BRIDGING THE GAP BETWEEN DESIGN AND INDUSTRY

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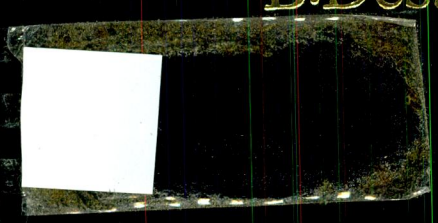
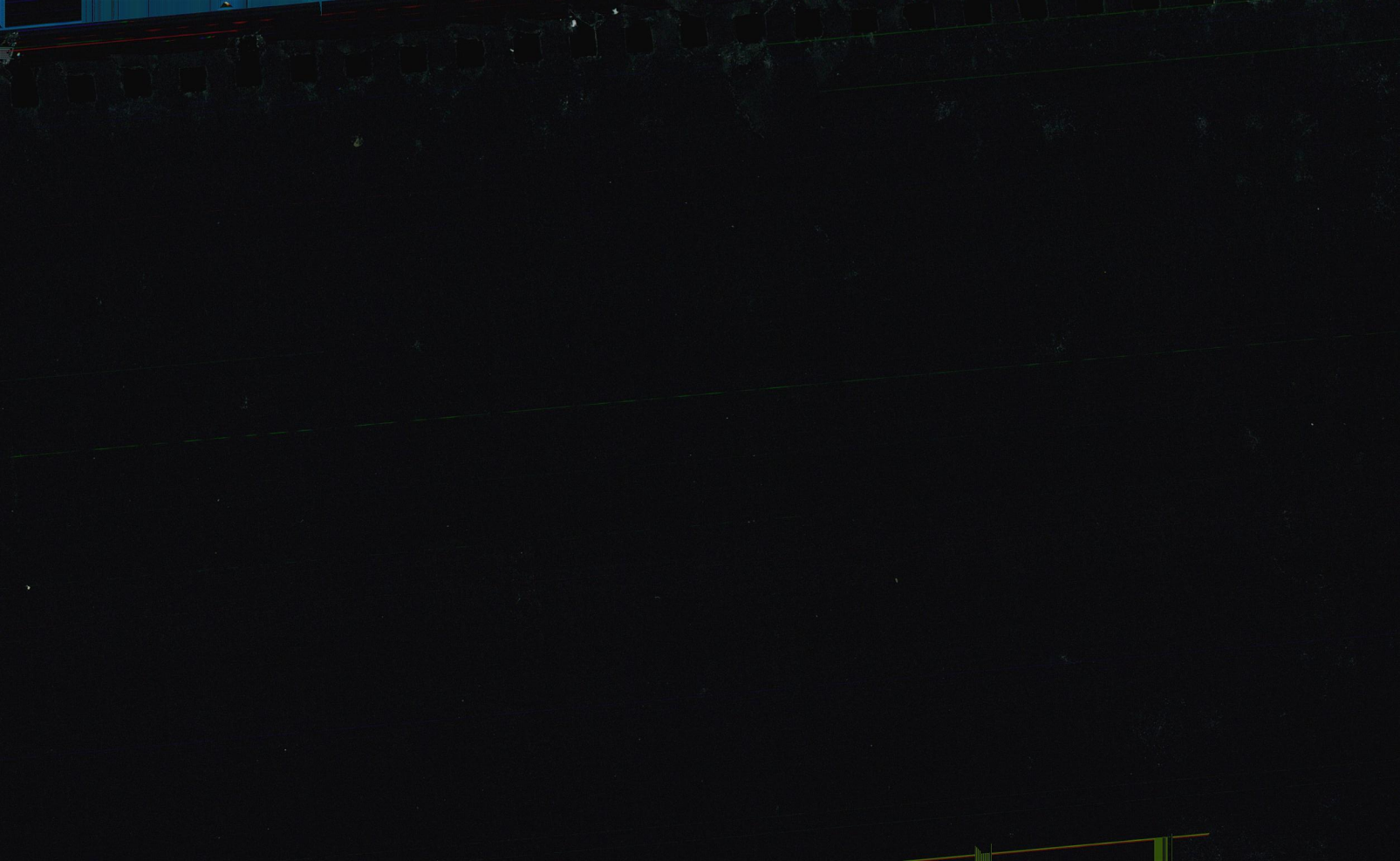
B.Des.

1995





National College of Art and Design

Faculty of Design
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Bridging the gap between Design and Industry.

By
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Introduction.

The use of design as a fundamental link in the structure of a company is of great importance and is a valuable asset to any organisation. This philosophy is one that should be at the heart of every company regardless of its end product, but especially for a company that is product based. The problems that exist between design and industry are the reasons for the divide between the two disciplines, i.e. Industry's hesitancy in using design as in-house or as an outsourced service. The increasing need for design and the designer to have a more central role within the corporate structure of companies are prime concerns of this discussion. The views and the use of design by three manufacturing companies, Viniter Ltd, Unidare Environmental and ABS Electronic, in Northern Ireland, are used as a basis to explore this problem.

It is the aim of this thesis to show that an awareness of the benefits and potential of both design, and the Industrial designers contribution, are required within company structures so as to bridge this divide.

In the first stage of this essay the development of the industrial design profession is outlined in respect to how it has contributed to the division between design and industry. The constant re-evaluation that industrial design undergoes has led to confusion about its meaning and purpose in the eyes of many.

The problems between design and industry will be discussed in the second stage of this thesis. The reasons for their existence are a stumbling block for designs integration with industry. Most of these problems revolve around our understanding of industrial design. Unless we, the consumer, the designer, and the manufacturer, understand what design is, we will not reap the benefits of it, nor shall the industrial designers full potential in the process of product development be realised.

The manufacturer must be shown the financial benefits of design investment. The consumer must be made aware that the designer is not only the stepping stone between the manufacturer and the end product, but that he can also provide a valuable link between what the consumer will need in the future and what the manufacturers produce. For this to become a reality the designer's status has to be raised, through design education, professional practices and government support, i.e. by initiating incentive schemes for manufacturers to invest in design. The belief that industrial designers are merely stylists must be addressed by the aforementioned sectors.

The third section of this thesis proposes that design management is necessary once a design policy is implemented within the company. That design management is not only needed within large corporations, BAA, British Rail, Ford, IBM etc.

The main objective is to establish that design is the process of product development, that the Industrial designer plays a fundamental role in this process at all levels and the belief that "design" and "industry" exist as separate entities is an unrealistic perception. The company ABS Electronics, based in Bangor, Northern Ireland is used as a case study to verify this.

Chapter 1.

Design Developments and present confusion.

The aspects of designs development discussed in this chapter are based around changing philosophies which have contributed to confusion about the, meaning and purpose of design today. It is therefore not a historical account of how every development in design or society has contributed to present design understanding, but rather, to establish that past events have led to a general lack of consensus regarding the role of design and designers today. For the purpose of this discussion, developments in the industrial design profession will begin with the emergence of the American Industrial design profession in the early 30's.

This marked the first real recognition of industrial designers as a professional body. The credit for this development lies as much with the manufacturing industries in America as it does with those who took up the new profession. Manufacturers need to create consumer demand in a time of recession. In the early 30's, resulted in the setting up of Industrial design consultancies. The industrial designers were used to style products and entice consumers to spend their money despite the recession.

This raises an ethical question on behalf of the designer, one which has been heavily debated ever since : is design just profit based or has it a more important role to play, catering for the real needs within society ?

The demand for these designers was such that they were elevated to the status of superstars. Their names were used as part of the advertising campaigns of the products they designed, Waiter Dorwin Teague, Norman Bel Geddes, Raymond Loewy and Henry Dreyfuss being just a few of these designers. The importance of the American system is that it had a huge impact on Europe and other countries after the Second World War.

Post-war Europe saw many changes, economic, social, political and cultural. The promotion of industry directly after the Second World War was seen as a key to economic development. It rapidly became apparent that the role the Industrial designer played in America, creating a consumer demand for manufactured products, was one that they could adopt. As such countries began to reassess their stance on the role of design within their own national rebirths, the outcome was that various approaches were taken. "Germany sells design in the name of science, Italy in the name of Art, Scandinavia in the name of craft and the USA in the name of business" (Penny Sparke, 1983, p48)

The approach adopted in Japan was to concentrate on technology and manufacturing processes which Stephen Bayley attributes to the success of development of Japanese industry processes today (S. Bayley, 1993, p10)

The American system had a huge influence on the development of design in Britain. John Gloaey presented papers by Raymond Loewy on the subject at the RCA in 1944, in which the American business-orientated approach was strongly enforced. (P. Sparke, 1983, p58). However, the design establishment tried to used the Scandinavian approach of craftsman-designer as a basis for integrating design with industry (P. Sparke, 1986, p102). This was not successful however by the mid 50s and early 60s Britain had established a thriving design consultancy business, based on the business ideals of the American System. This was met with opposition by those who were loyal to the craft ethic such as Raymond Williams, who wrote about the negative aspects of American Culture in Britain in the 50's and 60's (P. Sparke, 1986, p153).

From the diversity of approaches taken with design's implementation and promotion in Europe, America, Japan etc it is obvious that there was much confusion about what it's role should be, a confusion which still exists today. With the improvements in communication systems in the 50's, 60's and 70's, the various changes in attitude towards design that took place in various countries were not confined to the country where they originated. This meant that movements such as Radical design in Italy or the craft revival had a greater impact, internationally. As too did the "design for need" movement initiated by the philosophies of Victor Papanet expressed in his book Design for the real world. In association with these specifically design-related movements, cultural movements in the 60's, particularly in Britain, and in America in the early 70's has had a marked influence on perceptions of design. As John Hegarty wrote in an article entitled, "The Sixties", in Design Week, the icons of this era are very much alive today.
(J. Hegarty, Oct. 1994, p17)

The problem is that because design and philosophies about design are constantly changing, there is not a coherent and universal definition of its meaning. Some associate it with fashion or interior design while others consider it as craft or art based. Nowhere is this confusion more apparent than when discussing product design.

The common understanding is that "Product design" is related to exterior appearance of the product as outlined in countless surveys by the Design Council, DIG (The Design Innovation Group). This was the view held by two out of the three companies interviewed prior to using design sources. Confusions about design lead to a multitude of problems and in the case of industries use of deign are usually only overcome on being show what design actually is.

