

Past, Present, and Future in Design for Industry

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A continual problem for design practitioners is in defining for non-practitioners just what it is they do. Designers may know what they mean by design, but their understanding often is based on experiential knowledge, which is not easily articulated or communicated. The problem is compounded by the fact that there is virtually no agreement in social terms of what design is—indeed, clients and audiences often have a very different understanding of design to that held by professionals.

This is hardly surprising if one considers the enormous confusion surrounding the word “design,” with patterns of usage revealing very different meanings. To illustrate this at a basic level, a seemingly nonsensical sentence can be constructed, in which every use of the word “design” is perfectly grammatical:

Design is when designers design a design to produce a design.

The word “design” is used four times. The first usage is as a noun, connoting the field of design as a whole in a very general manner, as in the phrase: “Design is important to national economic competitiveness.” The second usage is as a verb, meaning the action or thought involved in the act of designing. The third also is a noun; this time connoting a plan or intention. Finally, the fourth usage again is a noun, this time meaning the finished product. All the usages have very different meanings, yet even people professionally involved in design continually slip between them, seamlessly moving from one meaning to another without distinction.

A further level of the problem leading to confusion is the different professional subcategories of design, such as architectural design, engineering, computer, product, industrial, graphic, communication, information, interior design, and so on. Even this does not fully explore the complicating factors, since it doesn’t address everyday appropriations of the term as in floral design, hair design, and funeral design!

Leaving aside the more trivial applications, how do we begin to make sense of this confusion, not only for ourselves in the design community, but also for the wider audiences we are committed to serving?

Much of the confusion has its origins in the past, in the diverse forms in which design has evolved at different times. Regrettably, studies in design history generally have failed to clarify

this complexity by being too focused on design in its more recent manifestations, and often being too justificatory in tone, subordinate to specific movements such as modernism; nostalgically advocating particular forms of practice, such as the crafts; or promoting the work of a particular country or tendency.

Although it is a truism that the past never completely repeats itself, history can be used as an essential tool in understanding our current situation. Moreover, it contains a fund of generic ideas about design practice that illustrates possibilities for understanding newly emerging technologies. In an age beset by change in radical and fundamental terms, these can be invaluable guides in coming to terms with the consequences of change. Indeed, because the nature and pace of change provide very few guidelines, it can be argued that history is the one source from which any certainty can be derived in facing the future.

To realize this possibility, however, involves shifting from an understanding of design as the particular set of skills or organization appropriate to modern history, or any other age, and defining it more in terms of a generic human capacity to shape and make the objects, communications, and systems that serve utilitarian needs and give symbolic meaning to life. In other words, seeking the connecting links and themes that underlie the proliferation and confusion. On this much more general, fundamental basis, understanding the stages through which design has evolved in the past can enhance our understanding of the current situation, illustrate a range of potential approaches that have general application beyond their historical specificity, and provide signposts as to how design might develop in the future. Considered in this light, moreover, the whole of human history opens up for consideration.

On a simple level, for example, a study of design in nomadic societies could explore the generic qualities of artifacts used in such societies based on such factors as lightness, portability, and flexibility in use—an example is the origins of the fabulous carpet design tradition of the lands of Central Asia.

In more complex terms, there is much to be learned from the use of tools in so-called “primitive” societies, which often were part of a very densely textured pattern of relationships. A detailed illustration is provided by the Yir Yoront, an Australian aboriginal tribe inhabiting the northernmost tip of Queensland. They lived by hunting, fishing, and gathering plants, but were distinguished by the use of polished stone axes, that played a role of central importance in the life of the tribe.

Writing on the role of these stone axes, anthropologist Lauriston Sharp explored their significance on multiple levels, starting with the processes of making the axes which constituted an important element in the relationship of Yir Yoront men with their natural environment. On another level, designated “conduct,” the pattern of who could borrow whose axe was important in defining

the complex kinship pattern of the group, and so axes became important symbols of internal relationships. It also profoundly influenced external relationships, because the stone for the axes came from sources four hundred miles away, and trading patterns and ceremonial meetings at which the raw material was traded constituted yet another crucial element of the round of Yir Yoront life. Finally, Sharp discusses the cultural significance of axes; covering ideas, sentiments and values and their role in tribal myth. With the provision of steel axes by Christian missionaries, however, Yir Yoront society rapidly fell apart.¹

The multilevel and multivalent function of stone axes in Yir Yoront society is mirrored in the function of many modern artifacts. Consider, for example, the role automobiles or computers have assumed, and are still assuming, in modern societies. Remove either, and the effect would be traumatic. Neither is speculation required to understand the profound effects of changes in technology in our age, for they are still rippling with often equally devastating speed and effect through many societies—for example, consider the patterns of change in modern China.

