wider issues; it is a different matter to be accountable for them. If the designer is to claim accountability for managing process, he or she must formally propose that service. Too often, designers find themselves wandering into process management without formal recognition of their role: this means that the designer often is under compensated and under appreciated.

Thus, the designer must have a sense of where to draw the new boundaries, or the client could expect more than the designer wishes to deliver. Similarly, the designer must have a strong sense of the competencies and experience necessary to deliver value in the third order domain of process leadership.

It is important to note that, although the third order designers have widened their accountability, they have not usurped the accountability for actually making the product decision. Should they do so, they would, in fact, become the client. They influence this decision, can provide options for it, can facilitate the process of getting to a decision; but, in the final analysis, the decision must be made by the client. Both client and designer must be clearly aware of this division of responsibilities.

## **Fourth Order Design— Culture, System and Integration**

What then of Buchanan’s fourth order: Culture, system and integration?

Buchanan has set the context for this discussion of the fourth order in his paper, “Branzi’s Dilemma.”<sup>4</sup> My addition to this discussion is not so much to extend or challenge the theoretical boundaries of Buchanan’s paper (which operates as a kind of hypothesis about the emergence of a fourth order) as to add the perspective of practical experience to the discussion of the fourth order, and to examine some of the consequences of it facing designers.

A key part of Buchanan’s paper that is relevant to my discussion is his comment on *culture* as the distinguishing aspect of fourth order design. He deftly redefines culture as a verb, not a noun; an activity, not a thing. Thus, “culturing” is an activity that we all can do. It is the art of seeking to find and express *identity* and *purpose*.

“Culture is not a state, expressed in an ideology or a body of doctrines. It is an activity. Culture is the activity of ordering, disordering and reordering in the search for understanding and for values which guide action.”

This purpose is not necessarily a metaphysical absolute, but rather a practically useful sense of the shared significance of a task. Put simply, it is the widest domain of discussion around a task. It is

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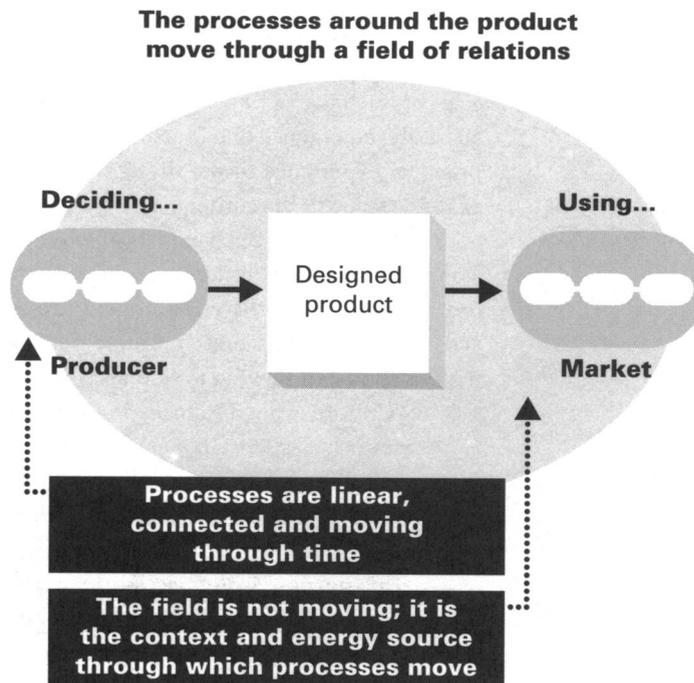
4 Buchanan, “Branzi’s Dilemma,” 10–29.

a mode of thought that gravitates naturally and irrevocably to the question "Why?" It does so not in a metaphysical and absolute sense, as if a fourth order designer is a philosopher or theologian or metaphysicist who is searching for any excuse to discuss dialectic issues; rather, the fourth order designer recognizes that the issues of purpose and intention; of reason and passion; and of love and desire are a necessary and natural horizon for any task or problem confronting humans in their enterprises. To answer that question, we must address other related questions about values, perceptions and worldview.