Chapter 2

Problems that exist between Design and Industry.

Design Awareness

The level of design awareness in the general public is poor. This stems from the fact that there is not a universally accepted meaning or understanding of design. Exposure to design individually or collectively as members of society contribute to the opinions, meaning and value we place on it. The result is as Robert Blaich says in an article, Design as a Corporate Strategy:, if your ask 50 people to explain "design" you will end up with 50 completely different answers (R. Blaich, P. Gorb, 1988 p11). It is how the media, government, industry and the design establishment itself portrays and delivers design which is responsible for the opinions we form about it. This is because in the last two decades in particular design had managed to take on many guises. The "consumer led" or "market led" approach to design in the 80's has much to answer for, in creating the division between design and industry in the U.K. today.

One subsequent understanding of design, is that design relates only to "taste", "style" or "appearance" if an object. This leads to a whole range of problems from the value associated with design professions to how the designer is actually used by industry.

To suggest that taste or "the feel of the "object", is not part of the successful design of an object would be misleading (D. Maroni, P. Gorb, 1988, p43), because taste is related to desirability and creating the initial impact. This will determine whether we take a closer look at the product, or just pass it by.

The appearance of the product is responsible for the connection between our desires, often subjective, and the product in question. Therefore the imbuing of products with taste and desirability is part of design's function (P. Sparke, 1986, p38), but it is not its only responsibility or purpose. The "consumer led design" of the 80's saw the use of designer's styling skills as a means of creating and satisfying consumer wants and desires.

> The emphasis on actively creating new desires in consumers rather than responding to identifiable and recognised desires has been the major development in consumer led design during and since the 80's
>
> (N. Whiteley, 1993, p23)

Style obsolescence was central to the design of many products in this period. Nigel Whiteley in his book Design for Society, 1993, uses the Swatch Watch and Sony Walkman as examples of how products were designed to be fashionable and only have a limited lifespan. (N. Whitely, 1993, p24). These products were advertised and sold as fashion accessories, to convey a particular image or lifestyle of the consumer. Product styling featured heavily in creating these lifestyle symbols.

The retailing industries, particularly clothing, and their promotion of design contribute to them being perceived as mere styling and confined to the visual appeal of products. The corporate identities of the highstreet outlets as in Next, Gap, Jigsaw, Warehouse etc and the interior design and layout of the stores all contribute to the notion that they represent a specific lifestyle. The customer is part of that lifestyle on entering the store, let alone wearing the latest fashion garments on display. These outlets and countless others success, depends on there ability to create and deliver lifestyles for the consumer (T. Conran, P. Gorb, 1988, p242).

The rise of "designer labels" and "designer objects" in recent years also reinforces the notion that design is related to style, appearances and taste. This does nothing to promote a holistic understanding of design. In fact it further reinforces the assumption that design is only inherent in some objects (those that reflect a particular lifestyle) and not in others. (R. Kras, 1993, p6). Advertising and media promotion of design also adds to this misconception. The automobile manufacturers Ford, Volvo, Vauxhall etc use specific examples of their products design to boost their sales, as in their status symbols qualities, ergonomic or safety features, economic fuel consumption attributes and adherence to green issues. Such references to design only serve to segregate design disciplines and misconstrue design as something other than the entire process of a product's development.

It is this type of public exposure to design which creates problems when trying to promote design to industry as something more than appearance and aesthetics, which usually results in the manufacturer "handing over a product (to the designer) for final 'styling' - some colour decisions, graphic placement a little tinkering with knobs or buttons" (R. Blaich, P. Gorb, 1988, p12). Colin Mynott, goes further than this in an address he made to the House of Commons, in January 1994, on UK Manufacturing Industry, says that because design is promoted as being the product of designers per se rather than something involving all areas of an enterprise, this results in, "late deliveries, costly reworkings and lower quality", products.
(S. Mynott, Design Magazine, January 1994, p5).

The Craft Ideology

Another cause of confusion with the meaning and understanding of design at present arises form:

> The dual commitment to the craft aesthetic and to a relationship between design and commerce, has remained one of the problem areas in British design right up until the present.
>
> (P. Sparke, 1983, p59)

Advircary of craft ideals is something which has always been part of British and Irish culture. The roots of our craft heritage goes back long before the industrial revolution of the 19th Century. The ideals expressed by William Morris and the Arts and Crafts Movement in Britain were a contributing factor to the approach the British design establishment took towards design promotion in the 1950's. The craft ethos expressed in this period and in the 1960's are not without support today.

As Stephen Bayley suggests in his introduction to Young Industrial Designers - Holland, Italy and the United Kingdom, designers and the design establishment of this period, 50's and 60's, under the auspices of the Design Council, virtually condemned British manufacturer's products because they did not adhere to or express their firmly held craft based aesthetic values (S. Bayley, 1993, p9).

Nigel Whitely also comments on this in the conclusion to his book Design for Society, where he says,

> ...the products selected by the Design Council as exemplifying good design changed very little between the opening of the design Centre in 1956 and the mid-1960's. They were characterised by bareness, simplicity, squareness or roundness, solidity and seriousness. ..... Materials would usually be traditional, and workmanship and techniques honest.
>
> (N. Whitely, 1993, p163)

As already mentioned in the first chapter Scandinavian design personified "good design", "both in appearance and its social association" (N. Whitely, 1993, p164). Good design in this instance was nothing more than the design establishment promoting what they perceived was good taste (N. Whitely, 1993, p163).

The association between "craftsmanship", "product quality" and "good design" are still very prominent in society today, especially in Ireland. The bias towards craft ideals is constantly being asserted in our cultural understanding of design, ie. through the promotion of Ireland's craft-based heritage by semi-state bodies such as Board Failte, The Northern Ireland Tourist Board etc. This leads to an association between design and craft ideals and a subconscious belief that the "designer" (as profession title) is, merely a contemporary explanatory term for a craftsperson. (N. McQuaid, Interview with W. Lee, 7-12-1994).

This is undoubtedly a controversial opinion, but nevertheless, it is an opinion held by William Lee, based on his experiences as a professional designer working in Northern Ireland, as being a problem with general design understanding, and designs integration with industry in Ireland today.

Craft appreciation is often based on subjective "taste" values, as too is "style and fashion" appreciation, which Milner Gray argues;

> .....tempt us to confuse words with things they refer to, and from these to argue merely about words - words which more or less do not necessarily mean the same thing to everyone.
>
> (M. Gray, 1955, Design Council, 1986, p44)

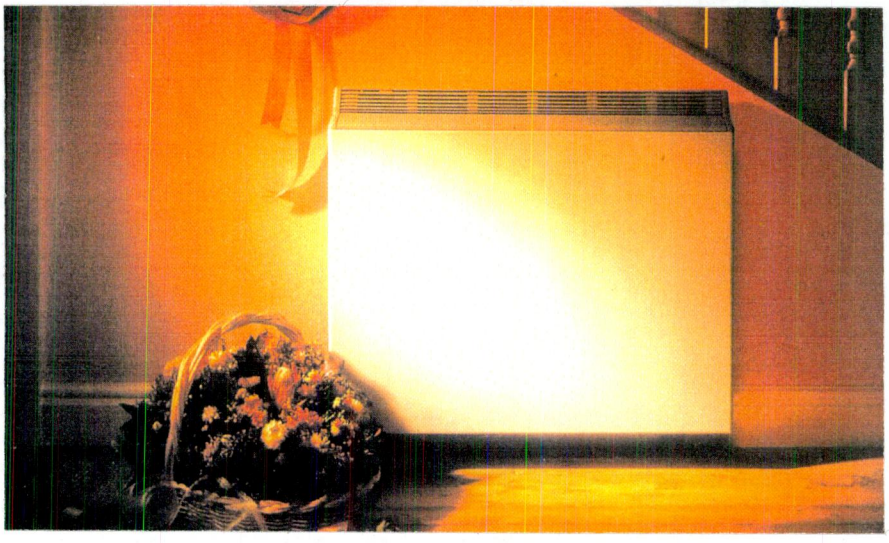
"Good" or "bad" design, he says is based on personal opinions and preferences i.e. personal taste, and therefore what one person considers as "good design", in defining an effective design solution, may be considered as "bad design" by another. For this reason William Lee suggests that "good" and "bad" should be substituted with "appropriate" and "inappropriate" when evaluating the effectiveness of a product's design. (N. McQuaid, Interview with W. Lee, 7-12-1994).

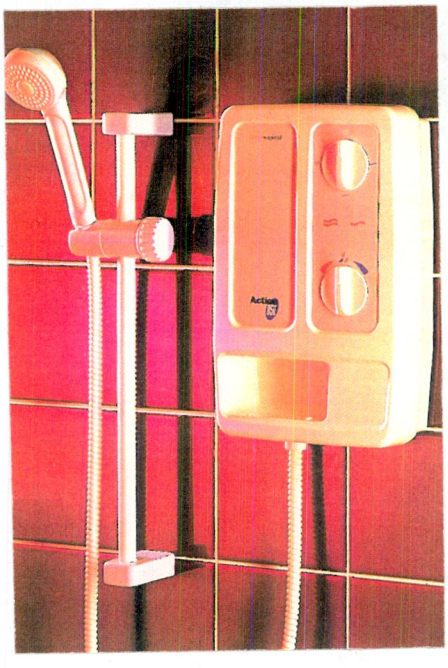
Marketing and Design

The philosophies of Theodore Levitt expressed over a quarter of a century ago have up until recently been more or less ignored. His philosophy as explained in The Design Dimension, by Christopher Lorenz in Design Talks edited by Peter Gorb and also by Nigel Whiteley in Design for Society is that companies need to make the shift from trying to sell the customer what they produce to producing what the customer wants or needs, whether active or latent. (C. Lorenz, P. Gorb, 1988, p29). To achieve this a company has to embrace a marketing - orientated approach, through which the company

> .....tries to create value-satisfying goods and services that consumers will want to buy. What it offers for sale includes not only the generic product or service, but also how its is made available to the customer...Most important, what it offers for sale is determined not be the seller but by the buyer. The seller takes his cues from the buyer in such a way that the product becomes a consequence of the marketing effort, not vice versa.
>
> (T. Levitt, Ibid, p50, N. Whiteley, 1993, p20)

This notion that "companies" will go to endless lengths to force the public to accept what they have decided to produce " was also identified by Michael Farr in his book, Design in British Industry - a mid century review as being a real problem which urgently needed to be addressed by British manufacturers (M Farr, 1955, p304).