With the development of settled agricultural patterns in more favored regions of the planet, a new pattern emerged. Instead of being mobile, people began to live mostly in the locality where they were born, with their needs satisfied in that locality, by hand or simple machinery and tools, using local materials. Traditional concepts of form emerged that represented the accumulated experience of that place and, although varying in great detail through different localities, were highly standardized in any community. Thomas Smith describes the writings of an early nineteenth century observer of Japanese agriculture, Nagatsune, who noted the huge variety of forms in such as basic tools as the spade: "...these adaptations," commented Smith, "varied endlessly, with the result that, although the spade was used everywhere, for example, its size, design, and heft differed almost from village to village."² In such a situation, both maker and user both understood the highly specific adaptation of the tool to the needs of the locality, and worked in close contact. Therefore, tools, when made for a particular person, could be minutely adapted to that person's physical particularities and personal preferences. Traditional forms, although fixed in general principle were, in fact, highly adaptable to specific needs—a principle closely parallel to possibilities of modern flexible technology.

As towns proliferated in various parts of the world, guilds played significant role in urban communities, representing an early form of licensing of designers, being primarily concerned with maintaining standards of work and conduct. They could only work in an age characterized by stability, however, rather than change—which in the end destroyed them. In many countries the main instrument of their downfall was industrial manufacturing based on

1 Lauriston Sharp, "Steel Axes for Stone Age Australians," in Yehudi A. Cohen, ed., *Man in Adaptation: The Cultural Present* (Chicago: The Aldine Press, 1968), 85–9.

2 Thomas C. Smith, *Native Sources of Japanese Industrialization 1750–1920* (Berkeley: University of California Press, 1988), 181.

hand techniques, and on the basis of division of labor and production for wider markets. Examples of such industries were found in India around 900 BC, and became widespread in Europe in early medieval times. In such organizations, craftsmen lost control over design decisions, which increasingly became the preserve of entrepreneurs, the only people who knew the distant markets for which they were producing.

While design histories have placed heavy emphasis on the creation of forms, the manner in which they spread across time and space and have been adapted into everyday use, has received less attention. The monasteries that spread across Europe frequently have been depicted as institutions predominantly concerned with preserving European culture through the so-called “Dark Ages.” Yet they also played a very powerful role in changing that culture by diffusing technologies and forms across the continent. The Cistercian order, founded in 1098, expanded to a chain of some 740 monasteries, and played a particularly important role. In the thirteenth and fourteenth centuries, they functioned as a distribution network for spreading new innovations, including improved agricultural methods and the water mill.³ The latter, according to Jean Gimpel, were an early form of joint stock venture.⁴ Ironically, the monasteries therefore were important contributors to the development of early forms of capitalism that not only undermined the guilds, but also the monasteries themselves.

The origins of national policy in the uses of design also have extensive roots. In the early 1600s, the French monarchy began attracting the finest craftsmen in Europe to Paris, to establish economic dominance in the luxury trades. The craftsmen were highly privileged, and since their capacity to satisfy demanding markets was crucial, education and practice had to be sustained at a high level.⁵ Government power to stimulate developments in design can be substantial—the present-day “designer” in France, in a host of fashionable business sectors, can be traced to this tradition. Many governments in contemporary Asia are pursuing similar generic approaches to promoting design intended to achieve economic advantage for their country, a pattern which began in Japan, was followed by the four “tigers,” Korea, Taiwan, Hong Kong, and Singapore, and is now being reinterpreted anew in the next wave of industrializing countries such as Malaysia.

Governments also have used design for symbolic purposes that provides forerunners to modern corporate identity programs. The use of visual forms was extensively applied to create an image of royal power in the reign of Louis XIV of France,⁶ and was taken to a more systematic levels in the creation of a total visual image for the first Napoleonic Empire.⁷

Governments also can be negative instruments for restricting progress in design, however, by preventing ideas from being realized. In Imperial Rome, for example, the Emperor Tiberius “was

3 Arnulf Gröbler, “Time for a Change: On the Patterns of Diffusion of Innovation,” *Daedalus* 125 Summer (1996):119–20.

4 Jean Gimpel, *The Medieval Machine: The Industrial Revolution of the Middle Ages* (Orlando, FL: Holt Reinhart & Winston, 1978), 11–2.