Just as a product is not only a thing, but exists within a series of connected processes, so these processes do not live in a vacuum, but move through a *field* of less tangible factors such as values, beliefs and the wider context of other contingent processes. This area of the field is the concern of fourth order designers. It is the set of organizational and personal values and purposes within which the processes and products live and move, and have their being. They only derive purpose and identity from the field: without it, they are merely exercises in time and motion, not meaning. (Figure 8)

Thus fourth order design pursues the realization of *purpose* and context around a task. But it also pursues coherence and *integration* around a task. The "field" includes other related processes that influence or are influenced by the task in question. It is within the scope of a fourth order designer to understand and influence

Figure 8



these connected processes—one of the passions and skills of the fourth order designer is integration and pattern.

Integration and purpose are different, but connected, goals. Understanding purpose provides much of the momentum and energy which makes integration possible: integration is not just a rational process of fitting things together like a giant jigsaw puzzle. It also is a process of discovering the energy by which things cohere and fit together. Things don't fit only through either logic or aesthetics: this is a sterile and flat basis for integration. They fit because they make sense as a unit together to people—more sense together than apart. They fit primarily because they serve a shared purpose: hence, purpose not logic is the driving force behind integration.

Another key feature of the field is that it involves people or *communities*: it is not merely a mental place or a series of processes which might or might not involve people (some processes are almost entirely automated, and can be described and improved without any reference to people). It is a place of people and community.

The word “*system*” is useful to describe this aspect of the field of fourth order concerns.<sup>5</sup> This word has a rich history; it has writhed its way through various, quite different incarnations. Its original use in the business context was to describe a mechanistic logic by which organizations ran—its proponents were engineers, and the word obeyed its masters. Of late, the word has been taken over by a “softer” set of intentions and has been used to describe ecological, holistic approaches to problems and the role of organizations. Peter Checkland<sup>6</sup> has pioneered the soft systems approach, which has acknowledged that organizations and their processes include a vast factor of culture and worldview—system designers ignore these at their peril, according to Checkland. Peter Senge has popularized the notion of feedback and circularity in systems and problem-solving in his influential book, *The Fifth Discipline*.<sup>7</sup> Both of these authors have moved people right into the center of the systems debate, and seem to have humanized the previously mechanistic notion behind the word “system.” Under the engineering domination of the word, one could achieve integration merely technically; leaving aside whatever disharmony there might have been among users and producers. Under the wider liberal umbrella described by Checkland, Senge and others; this is no longer possible. Integration must involve integration of purpose and people.

These attributes of purpose (culture), integration and system (community) provide the emerging subject matter for fourth order design. Does this make a fourth order designer a philosopher—one who habitually pursues high order questions of meaning? If so, what practical use could they be in organizations? I am not arguing that fourth order design pursues questions of purpose in the abstract and as philosophy; rather that, faced with any practical task, the fourth order designer moves the boundary of the task out

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5 Buchanan, “Branzi's Dilemma,” 21.

6 Peter Checkland, *Soft Systems Methodology in Action* (New York: John Wiley, 1991).

7 Peter Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization* (New York: Doubleday, 1990).

to encompass the issues of "Why are we doing this task?" and, in answering this question, "What does it tell us about our identity and value?" Similarly, the fourth order designer also will move the scope of the task out to encompass connected systems and activities; to achieve integration so that the product does not operate as a fragment in the world, but within useful and viable patterns. Finally, the fourth order designer widens the scope of this practical task to include the people involved in creating and using the product (i.e., the product decisions are not taken in isolation; nor are they driven primarily by the creative lone voice of the designer; but are developed in discussion with a sense of growing purpose and commitment.

### Case Study

Let me illustrate by referring again to the Tax Law Improvement Project. The scope of the project certainly has moved into the third domain of process and activity; primarily through an analysis of the reading process and its significance for document design, but also through the mapping of the legislative design process. Both of these widen the scope of design significantly beyond the artifact, and also call for new and additional skills on the part of the designer (e.g., knowledge of cognitive processes of comprehension as well as a knowledge of administrative process of policy development). How then might the scope of this task be stretched further into the field of the fourth domain?

First, we can do this by means of discussion of the fundamental question, "Why are we doing this task?" This question was, in fact, posed to the team by the Commissioner for Taxation. He asked, rhetorically, "Will you have done a good job if it is a shorter act, or a simpler act?" For his part, the answer was "No,"<sup>8</sup> the team had three objectives which were to increase the compliance of the community with their obligations; to reduce the cost to the community of that compliance; and to increase the fairness of the taxation law, and the perception of its fairness by the community. This gave a far wider sense of purpose to the project. In response to this challenge, the team built a model of evaluation that extends beyond readability into use and perception.