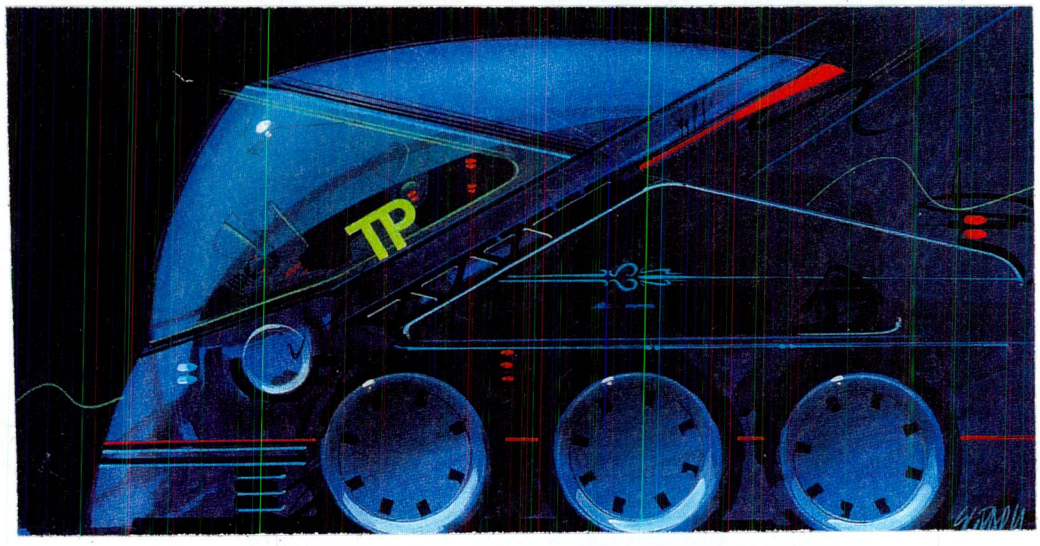
No. 1 (Top) CS 18 Combination Storage Heater, ABS Electronics. A Technology driven innovative product, combining storage heating with the flexibility of direct acting instant heat.

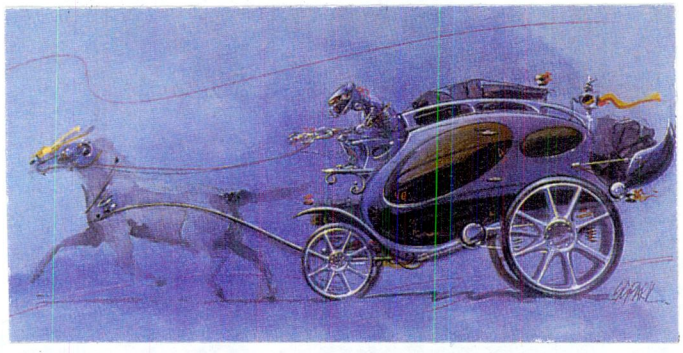
No. 2. (Bottom) Shower Unit, instant hot water heater - Active 850. Unidare environmental Redesigned version of this product currently in production.

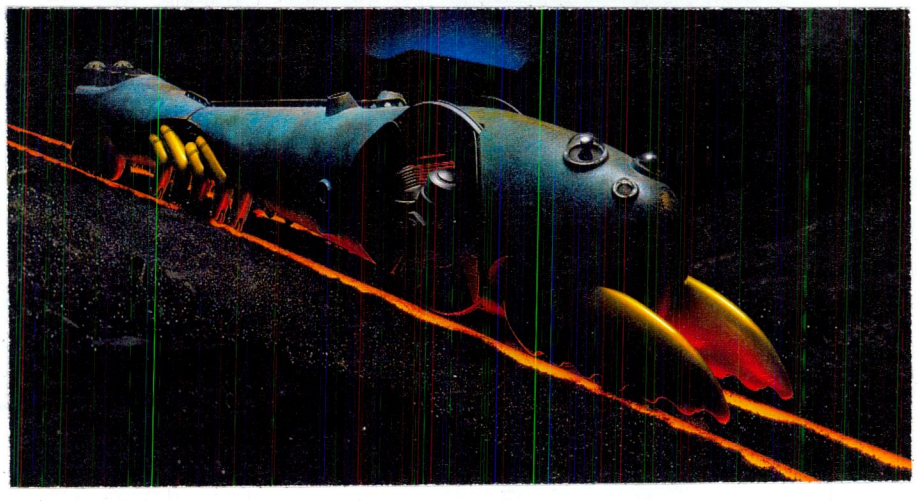
The real problem lies in that companies have been slow in adopting this approach, especially small and medium-sized manufacturers in Britain. Unidare Environment are a prime example of how confusing marketing with sales can lead to financial difficulties. Their approach up until recently had been to cut back on R&D and design development work in time of recession and to concentrate on selling their existing products to the consumer. The simple fact is that a lot of their products are out-dated and do not meet customer requirements. They need to adopt an effective marketing strategy whereby they consult their customers and find out what they require. A report by the Chartered Institute of Marketing (CIM) revealed that only 5% of companies which they interviewed actually consulted their customers, to analyse and pre-empt what their needs or wants really were prior to bringing out a new product. (G. Williams, September 1993, p19). Unidare have just recently launched a new product, C.S 18 Combination heater (Plate No.1), which although is a technological innovation in heating systems has not made the impact on the market they were hoping for. This is because they did not consult their customers prior to launch. In" The Design Dimension Christopher Lorenz explains how some companies, IBM, Sony, Philips, Ford, John Deere etc have actually grasped this effective approach to marketing and used it in their product development programmes, which has resulted in successful profitable products. Sony's marketing approach has enabled them, not only to anticipate consumer demands but also to create them through studying social trends and lifestyle progressions. (N. Whiteley, 1993, p21).

However the successful or appropriate design of a product depends on how this information gathered at the research state, is interpreted and used. This is where the key to success or failure will be determined by the company's commitment to design and the design process itself. (Sir John Egan, Oct. 1993, p7). Christopher Lorenz argues that "interpreting information" or "synthesising ideas" as William Lee suggests is the domain of the industrial designer, and to gain the full benefit of the designers potential, he or she must be involved in the products development from its initial conception, "the designers uniqueness rests in his ability to synthesise ideas and information into tangible products". (N. Mc Quaid, Interview with W. Lee, 7-12-94). This is what Christopher Lorenz describes as the Design Dimension which no longer is an optional part of marketing and corporate strategy, but should be at the very core. (C. Lorenz, P. Gorb, 1988, p34) and that a company does itself a disservice if it sees product design and with it the industrial designer's contribution is merely shape and appearance (C. Lorenz 1990, p26). This is a belief which Unidare Environment and Vinifer Ltd only realised after having used the professional design services offered by William Lee and his Industrial design consultancy, The Design Factor.

In the case of Unidare this has resulted in their employing The Design Factor to redesign the aforementioned C.S 18 combination heater and also to redesign their instant how water shower heating units.. Vinifer used the Design Factor to aid in the design of their first product "The Markilizer" and the company's Director Pat Mc Commisky has stated that he would use these design service in further product development programmes.







Conceptual design

No. 3. (Top) Prime Mover, Futuristic vehicle concept exploring proportion, with large glass and 'canopy' look.

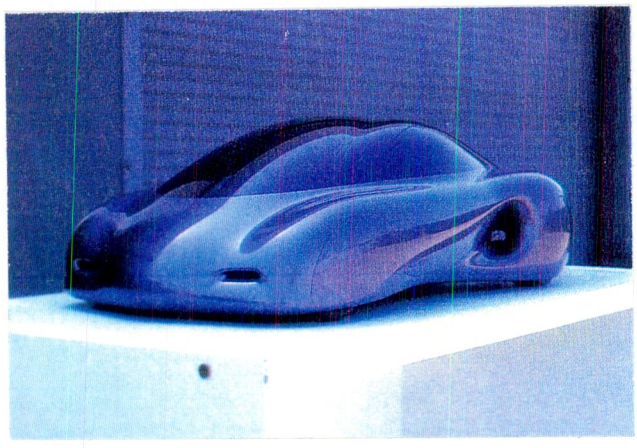
No. 4. (Middle) Chariot / Stage coach with robotic driver. Conceptual redesign of the old stage coach. Both illustrations by Steve Parker Manager at Ford Australia.

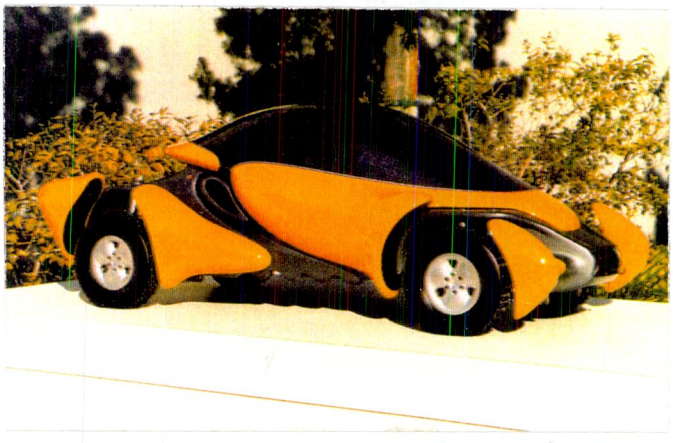
No. 5. (Bottom) Stevenson's revenge. Conceptual design for a locomotive company, by Andre Baschlatow, Frogdesign.

Conceptual design

Many of Britain's product based manufacturers are hesitant in using industrial design services, this is often due to preconceived ideas "that all they are getting is art and expensive colour ideas", i.e. design concepts (E. Scott, 9th. December, 1994, p23). Although it has been suggested by many that the notion of the designer as a glorified artist is a thing of the past, in reality many manufacturers still hold this view, Unidare Environmental and Vinifer ltd were until recently two such companies.