5 Nikolaus Pevsner, “Design and Industry through the Ages” *Journal of the Royal Society of Arts* XCII (1949).

6 Peter Burke, *The Fabrication of Louis XIV* (New Haven: Yale University Press, 1992).

7 Ellis Geoffrey, *Napoleon* (London: Longman, 1997) 156–67.

alleged to have killed a man who invented an unbreakable sort of glass, because his discovery would have cheapened the value of imperially owned metals....”⁸

One of the most spectacular examples of the effect of government fickleness in promoting technology and design was in early fifteenth century China. From 1405, in the reign of the Ming Emperor, Zhu Di, a Chinese fleet of 317 ships crewed by more than 27,000 men, set sail from Nanjing on a voyage to reopen trade with India. The largest vessels were four-hundred foot long, nine-masted sailing junks that surpassed anything hitherto constructed in the world. Up to 1433, a total of seven such voyages were undertaken, as far as the Persian Gulf and the east coast of Africa. By the late 1430s, however, as a result of power struggles over the imperial succession, overseas ventures were rejected, and a new policy was introduced that viewed the land as the true heritage of China. The great fleets were dismantled and new construction was forbidden. It was a key moment in changing the balance of technological power between China and Europe.⁹

A similar course might have been adopted in England, had the power of the monarchy not been checked. In the sixteenth and seventeenth centuries, there were frequent efforts by the Tudor and Stuart monarchs to protect what they claimed was the social interest of the nation, although this term frequently was a cloak for protecting the economic interests of the crown, and its control over particular industries. The intervention purported to maintain stability in production processes and markets through a range of statutes directed at preventing the early stages of capital formation and the accumulation of profits—the seed-corn of capitalism. An example was an act passed in 1555 by Parliament aimed at preventing country weavers and clothmakers from possessing more than one or two looms. A more sweeping piece of legislation was the Statute of Artificers of 1563, giving Justices of the Peace power to fix wage rates and to enforce seven-year apprenticeships for craft workers in existing industries.

Christopher Hill cites specific attempts in the early seventeenth century to prevent innovations that threatened the interests of established craftsmen and their methods.

In 1624, the government ordered the destruction of a needle-making machine, together with the needles which it had made. Nine years later, Charles I prohibited the casting of brass buckles. At best, government policy would have perpetuated a small-town economy in England. ...But fortunately the government’s power of enforcing its regulations was inadequate to its will.¹⁰

8 Michael Grant, *The World of Rome* (London: Weidenfeld & Nicolson, 1962), 75.

9 Louise Levathes, *When China Ruled the Seas: The Treasure Fleet of the Dragon Throne 1405–1433* (New York: Simon & Schuster, 1994).

10 Christopher Hill, *Reformation to Industrial Revolution: A Social and Economic History of Britain, 1530–1780* (London: Weidenfeld & Nicolson, 1967), 138.

A key factor was that Justices of the Peace, legal officials appointed by the Crown to execute its policies in localities, often were among the leading entrepreneurs of their districts.

In early patterns of industrialized craft production, draftsmen represent the significant stage of separating the conception or plan of a product from its making. Working to directions from an entrepreneur, or from pattern books that began to appear from the Renaissance onward, their numbers were rapidly growing before the Industrial Revolution of the late eighteenth century, and further accelerated as production for commercial markets increased. They were the design workhorses of the first industrial age. Much commercial work was in fact based on imitation, either of historical styles or of higher-level competitors, and draftsmen provided the necessary drawing skills for production specifications.

With the growth of capitalist industry and the expansion of markets, traditional forms clearly were inadequate means of satisfying new demands. It became increasingly necessary in product sectors, such as personal wear or household furnishings, to generate a flow of new ideas. Catering for varying tastes in markets meant adaptation to changing fashions. In this situation, the only people with adequate visual training were academic artists who began to provide manufacturers with concept sketches for furnishings, fittings, and decorations, to be translated into production drawings by draftsmen. The proliferation of forms that resulted increasingly meant a separation of decorative concerns from function.

The role of the industrial artist went through several stages of evolution in the nineteenth century, and was given renewed impetus at the Bauhaus in the 1920s, which emphasized the artist-designer as a creator of ideal prototypes for industrial production. Art, proliferated through industry, could, it was believed, substantially change life. However, the artist-designer as change-master of modern society has been theoretically idealized, but little realized in practice. Nevertheless, the impact of talented individuals cannot be underestimated, as in the contemporary role of the virtuoso designers of Milan, or the Frenchman, Philippe Starck. Moreover, many courses in design education are implicitly directed to producing such "star" designers, even though a tiny minority achieve such status.

Opposition to applying art to industry became highly vocal as the nineteenth century progressed. John Ruskin, William Morris and their followers in the Arts and Crafts Movement passionately argued a powerful critique of industrialization, but their solution idealized hand work and fell into nostalgia: a romanticized re-creation of the medieval past. One of the results to which this idealization contributed was the growth of the antiques trade. The need to clearly identify the provenance of objects consequently has become a major focus of many design historical studies.