However, the question of evaluation is more complex than just building a model. Two factors threaten the efficiency and effectiveness of complex systems:

- A They operate over such long time frames that cause and effect relations are very hard to trace.
- B Their creation and administration spans more than one department, so no one person has accountability to understand and optimize the system.

These two factors make evaluation difficult; not only evaluation, but also invention because purpose has two children: evalu-

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8 Although, of course, both of these remain immediate goals of the exercise.

ating and inventing. The creative designer uses a strong grasp of purpose as the energy and inspiration to invent bolder more direct themes or design hypotheses; it provides new and wider boundaries for the inventive designer to pursue options. But that same sense of purpose also sets the boundaries for evaluation. It preserves a project from minimalist criteria that can narrow the vision.<sup>9</sup>

These factors for disintegration irritate a fourth order designer intensely; they are a practical affront to the designer's yearning for "systemic integration." But the practical question remains—how do you evaluate a system's performance in the light of its wider purposes such as reducing the cost of compliance, improving compliance and increasing perceived fairness? In big systems, these are hard to measure.

One way of measuring the performance of large systems is to find "barometer" subsystems—activities which are de facto indicators of the health of the wider system. These activities are those which:

- A Live and work at the interface between the producer and the user systems (i.e., they have regular communication with the host environment; they are "open" to that environment; and they are receptors of its messages).
- B Are in a feedback mode (i.e., they are commissioned to listen to the host environment).

One of these de facto barometer systems in the legislation environment are the departments which handle education, inquiries, or litigation. Their function is to explain or adjudicate on questions that the community raises about ambiguous or contentious aspects of the law. They offer their own interpretations of the law's meanings, and if that is contested in the courts, they sponsor the legal defense.

One of the problems with such groups is that their official role takes no account of such a wider learning brief; they are de facto barometer systems, but the organization does not recognize that role. This is another way of saying that they should be explicit participants in designing and redesigning the large systems under which they work. They need to be led by "systemic" thinkers who see beyond their immediate functions for education, answering inquiries, or litigation; and for any given ruling or contention, they must be aware of the costs to community of ambiguity and legal battles. Without such leadership, wider learning is not feasible. (Figure 9)

Systemic learning such as this often must span departments and authorities, lest the learning be too fragmented and narrow. To achieve integration means crossing organizational boundaries, spanning long time frames, and weaving together strands of opportunity and problems as they emerge. It is not a tidy or predictable

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9 One of the key skills of the fourth order designer is not just to articulate purpose, but to sustain its presence on the task. Most people lose sight of purpose in the detail: fourth order thinking regularly and intuitively returns to it for guidance and inspiration.

process, and it takes some audacity. But it is very much motivated by a sense of sharing the wider purpose; of returning a sense of fairness and administrative efficiency to complicated and groaning systems.

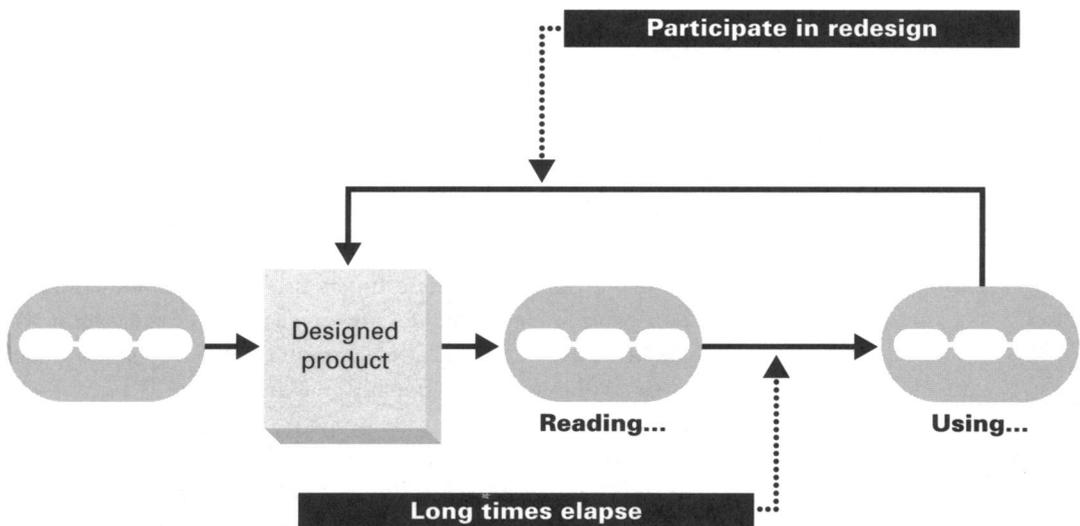
Furthermore, this process of evaluation involves discussion as the key *modus operandi*. That is, it will operate in the community, not as a remote analytical exercise with a paper report at the end delivered to senior management (although such reports are necessary). By discussion, I mean facilitating cross-functional groups in carefully guiding explorations of their shared experiences; identifying and clarifying emerging key themes; and connecting these emerging themes to relevant tasks and applications. This is a key element of fourth order design—Buchanan calls it “practical agreements reached through discussion.”