The reasoning behind these opinions, says Colin Petrie, is due to the fact that most companies relate only to financial facts and find it hard to see the value of overly conceptualized of what their product may look like. (Mc Quaid, Interview with Colin Petrie, 12-1-95). Sir Paul Girolami gave the DTI's 1993 innovation lecture at the Royal Society and criticised British manufacturers for being dominated by accounts. He went on to say that they fail "to recognise that for many companies, progress is measured by innovation, and that their value lies in ideas and intangibles, not in plan and buildings" (P.Girolami, Design Magazine, 1993, p7). The concept phase is an important aspect of any project, because it is at this stage that the ideas and information which led to the projects development are first realised in two or three dimensions. It is the corner stone for many project.





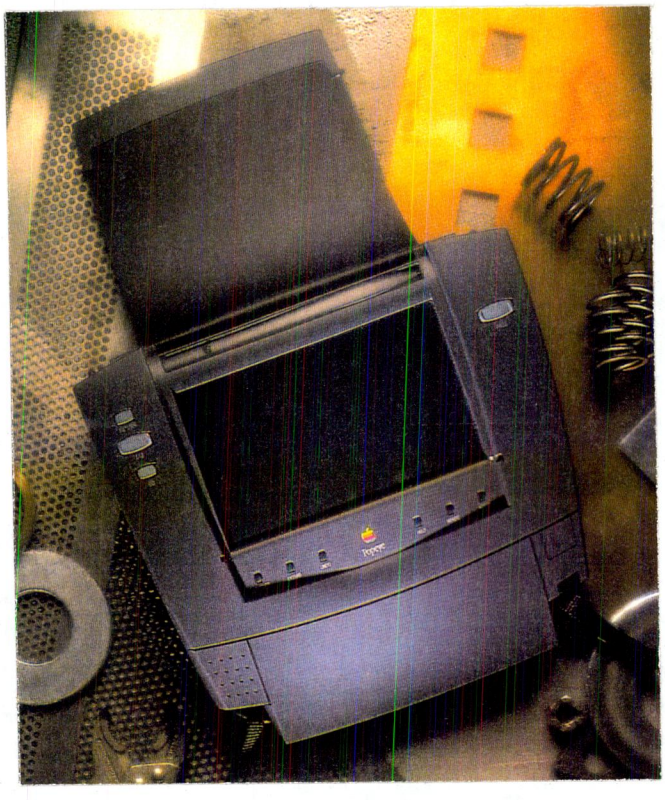
Conceptual Vehicle Design

No. 6. (Top) RX-44, Advanced Vehicle design study by Mazda's in house product design team. Water droplets was the theme for styling.

No. 7. (Middle) Commuter Vehicle concept, by Tom Matano, Senior designer at Mazda.

No. 8. (Bottom) Design study for future sports utility vehicle by Tom Matano. Both concepts (7 and 8) are based on separate frame cars with interchangeable exterior shells.

The three illustrations (Plate No's 3, 4 & 5) are typical examples of what would be considered "conceptual design". These fictitious ideas would be considered by many as having little bearing on reality and their value and usefulness confined to the sci-fi movie. However the argument here is that this type of conceptual thinking has real value even in the real world, although it is more an indirect than direct influence. This can be easily identified in the automobile industry. Car design and in particular concept car design is constantly being brought to the public attention through media publicity and advertising by the manufacturers themselves. These concepts (plates 6, 7 & 8) are not merely styling exercises, but undoubtedly their aesthetics are a prime concern, but are ideas, proposals, "concepts" for vehicles. The "commuter vehicle" and the "future sports utility vehicle" are variations of the same concept, the idea behind them being that "you" (the consumer) can buy the chassis and car frame and then select from a series of bodywork shells which one meets your requirements best. Tom Matano senior designer at Mazda, suggests that a number of bodyworks could be purchased by the consumer, therefore the car could have a number of functions or merely represent various lifestyles (T.Matano, P.Cockburn, 1994, p15). This concept raises ethical questions for the designer as in exploiting the consumer and failding to use materials and energy resources economically. However its value and also that of Steve Parkers and Andre Baschlatows concepts is that they propose new ideas concepts of travelling etc and as such are innovative.



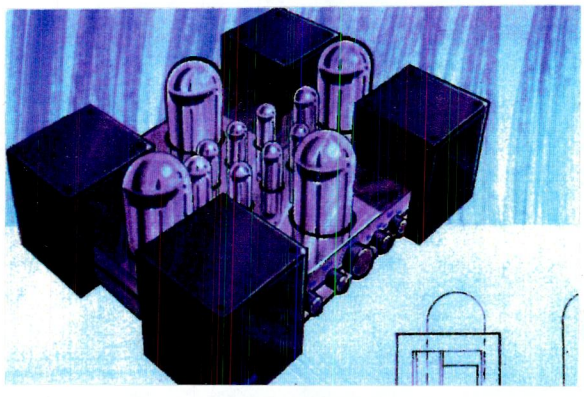
Blue Sky Design.

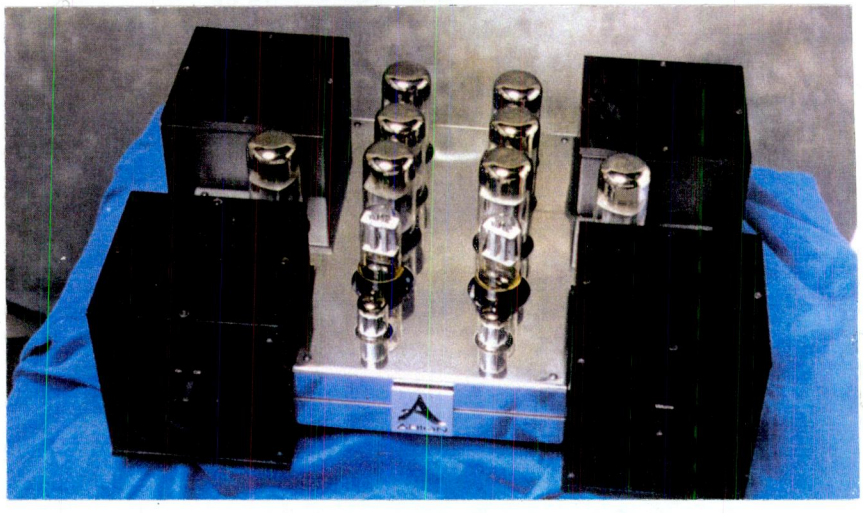
No. 9. (Top) Exchanger, future concept study. A tongue in cheek design proposal, the concept would accept currency, calculate the proper exchange print new denomination, and then credit your bank account the change. Designed by Susanne Pierce, Mark Pruitt.

No. 10. (Bottom) Concept for portable CD-ROM player. This concept was a product Proposal for a CD reader for use in Industrial environments. Designed by Bart Andre at Apple Computers.

It is these innovative qualities of conceptual design which are used by companies such as Apple, Philips, Sony, IBM etc to propose new ideas for future product design programmes, Blue Sky design is often used to denote this type of design activity. The real essence of conceptual design and thus its value to a company is that it is a spring board for developing innovatorary products. The degree of this innovation will often be determined by the particular project brief. This is where many problems arise between design and industry, the "project brief". As outlined in The Benefits and Costs of Investment in Design by the Design Innovation Group (DIG), 39% of the two hundred and twenty one companies interviewed said that the main problem they had with design services was the designers inability to focus down on the brief (DIG, 1991, p49). However 33% of these realised that they were actually as much to blame as the consultant due to inexperiences at delivering a concise brief (DIG, 1991, p40). This is a reflection of the professionalism of the consultant and the company but is not a representation of the benefit of conceptual design.

The success of the Arion Amplifier range was due very much to the process of conceptual design. Where often out of exploratory and impractical ideas come more innovative and stimulating products.





Conceptual design at the Design Factor.

No. 11. (Top) Eros Amplifier. One of twelve valve based Hi-Fi amplifiers in Arion Acoustic's range of products. Technically a superior product over competitors but lacked visual identity.

No. 12. (Middle) One concept design developed by The Design Factor, Belfast in the range of products.

No. 13. (Bottom) Final design solution. Prototype model Tritone Amplifier. The redesigned unit accommodates all amplifiers in the range.

This is a fundamental part of design as Eliott Scott says:

> Examining equities our clients already possess is all very well, but without new ideas it is the politics of dinosaurs. Its safe all right, and some might be so cruel as to call it money for old rope, but innovation is not a safe domain and design is about exactly that.
>
> (E.Scott, 9th.December 1994, p23)

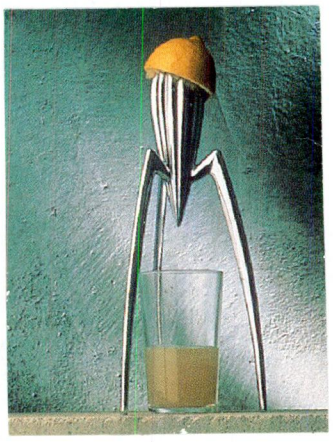
Design As Styling.

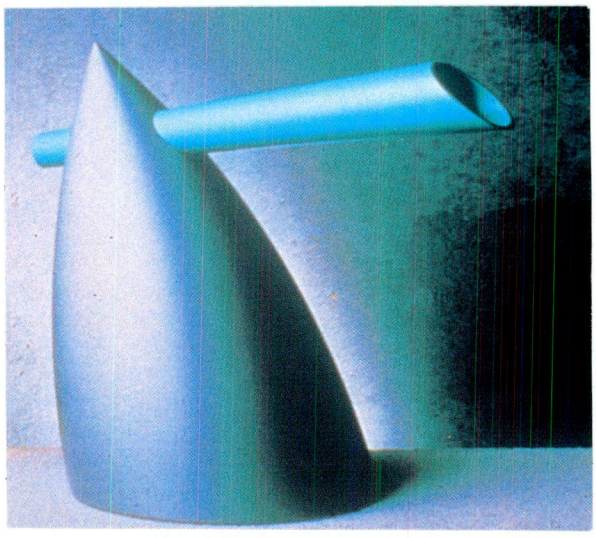
The "old Hackneyed view" that design is primarily styling has led to the assumption as Wally Olins says,

> .... that design is something special and fragile, which demands aesthetic judgements from panels of learned outsiders. It also leads people to believe that design is an activity which can be picked up and put down, added on at the last minute and mucked about with by any old manager who isn't colour blind or has a daughter at art school. Finally it does nothing to discourage the idea that design is something you can hand to an engineer or an ad agency to do a bit of tarting up at the last minute.
>
> (W. Olins, 1984, p11)

Thus industrial design has become associated with the creative art of giving external form, visual appearance to products, so as to improve their appeal to the consumer. This is one element of the designer's skills, so that the final product makes an impact, appealing to the consumer's desires.