In Germany, however, the Arts and Crafts ideals of honest workmanship, truth to materials, and a sense of moral and cultural responsibility were not seen as incompatible with machine production. Instead, in the early years of this century, they were translated into a belief that design for industry could be both commercially successful and an appropriate expression of modern technological culture based on sound social and economic values. This belief has continued to be profoundly influential in the mainstream of design in German industry, and in other parts of Europe such as Scandinavia, for much of the present century, although, at present, it is being undermined by current changes in technology.

In the United States, new industrial technology and organization evolved in the late-nineteenth and early-twentieth centuries to again totally change existing design concepts and practices. Large enterprises on a scale previously unknown emerged, with ownership separated from management. Using techniques of mass production, and mass advertising, large businesses have fundamentally changed every aspect of life and culture in America, with significant influence across the globe, by a proliferation of innovative products.

The huge capital investment required to establish mass production facilities required long-term continuity of production to ensure adequate return on investment. Competition from other manufacturers with similar facilities, however, required constant change in the appearance of products to stimulate markets. Moreover, the mass advertising used to persuade consumers to buy products hinged upon visual imagery—far more people saw images before they saw the actual product.

Alfred P. Sloan, then president of General Motors, realized in 1924 that the mass production of automobiles did not necessarily mean the production of one model, but that new markets could be stimulated by a diversity of models based on common platforms. The outcome was the emergence of designers as stylists. The career of Harley Earl is the classic example. Appointed on a permanent basis by Sloan as head of GM's Art and Color Section in 1927, he reached the top level of corporate management, first as Vice-President for Styling, and later for Product Planning, with a styling staff that came to number 1,400 by the 1950s.

Many practitioners, however, developed far beyond a concern with superficial changes of form. After the Second World War, some began to encompass a very broad range of services, many of which were of more fundamental importance to the nature of a client's business. Even such an arch-exponent of styling as Raymond Loewy pointed out that declining American manufacturing quality disillusioned purchasers, who, after being attracted by the external design, found the product unsatisfactory in use. As an alternative, he advocated design as a high-level activity vital to the competitive future of corporations, and expressed apprehension at

the way so many American firms preferred designs that echoed competitors' products. Much of this awareness of change was generated by growing competition from overseas, as the U.S. market became a competitive arena for manufacturers from across the world. Large segments of American industry subsequently were decimated by imported products from countries such as Japan and Germany, that paid greater attention to production quality with a more holistic approach to design.

Some American designers, however, pioneered new approaches. Richard Latham demonstrated the effectiveness of the concept of strategic design planning in consultant work for several corporations, becoming a board member of Rosenthal, Bang & Olufsen and Lands' End. Jay Doblin, who began his career in Loewy's New York office, and later became Director of the Institute of Design at Illinois Institute of Technology, further evolved a range of methodologies to transform how major corporations can use design strategically in every aspect of their operations.

All these phases are part of the history of design and in innumerable ways still constitute living elements of it. It is important to stress that the evolution of one stage does not entirely replace what has gone before in some sequence of linear progression. Instead, new phases become layered on the old. The older phases may be changed or marginalized, but never entirely die out. The twentieth century, for example, already has witnessed several such changes in design: its transformation and diffusion in industry as a means of reconciling the nature of mass-production technology with the possibilities of mass consumption; its spread geographically as an integral form of practice across a constantly increasing range of countries; and the emergence of a capacity to function across a wide range of business needs at a strategic level in organizations.

Many designers around the world are perplexed by the changes currently confronting them. One of the greatest dangers, however, is an inability to understand that, in a world beset by change, design does not remain untouched. It is not simply a matter of computers replacing other tools, while basic concepts and procedures continue unaltered. As the European scribes found in the late fifteenth century when confronted by the printing press, or harness makers when confronted by the automobile, it does not matter how skilled anyone is, if that skill itself is becoming redundant. It would, therefore, be foolish to expect that similar changes will not happen again. All the indications are that we are faced by radical change on multiple levels. At one extreme, we are confronted by the evolution of "super mass production"—a new phase of mass production on a global scale. At the other end of the spectrum we have tailoring and customizing to meet the precise needs of users, with many other variations in between. The choice is that we can try to understand these developments, adapt to them, use them for seemingly beneficial purposes, or be consigned to a marginal position echoing loud

with complaints that things should not be like this. Should designers fail to adapt, new competencies will emerge to fill the gap left behind. The evidence of history is that design, as a basic human ability, is constantly required to adapt and redefine itself to meet the needs of its time. We should expect no less for our age.