### Conversation as a Key Skill of Fourth Order

This last point raises another key practical skill of fourth order design: the art of conversation. In order to demonstrate its importance we have to return to the subject of systems which is so characteristic of the fourth order. In my discussion of it above, I linked it with people and made the point that the word had been rescued in recent thinking from its more technical connotations, as recent writers humanized systems to include people and culture as key components.

A system is difficult to define because it is invisible and exists as a model in people’s minds, which serves to describe organized sets of activities. Probably the most fundamental defining

Figure 9



characteristic of the concept of a “system” is the input-output notion. A system receives inputs, processes them in a value-adding way, and creates outputs. This notion is useful, but there are some worrisome aspects to it. It suggests the mechanistic and functionary notions of systems engineering since it still only includes people indirectly and, indeed, does not need them at all. It is fundamentally tied to the concept of objectives and goals as the highest end or purpose statement about a set of activities. The input/output model of a system inevitably will lead to a purpose statement such as “We exist to produce output ‘x’.”

Confronted with these worries about the conceptualization of a system, we have sought alternatives to the biological model of a system and are exploring the model that a system is a “set of conversations around a shared purpose.” This model sounds rather tenuous at first, but its practicality and utility grow on one. It preserves the primacy of purpose without immediately prostituting it to outputs. Conversations have “purposes,” but these are *relational* as much as output oriented. Furthermore, a purpose works in a conversation to constrain and set its boundaries—another key aspect of the notion of system. Conversations are not strings of sentences, although they exist at that level as well. Rather, they are explorations of *themes*. Most appealing of all, conversations are not self-referencing ontologies, or things that exist in and of themselves. They exist to mediate relations between people.

So we are finding the concept of “system as conversation” increasingly useful as an analogy to understand what a system might be.<sup>10</sup> But the conversation model also appeals on the level of the representative and descriptive, as well as the level of analogy.<sup>11</sup> Most business systems literally are conversations around a common purpose, whether that conversation is mediated by documents, phone calls, electronically, or by physical products.

If the concept of “conversation as system” is at all viable, then clearly one of the key arts of working with systems will be the art of orchestrating conversations. This art is beginning to receive significant attention in business literature, with one writer<sup>12</sup> claiming that the ability to understand and lead dialogue will be the key art in making successful organizations in the coming decade.

Certainly, it is the key art that we have begun to exercise whenever we work in a specifically fourth order domain—the art of facilitating discussion and dialogue. This art is like a living composing process. It requires all the skills of composition that a good writer must master in the face of a complex topic. However, these skills are used in a live drama; in that you take the topic to a group of people rather than away to work on alone in the safety of the designer’s cloister. You submit the topic to a group of people who care about it, but who probably do not all agree on their positions. Then you unfold the argument in real time with no predictability of outcomes.

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10 I am indebted to my colleagues, David Jones and Anne Deane, for much of these insights around conversation and systems.

11 Yet it is more metonymy than analogy.

12 William Issacs, “Taking flight dialogue, Collective Thinking and Organization Learning” in *Organizational Dynamics* 22, 2 (Autumn 1993).

This process is not as precarious as it might seem. The real purpose of the group is to search out shared purposes, so the outcome is less important than the process. It is this kind of conversation that we are facilitating as part of the learning/evaluation phase of the tax project. It includes a search for identity and purpose, as well as a search for better techniques.