The publicity that some designers have received, such as Phillipe Stark, in recent years only generates more doubt in the minds of manufacturers that the value of design is nothing more than styling. Starck's designs and many other products produced by Alessi are highly stylized, and although their aesthetic uniqueness may appeal to many, they are considered by many U.K. industrialist as being "fashion objects".
Which William Lee argues is not what true industrial design is about. (N. Mc Quaid interview with W. Lee, 7-12-1994). Starks design's, in particular the





No. 14. (Top) The Juicy Salit Lemon squeezer designed by Philippe Starck.

No. 15. (Middle) Hot Bertaa kettle, one of Starck's best known designs, highly stylized, fashionable object. Both products are produced by Alessi.

No. 16. (Bottom) Firebird PC Electronic gas lighter with anodized aluminium ogive designed by Guido Ventarini manufactured by Al.

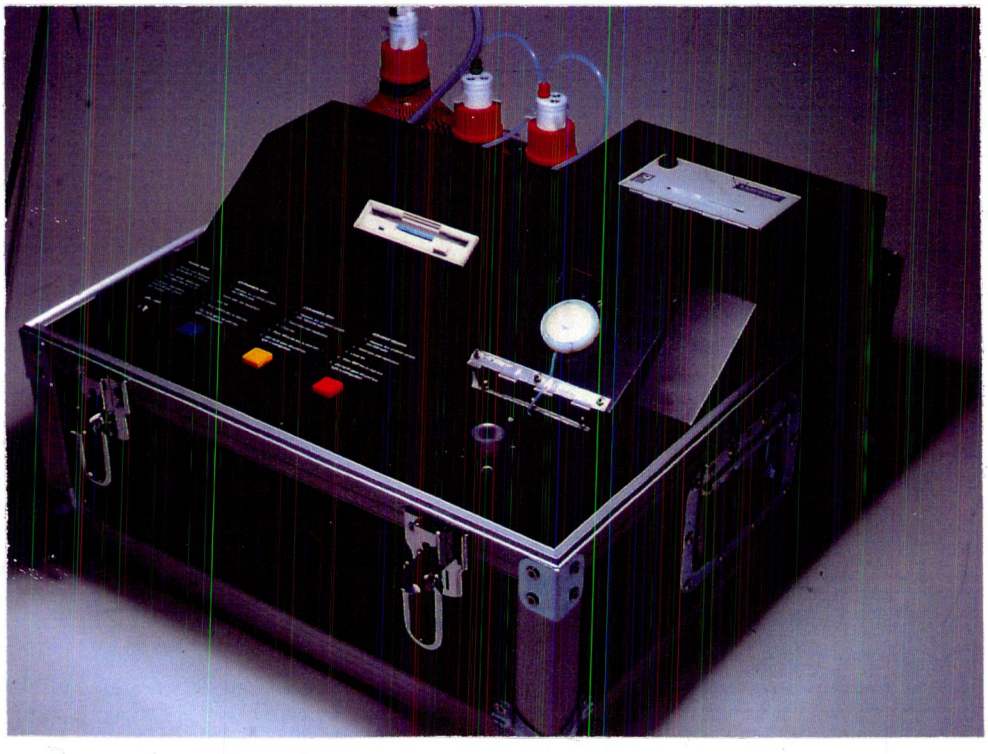
Hot Bertaa Kettle, often compromise the functionality of the production in order to satisfy his own aesthetic and stylistic standards which only results in design and designers been seen as unprofessional. Product functionality is something we all expect today and for a designer, who has been raised to a movie-star status, not to address this aspect of a product he has designed can only have negative repercussions on how design and designers are viewed by the masses.

The approach adopted by The Design Factor towards styling is more conducive to bridging the chasm between design and industry. William Lee, in response to a question regarding how he and his consultancy approaches and views styling, says that,

> Firstly, we are not fashion designers, our primary aim is not to produce fashionable objects, because by adopting this as the design driving force will (this) usually result in other areas being compromised. Instead we use a more holistic approach, in that the product has to meet a series of criteria; intended market estimated cost of final product, mechanical and technical constraints, production process, as well as volumes and timescale requirements; which will design towards. The style of the product will be determined, through meeting this criteria combined with the designers own creative flair.
>
> (N. McQuaid, interview with W. Lee, 7-12-1994)

"Styling" per se only plays a minor role in their approach to product design. William Lee does not condone over-styling of products which is how he views Starck's products. He also argues that designers should adopt a more professional approach towards their delivery of design and a lessening of the emphasis on styling as a driving force should be part of this approach. The "Sonata" shower unit and the Markilizer Unit (Plates 17 and 18 respectively) are examples of this approach towards design and styling and how style is affected by the criteria laid down in the brief.

Undoubtedly there are problems with this method, in that the designer may become a servant to Industry merely carrying out the industrialists ideas, without any real impact. Therefore the designers responsibility to society may be compromised also Penny Sparke says that "design" as a servant to industry is the most common route adopted by design consultants (P. Sparke, 1986,p205). Eliott Scott believes that designers should "step beyond the bounds of brief takes to a point where our (designer's) input is tangible, where we accept responsibility". (E. Scott, 9 December 1994, p23). This is the only way he believes designers will be taken seriously as professional advisors. Nigel Whiteley says that designers have an obligation to society and our environment not to constantly repackage consumer goods just because industry asks them to (N. Whiteley, 1993, p3).



No. 17. (Top) Sonata - prototype model of redesign shower unit for Unidare Environmental. The sonata is the top of the new range of showers.

No. 18. (Bottom) Markilizer Unit for Viniter Limited. Technology developed by Andor Technology and industrial design work carried out by The Design Factor.

However as Adrian Forty points out in the conclusion to his book Objects of Desire that is the entrepreneur who has the final say at the moment as to which products, are produced. (A. Forty, 1986, p241).

Before any of these areas can be addressed by the designer's his status as a "professional person" has to be established in industry and society. Education and design promotion by governments will play a major role in achieving this.

Design Education

Dissatisfaction with standards of design education have been expressed by many in recent years, manufacturers and designers alike. In a report by Chris Hayes Associates and Keller Dorsey Associates in 1983 The Industrial Design Requirements of Industry, manufacturers expressed their views about design education. From their viewpoint, too much emphasis was being place on creativity in design education and there was a severe lack of knowledge regarding production constraints, maintainability and reliability. (C. Hayes Associates, K. Dorsey Associates, 1983, p11-12). In the manufacturer's opinion "Education should prepare them [industrial design students] better for the realities of the market and of running a business (C. Hayes Associates, K. Dorsey Associates, 1983, p18). A decade on, in 1993, Professor Patrick Mc Keon, Chairman of Cranfield Precision Engineering, reiterated this view in an article in Design Magazine where he says:

> There is an urgent need to implement a coherent national scheme for increasing the flow of high-calibre graduates through intensively taught higher degree courses on to industry, especially manufacturing Industry.
>
> (Prof. P. McKeon, Design Magazine, January 1994, p.26)

This opinion is not held solely by Manufacturers but many practicing designers also believe this is an area that needs urgent attention, Richard Seymour of Seymour Powell, Clive Gringer from Tangerine, and Ken Grange from Pentagram all expressed similar views regarding the present standards of design-education in the U.K. (Design Magazine, March 1993, p14-17).

William Lee says that in his four years working in Ireland he has only interviewed possibly two or three industrial design students, which graduated from industrial design courses in Ireland, who were never anyway near the standard he required as a professional designer . Therefore serious questions have to be asked about the industrial design courses that are currently being run in this country.

However the real crux of the problems is that Colleges and Universities are being forced to run like a business, it has to be profitable to survive. The result of this is as Clive Gringer from Tangerine design says:

> The design schools have been forced in order to retain their operating budgets, to increase the number of students they take in to bursting point, resulting in falling standards and unrealistic expectations of employment
>
> (C. Gringer, Design Magazine, March, 1993, p10)

Increased numbers of student intakes results in a lower ratio of lecturer student contact, and as a design lecturer wrote in the Design Week magazine says that "personal contact" is essential for inspiring, stimulating creativity and teaching basic design skills to students. This writen blames;

> Government and its desire to shed political responsibility; shed financial responsibility, fiddle down unemployment figures; strip words like quality of their meaning and measure teaching in terms of 'efficiency'
>
> (Design Week, 22 July, 1994, p11)

The result of this is that students are being exploited for profit, design colleges need students fees to enable them to remain in the black. The extreme of this is that the industrial design course, as run by the University of Northumbria, at Newcastle has a design consultancy business operating within their department, is this the way forward or should education be free and properly funded as William Lee suggests. As from next year third level education in Ireland will be free, will this improve the situation here or not? Unless the courses are properly funded colleges / Universities will probably continue to cram the students in, the only difference being that, perhaps, they won't feel as guilty exploiting the government as they do students. Design education can play a key role in bridging the difference between industry's and design's requirements.

Whether this actually occurs depends on future government policies and their commitment to design's promotion.

Design Promotion

There are a number of areas where design promotions is urgently needed to raise cultural understanding and awareness of design as a whole. An effective approach to design's promotion within industry will be crucial to future industrial success in Britain (G. Williams, Sept 1993, p30-33). It is government's contribution to this promotion process that is being analysed here, and in particular, the effects of encouraging manufacturers to use design services through consultancy funded schemes.

During the 80s there had been significantly-increased U.K. Government interest in the role of design in helping to prevent the declining competitiveness of British manufacturing industry. In 1950 Britain's world trade share was 25%. By 1981 it had decreased to approximately 9% (Design Council, 1993, p6), and in 1972 the UK's manufacturing sector accounted for 32% of gross domestic product (GDP) a figure which had fallen to around 20% by 1992 (G. Williams, 1993, p19). In January '94 it was estimated at 24% (McKeon, Jan 1994, p26). In Beryl Mc Alhome's report, The British Design Consultancy - Anatomy of a billion pound business. She outlined that there was an increase of 1/4 million in unemployment figures for every 1% of trade lost by Britain in the period between 1950 and 1981.

More specifically, in the '90 to '92 period unemployment in Britain rose by 1 1/2 million. Increasing unemployment results in the decrease of consumers disposable income which Robert Bischoff argues creates a drop in demand, qualifies this by multiplying an average person's drop in income due to redundancy £10,000 by a 1 1/2 million rise in unemployment figures, to achieve a staggering £15 billion worth of drop in demand. (Bischoff, Aug 1993, p26).

Following a seminar chaired by then Prime Minister, Margaret Thatcher on "Product Design and Market Success" held at 10 Downing street in January 1982, there have been several government initiatives to promote the use of design by industry. One such initiative was to encourage the use of design services by industry through consultancy-funded schemes as the Funded Consultancy Scheme (FCS) and the Support For Design Programme (SFD). There were the result of the Design Council being asked to give evidence to the Trade an Industry Select committee's inquiry into industrial competitiveness.

> It is incongruous that quality of design is not generally a plus point for UK Manufacturing, when this country does have so many internationally-renowned design consultancies. British manufacturing companies could and should make full use of the excellent design skills available in this country - both as employees and as consultants - but only a few do.
>
> (G. Williams, Sept. 1993, p19)

The funded consultancy schemes commenced in July 1982 and by April 1987 had involved nearly five thousand projects and £22.5 million of government funding. In 1988 these were incorporated into the DTI's Wilder Enterprise Initiative (D.I.G, 1991, p4). Yet despite the official support for the use of design, when the recession of 1990 really began to bite, companies small and medium-sized cut back on their use of design and R&D. This is a problem at Unidare Environmental where that allocation of design budgets and their general use of design depends on whether they have funds available a view which William Lee suggests is the real problem that has to be addresses by government; "the notion that design is a cost rather than an investment" (N McQuaid, with William Lee, 7- 12-94, Interview). In 1992 UMIST and the Open University produced a revealing joint report addressing the issue. They used small and medium-sized British companies as a basis for their report.

Their study examined a mix of Industrial, graphic and engineering design projects in total 221 firms, all between 1-300 employees. All of these firms had received government subsidies through the DTI's FCS and SFD programmes.

The results of the study have been published in The Benefits an Costs of Investment in Design, a comprehensive report concluding that design is an investment. The key results of the report are;

- Around 90% of the implemented projects made a profit, the average payback being 15 months from product launch.
- 48% of implemented projects recovered their total costs including tooling, within a year or less of market launch.
- The average cost of the successful project was around £60,000, those that failed cost an average of only £8,300.
- Where comparison with pervious products was possible, sales increased by an average of 41%.
- Over 40% of the sales resulting from engineering design and industrial design projects were exported.
- A quarter of the projects opened up new home markets.
- Other benefits identified ranged from reduced manufacturing costs and improvements in a company's image to savings in stock.

(Design Council, 1991, p1)

The findings of this report state very clearly that design is not a risk, but an investment. However despite this, none of the companies from Northern Ireland interviewed as part of this thesis study where aware that such a report existed.

Although this study concludes that these particular schemes were beneficial they only provide short-term solutions to long established problems. This encourages the idea that design is directly related to the skills and talents of the designers employed in these consultants. Designers play a fundamental role in the development of products and can if used effectively, not only add value to products but also be sources of innovation for companies. Even as an outsource.

> External consultants have much to contribute [to product development] from the fact that they are on the outside-at least an objective viewpoint and the experience gained from working on a whole range of products.
>
> (L Haynes, 9 Dec. 1994, p9)

The whole promotion of design by the Design Council has also concentrated on "design" being related to a product rather than a process, as one of its reports suggests through its title "...the advancement of British Industry by the improvement of the design of its products." (Design Council, 1992).
It is essential, as Laura Haynes, Chairman of Design Business Association , says for design to attract ongoing commitment from within the organisation (L. Haynes, 19 Dec 1994 p9). This can only be achieved if the company incorporates "design" as a strategy within its structure. Otherwise design will continue to be segregated and considered as something apart from the company.

Reports by Computervision, a supplier of computer software, and also by the CIM (Chartered Society of Marketing) on the use of design in indusry, have already been mentioned under *Marketing and design*. Between 5 and 6% of companies they interviewed did not consult their clients when developing new products because they do not consider market research as part of the design of a product, resulting in "too many companies attempting to sell what they know they can produce". (G Williams, 1993, p19). Other problems highlighted are of the companies surveyed in the computervision report, 34% believed that in time of recession the answer for future survival lay in cost-cutting. 72% of the 201 companies sales that cost cutting in R&D areas was the answer to quicker product development and earlier launch onto the market place (G Williams, Design Magazine, Sept. 1993, p19).

What companies do not realise that design an R&D work only accounts for 15% of the project development cost but will determine 85% of the overall cost (Design Council, 1992, p1).

By reducing these to a minimum in the development process this results in a poorer quality product, and often potential problems are not recognised or addressed. A poorer quality product will undoubtedly affect sales as consumers now expect quality to be a prequisite of all products. A survey in the US reveals that if a product is late to market by six months it suffers a 30% loss in potential profit. A 10% overrun of the product cost will lead to a 30% loss also, but a 50% development cost overrun will only lose 10% profit potential (R. Boakes, Mar. 1993, p6). So therefore instead of cutting back on R & D and design development., these are the areas that companies should be investing in to ensure future growth in an ever increasing competitive market. The Single European market will result in British manufacturing products being beaten in the market place by their European competitors, if they do not change their stance on design.. The customer's loyalty lies with the manufacturer who produces the better quality object at the price they can afford. As Ivor Owen says in an article "Keeping Council":

> The UK needs to manufacturer high added value products - well designed products - so that the British can enjoy the long term security of regular jobs and reasonable pay.
>
> (I. Owen,J. Myerson, Mar. 1993, p24)

This he argues can only be achieved through "more sophisticated and strategic use of design" (I. Owen, J. Myserson, 1993, p24).

In Design Magazine, March, 93, seven leading UK Designers were asked to give their views as to how design should be promoted, Paul Priestman, Richard Seymour, John Boult, Clive Gringer, Nick Butler, Nobuotic Ohtani and Ken Grange. Their comments ranged from issues about design education to professionalism of designers. However they all stressed that Government design should promote as a strategy within companies and although their funded consultancy schemes have had beneficial effects they do not instill the ethos within small companies that design is a process, not just confined to a specific project or development programme but that it is a process of growth and development for them. This requires design understanding and commitment at board level. One approach suggested by them for government to adopt is to give companies tax relief as an incentive to invest in Design as an ongoing basis. (Design Magazine, Mar. 1993, p14-17)

There are signs of hope for the future, as Lynda Ralph-Knight reports in Design week, August 1994, that government are at last beginning to see design and industry as an integrated hole and that the DTI's enterprises Initiative schemes are damaging in the long run because of the aforementioned problems. (L Ralph-Knight Aug. 94, p9).

This combined with the restructuring of the Design Council (under the direction of John Sorrell) which has also taken up this new approach of promoting "Design" as a business strategy hopefully will improve the the situation in the future. (G. Williams, Sept. 1993, p17).

CHAPTER 3

BRIDGING THE GAP

DESIGN MANAGEMENT

The subject of Design Management is a relatively new area of study, being first introduced into the London Business School in 1976. Literature on this subject is equally as rare as the courses in Design Management are. Peter Gorb, Wally Olins and Mark Oakley, have all written explanatory studies on the subject of design management. It also features heavily in Christopher Lorenz's book The Design Dimension. In association with these the topic has been discussed in articles in Design Magazine, Design Week, Creative Review etc. The Design Council have also published books on related subject areas, Total Product Management, and Managing _Product Development. However these have concentrated more on the managing of design in relation to a products development, which is only one aspect of design management.

Many of these documents use large companies as a basis for explaining how design management operates ie: Ford, IBM, Apple, British Rail BAA etc. However it is the intention here to see how design management's principles can be implemented within the structure of a small business, promoting pro-active designing and company success. This will be illustrated through a case study on ABS electronics and how they run their business.

WHAT IS DESIGN MANAGEMENT ?

Design Management concerns the effective and clear communication of a company or organisation in three principal areas, "Environments" - Buildings, showrooms, Factories, offices, "communications material" - stationary, forms, literature advertising and "products" - whatever is the produce of a company, i.e. tangible product or service (W. Ollins, 1985, p13). So it is a co-ordinated communication of the company in all these areas to express a coherent image of the company and its products to its potential customers. "The role of the design Manager - acting as a catalyst to ensure that company culture and image are steered together. (Lyndiate, 15th.July 1994, p9)

In large corporate companies such as BAA or British Rail, the role of design management has meant the combination of a number of different areas under the one corporate umbrella. This has meant the synthesizing of many different design tasks within the organisation so as to improve the holistic image and the standing of the company. When Raymond Turner took over design management at BAA, two years ago, this was the first priority. This meant a reassessing of the infrastructure of the company as a whole, raising design awareness within the company establishing standards and codes of communication, whereby changes that were implemented could be monitored and their effectiveness evaluated on a continuous basis. (Design Week, 3-.June 1994, p11).

This meant the setting up of a design management system. Its aim was not just to improve the efficient transportation of customers from A to B, but instead the whole experience of commuting. Thus the definition of their "product" has been redefined as the whole experience of the customer from arrival at airport to reaching their final destination.