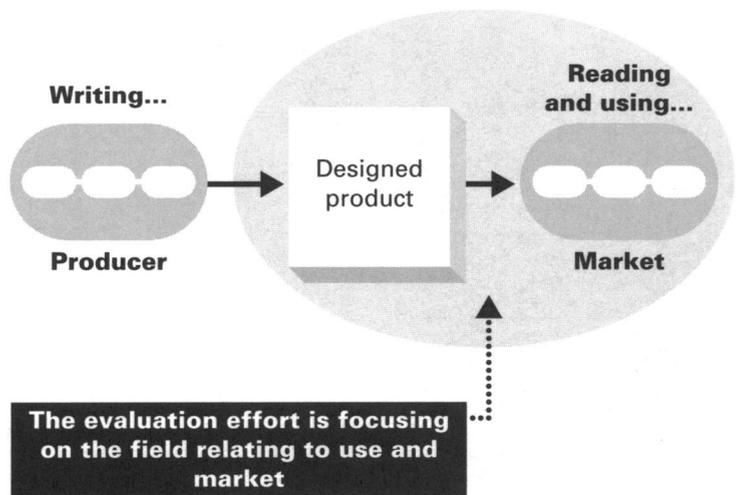
The above discussion of fourth order design concentrates on the *market* side of the designed product—the field of connected processes around the *usage* of the documents such as the law, and of their wider purposes. (Figure 10)

#### **What of the upstream or producer's side?**

As I indicated earlier in my discussion of the third order, we have mapped the process of legislative design and produced a manual describing it. This exercise certainly widened the scope of our involvement out beyond the document, but it still falls short of true fourth order activities. This is because the mapping process per se is characterized by linearity rather than integration, and by logic rather than people and community. Buchanan's circumscribing of the role of strategic planning is relevant here.

The example of process reengineering is worth discussion here ...strategic planning breaks down when the larger cultural context is undergoing major transformation.... The volatile period of transition may be led, managed, and facilitated by fourth order design thinking that focuses on systemic integration, but it is not managed through the methods of strategic planning.

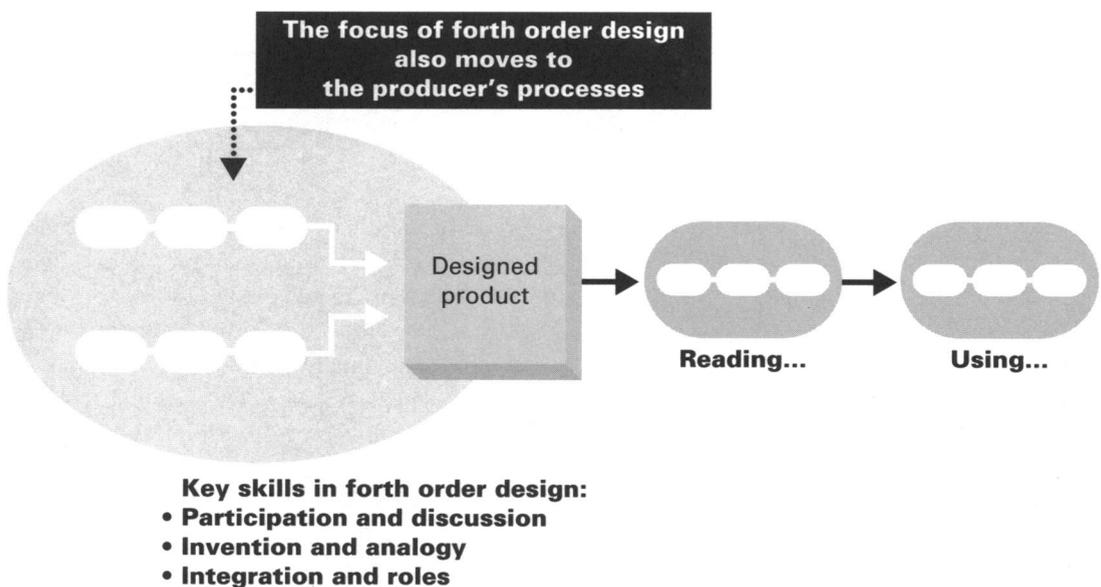
Figure 10



Process reengineering involves mapping and rationalizing processes. It works in areas where the processes are defined and observable, and hence are capable of rationalization. Yet, in a new and emergent area which has never been mapped before and which also involves ambiguous tasks, it will prove inadequate. Our process was not just a rational description followed by a culling or rerouting of activities. Rather, it was a process of invention and participation. It involved much discussion of the nature of the tasks and of the best way to describe them. This description was not numerical but imaginative, with the frequent use of analogy to provide insight. Furthermore, the process described was very much a process of dialogue between different interest groups. The maps we drew were not just linear flowcharts, but more creative and idiosyncratic representations of action.