> Modern identity management then, is a complex and difficult affair requiring its practitioners to exhibit sensitivity, responsiveness, flexibility and excellent communication skills rather than slavish adherence to a set of rules and standards.
>
> (V. Sargent, 27,.January 1995, p16)

There is no set method for implementing design management because every company is different and thus they have different priorities, i.e. in a bank the environment will be their main area of focus, because it is where the company has most direct customer contact. Whereas the customer will rarely see or come into contact with the manufacturers factory premises, so it is less of a priority. Models can be used, as Wally Olins suggests in his book Design Management, as general guidelines but these will have to be adopted to suit the needs of a specific company (W. Olins, 1985, p29). The problem with Design Management again revolves around the understanding of the two areas which make up this title. The problems arising out of designs mis-interpretation have already been discussed earlier in this thesis.

Especially within small companies, the meaning of "Design Management" has also been mis-interpreted and it is associated solely with the control of a project or projects under development by the company. Where the company is using outsourced design services such as through the DTI's consultancy schemes, design management begins and ends with the work carried out by the consultant (N. McQuaid, 7-12-94, Interview with W.Lee)

> It is a pity that so many clients perceive design solely as project led....moves that encourage clients to think of design as a corporate strategy rather than a series of project by project commissions do much to enhance designs own image.
>
> (Relph-Knight, 3 - Sept.1994, p9)

The other area is management and the fact that its role has been understood to be good administration and finding ways of cutting costs, keeping control over finance and personnel.

> In fact good management is about getting better at marketing delivering outstanding client advice, delivering high quality work, organising and motivating people and being highly productive and efficient.
>
> (J. Cochrane, 1994, p19)

Therefore design management could be defined as the working out of the structure or process of implementing the principles of management into an organisation. With the introduction of design into business courses in Britain, London Business School and at De Montfort, University of Leicester, the understanding of design management may be improved in the future. Effective use of design management encourages the use of design as a business strategy and as such, industry should be educated to this effect.

This is the approach adopted by ABS Electronics and is the reason they give for their success.

ABS Electronics - Case Study

An Effective Approach.

The aim of this study is to show that small companies should incorporate design as part of their business strategy. Also, that the principles of Design Management are as important for small companies as they are for large corporations and that effective use and control of design is a positive step forward in ensuring future company growth.

ABS Electronic's ethos is that design and industry are inseparable. That design relates not only to their products and what they say about the company, but that it also relates to their entire corporate image, from their environment and also their employees. All of these contribute to the image of the company, and how their customers and competitors view it as a whole. ABS are a product-led company and as such "product design" takes priority over other areas, since this is where most company - customer contact takes place. They do not consider the "product designer", per se, as being more, or less important than any other member of the project team. There are a variety of designers, electronic, software, mechanical, industrial, graphic etc. involved in a projects development and they are all regarded as having a valuable contribution to make in achieving an effective overall design solution.

Background to the company.

ABS Electronics was set up in 1975, as a subsidiary of a company which distributed photocopiers. This company needed to establish a means of selling photocopies to students at Queens University, Belfast. ABS devised a simple coin-mech, which when the required fee was inserted enabled the photocopier, and a copy could be made. The sales from this product facilitated them in developing other products, and between 1982 and 1988 they developed a number of products using magnetic cards, known as "Copy Manager" systems. This has become their specialised area: "Cashless payment and control systems"

The company grew from two employees in 1975 to thirteen in 1988, with an annual turnover of approximately £600.000. A decision was made by Colin Foster and Terry Graham the initial founders of the company, to break their ties with the photocopier distributor. Colin Petrie was appointed as Technical Director, "so as to bring the company forward", which also involved R&D management. His own personal commitment to the use of design as a corporate resource was central to the approach adopted by ABS in 1988 and still is fundamental to their present design ethos.

Their effective use of design has aided in the development of a whole range of cashless payment and control systems. In 1989 - 1990 they introduced disposable magnetic cards which has been a source for the development of a number of products. Since 1988, company turnover has grown steadily at 50% per annum, up until 1994.

ABS view themselves as an integrator, taking available technology and implementing it in effective solutions, as such, their approach to product development is pro-active (a leader in their field rather than a follower). They are currently investigating chip-card technology i.e. "smartcards" and contactless cards and the implications these could have for future cashless payment systems.

The company has grown to thirty five employees and their turnover in 1984 was £2.8 million, at factory sales, which is approximately £9 million in customer sales. They currently export their products to thirty six countries, and these sales accounted for 87% of gross turnover in 1994. (N. Mc Quaid, inteview with Colin Petrie, 12-1-1995)

Business Strategy

The three directors Colin Foster, Terry Graham and Colin Petrie have the final say as to which projects are actually developed, however the generation of ideas for product development comes from a much broader spectrum of sources. All company staff are encouraged to play an active role in the improving of existing, and the development of new products. The marketing research is the responsibility of the three directors and the sales division of the company. ABS as a company place a strong emphasis on direct communication with their distributors, so as to ensure that existing products are satisfactory, and also , to gain feedback for future development programmes.

Product development is on a incremental basis at ABS, evolutionary rather than visionary. Through this approach their attention is to build up a firm relationship and rapport with their distributors, and the users of their products. Design plays an important role in forming familiarity between user and machine, i.e. through the design of the user interface and the visual language of the product. (Apple Computers are one of the protagonists of this approach).

Although a product visual language has not as yet been established by ABS, this they say is on the agenda for '95, commencing with the redesign of their corporate identity. It is within this area, creating a visual language that they see the industrial designer having a significant role to play.

The company's evolutionary approach is based on a five year plan, however Colin Foster (Managing Director) and Colin Petrie (Technical Director) are responsible for identifying and delivering a "business unit" every eighteen months, worth half-a-million pounds in sales annually for the company. This business strategy runs in parallel with the overall company approach. The success of this strategy is determined largely by their individual entrepreneurial skills and further reinforces the company's image as a leader rather than a follower.

Development of Design at ABS

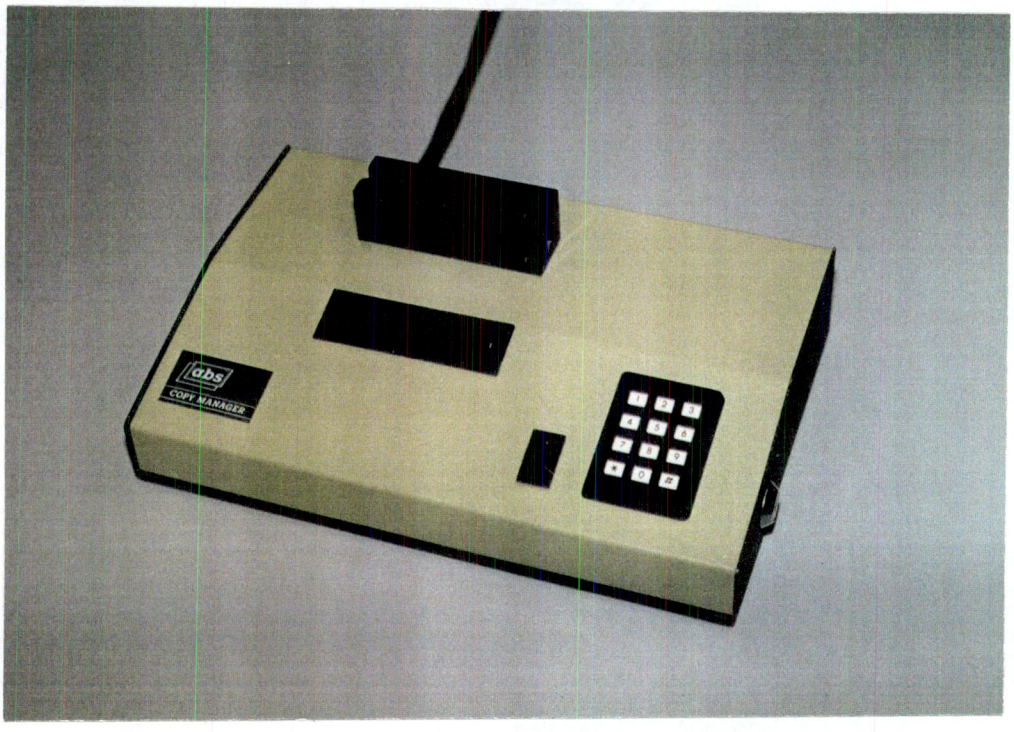
The company's use of design, developed in parallel with the refinement of the first product initiated and manufactured by them; The "Copy Manager". It progressed in three identifiable stages: CM1 and CM2: CM3 and CM4 and finally the present model CM10.

The copy manager's function is to monitor and record the use of a machine, ie; photocopier, vending machine, facsimile machine etc. When a card is inserted the machine, photocopier, is enabled for use, the unit then records the number of copies made and by whom. This information can then be printed for financial records etc or merely just to monitor who is using the machine.

CM1 - CM2

The physical appearance of these two units did not differ, however the CM2 was an improvement on the CM1 from a technological viewpoint. Their design was from the inside out, the internal components were assembled on a metal chasis, which was then enclosed in a fabricated metal box. Their design was an effective solution from an engineering and technical perspective. The assembly of the prototype was in fact the end product, its visual aesthetic and user interface were not prime concerns in its design, the old story of the user having to adopt to the machine.

Despite these flaws, sales of the copy manager were between two and three hundred units in its first year of launch onto the market, 1982-83. This was sufficient to convince ABS that further development of the products design was needed so as to increase its sales potential.