The participation also was a crucial element of our design efforts on the production side of the process. This task was not a cerebral exercise in analysis; but the opportunity for a group of people "in transition," as Buchanan states it, to discuss the nature of the task they have been given. This discussion is not trivial or peremptory; but explores difficult grounds such as the nature of the value they add, and the nature of the respective roles each person plays. Most organizational situations never fully allow such candor; identity and purpose are elided and assumed. The focus of organizational attention moves on to safer, more trivial matters of mechanisms and minor tasks. But when an organization sanctions the exploration of the nature of shared work, it becomes a culturing exercise as groups "order and reorder" their sense of purpose and value. (Figure 11)

Figure 11



The key skills to support the delivery of value in this wider domain include the ability to design and lead discussion, and to develop strategies for appropriate methods for participation in the activity of writing the manual; inventiveness and the use of analogy as a mechanism to understand and describe the key themes that emerge; and a knowledge of systems thinking and complementary roles in tasks. Once the manual describing the legislative process is complete, the necessary skills can be applied to educational design, training and change management.

This extended discussion of the legislation project illustrates fourth order design at work. Purpose, integration and systems (communities) are all vital subject areas in the project; but they are not approached abstractly. They are necessary extensions of the scope which began as document design. This case study illustrates the true nature of fourth order design. It is not a tidy and predictable area, but relies on opportunism and alertness. More than that, it relies on eagerness and vision for change.

## **Further Broadening of Fourth Order**

Thus far, I have characterized fourth order design as the widening of task horizons beginning with an orthodox design task.

However, I predict that the scope of fourth order design may well be broadened still further. As Buchanan argues in Branzi's Dilemma, "...designers (will) continue to focus and reinvent their professions to meet new opportunities and circumstances." The new opportunities I foresee arise from the nature of "traditional design tasks."

Design is the conceptualization and creation of products. As such, it is dealing in the area of the new and the uncertain: it is creative. In essence, it does not begin with a problem to be solved or a process to be refined or modified: it is not derivative thinking. It begins with a blank sheet of paper. The guiding impulses are love, intention and value. The words which will which command the product to emerge.

Designers are all too familiar with this unstructured and ambiguous type of situation. It is the stuff of their professional lives. As such, it is in stark contrast to the pedigree of the management and engineering sciences that are so influential in organizations today. These disciplines fundamentally are not about invention so much as analysis. They rely on training to solve existing problems; at the most to discover by empirical testing and analysis; but certainly not to invent. In their sphere of analysis, "purpose" is reduced to the quantifiable and the numerical; it will be shrunken down to the level of objectives such as revenue, cost and productivity.

However, this structured training is becoming less and less adequate for the chaotic and fast-changing world of organizations and societies today. More and more organizations have watched as past beliefs, processes and products have been swept away in tides of (often unwelcome) change. Global competition has precipitated this. Another factor that is having a major impact on organizations is the environment, and the wider political and cultural situation. In the past, organizations have been able to steamroller their way ahead oblivious to the demands of these ecological factors. Those days have passed, and now organizations must be open and symbiotic. These external pressures are creating internal pressures for organizations, so that departments and groups have to reassess their positions.

In short, organizations are being regularly plunged into urgent deliberations about their purpose and their identity. As such, they are finding that they are in the *place* of design, as it were; in a de facto design process dealing with ambiguity; and dealing with a blank or illegible sheet of paper. In this place, the training of engineering, accountancy, law, and management science is not relevant preparation. Technocracy is, as it were, in decline as a viable system of governance. To whom will organizations turn? The art of design offers rhythms of thought, patterning skills, understanding of the defining role of love, intention and value in human agency, and the responsiveness to place and market—all key disciplines that are needed to be exercised in far wider applications than they have been in the past.