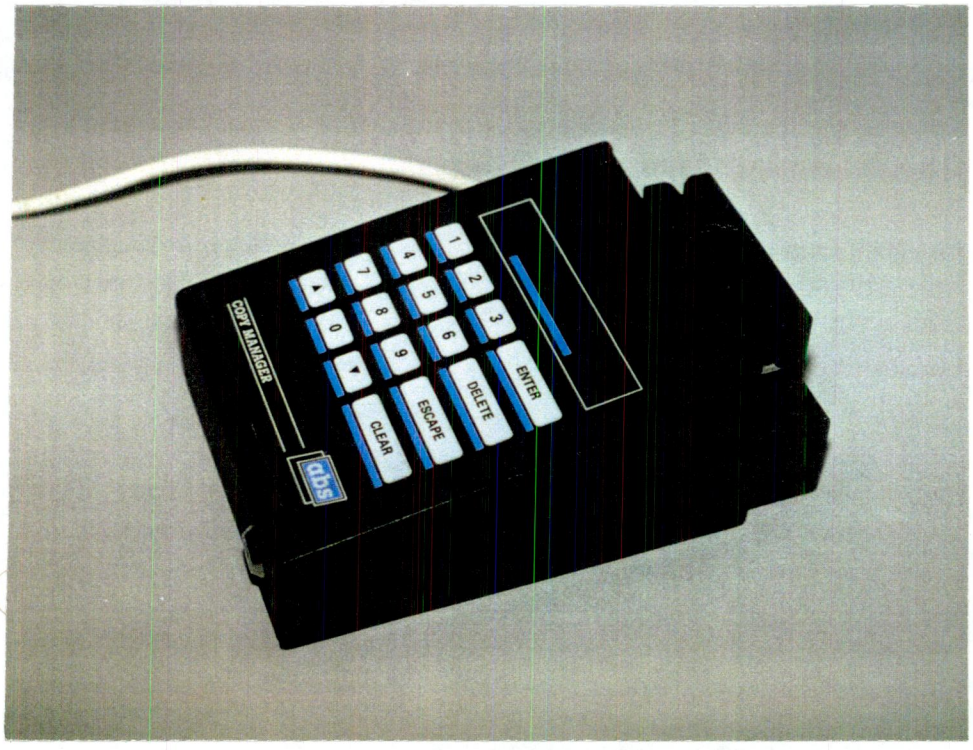


No. 19. CM1 and CM2 -Copy Manager- Initial product developed by ABS Electronics in 1982. All design work done by in-house engineers.

CM 3 - CM 4

ABS commitment to design was not whole hearted, they were cautious of the heavy financial investment that would be required to completely redesign the product, i.e. outsourcing design expertise and in particular injection mould tooling costs. For these reasons the CM3 and CM4 were once again of fabricated construction, in association with vacuum forming processes. An industrial designer was used in this development stage but his input was restricted due to financial restraints imposed by the company. His brief was basically to try and cut down on production costs and to address the issue of user interface design.

Despite this cautious approach the resulting products CM3 and CM4 showed a marked increase in sales figures. By 1987 these were between seven hundred and one thousand units being sold annually. This increase was mainly in export sales. The company began to realise that design investment had a beneficial effect on sales return and thus warranted further investment. They also noticed that the export potential of this product was favourable but that they were being restricted in exploring these markets because of their alliance with the photocopier distributor company.



No. 20. CM3 and CM4. Subsequent developments of the initial product, 1985. A freelance designer was used in conjunction with in-house engineering staff in this development stage.

CM 10

As already mentioned, 1988 saw the restructuring of the company and the introduction of Colin Petrie as Technical Director. This marked the beginning of the companies commitment to design, firstly in relation to redesign of the copy manager but more significantly the implementation of design as a corporate strategy. Colin Petries personal advocacy of design investment was a major contributor to the approach adopted by the company.

The complete redesign of the copy manager was the first project undertaken by the new restructured company. A Dublin based freelance designer was commissioned to work alongside in-house engineering staff on the project. Under the direction of Colin Petrie the redesign commenced with market research, so as to establish who was using the unit , how they were using it and where it was located, i.e. its immediate environment.

This research also involved substantial investigation into new technologies, this was outsourced to a software and hardware company , Andor Technology. Once all this information was compiled into a project proposal, a definitive brief was written by Colin Petrie and the industrial designer to set out exactly what had to be achieved.

A comprehensive and definitive brief, says Colin Petrie, is the key to the success of a project, because of all the relevant areas are not addressed at

No. 21. CM10. This is the resulting product from a complete redesign of the Copy Manager. A freelance designer from Dublin was used in its redesign. Launched in 1988 - 1989.

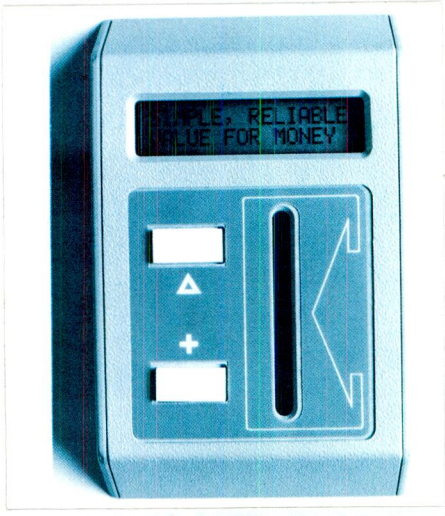
this early stage, thats what will cost you money, through an over-run of budget and or of timescale plan.

The holistic approach by ABS in the development of the copy manager has meant that the final design caters appropriately for customer needs This is evident, due to the fact that seven years after its launch, its sales are still increasing, last year these were in the region of seven thousand units. The turnover generated by this product alone has paid for the development of a number of other products, as in the Electronic cash registert, Vendor card-reader, Easycard reader and a card dispensing units.

Present commitment to design and Industrial design services.

Design has a number of functions to fulfil, says Colin Petrie. It has to create an impact visually. Increase the usefulness and perceived value of the product . House the internal components simply and where possible reduce manufacturing costs. Improve the ease and effectiveness of operation for the user. Communicate clearly the image of the company and improve its standing in the marketplace, and above all be a source of innovation, by improving existing products and developing new ones.

The industrial designer is viewed as a specialist within the project team, with specific skills to offer. However he/she is also seen as one who takes a professional interest in the wholeness of a product. Unlike the engineer who usually approaches a products design from a technology perspective, the



No. 22. (Top) Easycard 2000 vending system for copiers and printers. Designed by the The Design Factor, Belfast.

No. 23. (Middle) VC 3000 vending and catering system. Unit is face mounted onto front panel of vending machine. Designed in association with The Design Factor.

No. 24. (Bottom) Electronic cash register and point of sale terminal. The unit is interfaced with the cash register to enable to be made using pre-paid cards.

industrial designer considers all the implications of the product, especially from the users viewpoint. It is this holistic approach which is akin to the industrial designer alone. This raises the question, why then do ABS not have an industrial designer employed in-house ? Colin Petrie gives two reasons for this. Firstly they do not have enough design work to warrant a full-time in house industrial designer and secondly, they believe that the consultant designer has much more to offer.

If the designer were in-house he/she would eventually become focused, a specialist in cashless payment systems, and hence, his/her creative latteral thinking would become tainted and limited. The consultant industrial designer, on the other hand, is constantly being exposed to a multitude of business areas and changing attitudes. Their knowledge is therefore much broader and they have a better understanding of the marketplace as a whole. Their approach to a project will be from a much broader perspective, and therefore, their contribution as a source of innovation and conceptual thinking will propose solutions that would have otherwise been overlooked, by the focused thinking of in-house staff.

This is why so many large companies use consultants in association with in-house design units: Apple us Frog Design, BT use Random Design, so as to give them an extra edge over their competitors. The use of design at ABS Electronics, has contributed to their success in the last decade. They have used it as a means of controlling and monitoring the image of the company

and as a source of product innovation. Their firm commitment to design at board level is enforced by the company's constant investment in design development and R&D, between 10 -12% of annual turnover is allocated to these areas. In 1994, this amounted to approximately £300,000.

The problems associated with creating the gap between design and industry, in effect, do not exist at ABS because the two areas "design" and "industry" are completely integrated, one depends on the other.

"Design" is their business strategy.

Conclusion.

In this case study many of the problems that have created the division between design and industry have been addressed.

Present confusion about the meaning and purpose of design has led to subjective views being formed regarding the value of design, not only within industrial sectors but also within the masses. These subjective interpretations of design have resulted in design professions being bracketed, in the case of industrial designers this has seen them being labelled as "styllists", "conceptualists" etc. These are attributes of industrial designers, part of their inherent skills but they are not a definition or an accurate explanation of their role in the overall process of a products development.

The industrial designer is a "synthesizer", an "integrater" of ideas. William Lee describes the purpose of his consultancy as "bridging the chasm between the idea and the tangible product" (N. Mc Quaid, Interview with W. Lee, 7-12-1994). To achieve this the industrial designer has to play a central role in the overall product development process. This is one of the main barriers to designs integration with industry.

In order for the Industrial designer's full potential to be harnessed in product development programmes the manufacturer must have a complete commitment to design. Unfortunately this level of commitment is severely lacking in many companies. This is due to the fact that they are not aware of the benefits of design;

> The benefit of design is profit, profit for the company in terms of sales return, profit for the customer in terms of value for money, an all round quality produced.
>
> (N. Mc Quaid, Interview with Colin Petrie, 12-1-1995)

This is why ABS Electronics have adopted a commitment to design at all levels in the company, especially at Management Level, and as such their business strategy is very much design led. Unidare Environmental are in the process of implementing a similar strategy however, this is being hampered due to a lack of real commitment by their board of management.

The reasons for the lack of commitment to design are two-fold inadequate standards of design education and inadequate promotion of design, particularly by government.

Students graduating from Industrial design courses are idealistic in their views, they do not have a comprehensive understanding of production methods, manufacturing constraints or the financial implications of their designs.

The business side of design needs to incorporated in design education curriculums.

Designers and manufacturers alike have expressed dissatisfaction with government policies in design promotion that which they have implemented in the past. Although the funded consultancy schemes implemented by government have had some beneficial effects the general consensus is that they these are only short term solutions. Government has to re-evaluate its approach and provide real incentives for companies to invest in design, i.e. through tax relief on design and tooling costs. They need to encourage manufacturers to use design on a continuing basis and not to wait for government handouts. Manufacturers must include design as part of their business strategy. They need to be shown that design can be managed just like any other corporate resource i.e. Finance, Personnel etc. This may mean implementing programs of education for industry, which will need to be properly promoted and funded if they are to be successful.

In bridging the "gap between design and industry", design will have to be promoted as a fundamental link in the structure of a company. This will result in the raising of manufacturer's awareness of the benefits of design and designer. In doing so the status of the industrial designer will be raised and regarded as a necessary part of the company's approach to product development.

Industrial design will then be considered as an investment and therefore demand for designers will increase. Such an approach can only bebefit the economy of the country as a whole and as such should be a priority for Government. If design promotion is re-evaluated, and real incentives given to industry to invest in design then the Gap which now exist between design and industry will be bridged, however this will depend on future government policy.

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