Imagine that we could map whole organizations and the systems within them along an ambiguity axis, with the most ambiguous on the left and the most defined on the right. In the middle is the point of definition and clarification

More and more organizations are finding themselves being plunged onto the left-hand side of this diagram. *This is a crucial change of place* because the tools and management responses that suit an organization on the right do not suit an organization on the left. In fact, these right-hand tools are positively counterproductive on the left-hand side.

Fourth order design has the breadth of scope and reach of skills that will be called upon more and more to help lead organizations. As this happens, it will not need a specific design task as the initiating factor. Design will be desirable for its thinking style, alone, without any artifact in view.

### **Brief Case Studies**

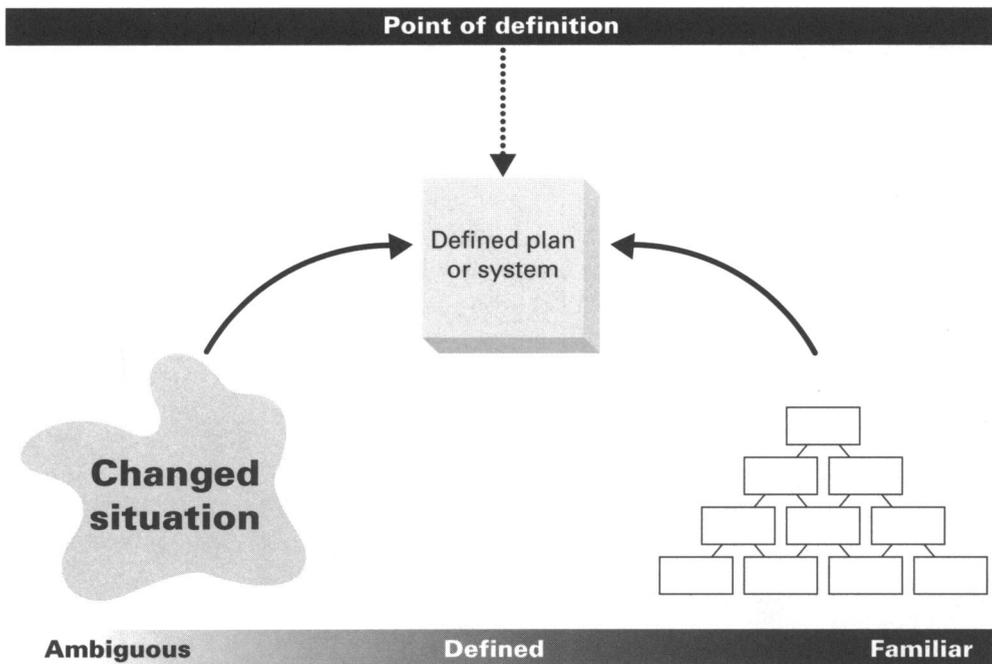
Let me illustrate this emerging demand for design thinking with other case studies. A resource company worries that its ability to take prospects from discovery to operating mines is too inefficient. A major government agency, only recently created, is burdened

under the weight of extraordinary growth, public criticism of its performance, and a lack of training for its staff; while a nationwide suggestion scheme uncovers hundreds of suggestions but little that is new or promising. A significant research body feels the lack of creativity in its processes, and the lack of cultural skills to implement the outcome of its research in operating situations. Major computing projects are overburdened with downstream methodologies for writing software code, but feel exposed and uncertain about the early processes of creativity and invention.

These companies (all clients we are currently working for or have recently worked for, all major Australian organizations) all have a common theme. They have found themselves, in whole or in part, in de facto design situations. In these situations, they have responded with analytical management tools that have not proved adequate, partly because these tools are predicated on a more structured situation than they now confront. The symptoms that alert these organizations that something is wrong are major inefficiencies, or other dysfunctionalities.

All of these organizations are actively pursuing design thinking as a radical but promising alternative approach.

Figure 12



For the design community to meet these kinds of needs, one thing above all else will be necessary: the ability to articulate and to understand the art and disciplines of the design process. It has not been my purpose to explore these arts and disciplines in this article. Rather, my purpose has been to show that fourth order design is a practical place and not just a theory. As a consequence of this practicality, I predict that fourth order designers will find new applications and interests beyond traditional subject matter for design. The design community's best preparation is, first, to understand this widening context for design; and, second, to explore and articulate the art of design within it.