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A History of Industrial Design
Consultancies in Ireland,

By Turlough Mc Anespy.

Submitted to the Faculty of History
of Art and Complementary Studies in
candidacy for the Degree of
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I would like to thank Gerry Walker for his guidance with this thesis and all those who aided my research.

History of Industrial Design in Ireland.

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Introduction

In 1998, Ireland has a very healthy and rapidly developing economy. The industrial manufacturing profile of the country has been altered significantly in recent years and quality products designed and manufactured in Ireland can be found throughout the world. The unprecedented economic growth of the last decade has led to the development of design culture, and this is reflected in the increasing number of design consultancies which can be found here.

The aim of this thesis is to document for the first time, the growing number of industrial design consultancies in Ireland, tracing the history and development from the initial design services offered in the early 1970's to the many high quality consultancies around today. By consultancy, I am referring to a company which offers professional advice on design for industry. This may involve the areas of graphic, packaging and interface design, as well as many of the other areas normally associated with the design and manufacture of industrial produce. I also intend to record the importance of these consultancies to Ireland's developing manufacturing industry and by referring to some of their significant product successes, I hope to show the nature and variety of their work.

Although operating in a different economic environment and under different governments policies, I felt that an overview of design consultancies on this island was incomplete, without visiting at least one in Northern Ireland. Having developed from a slightly different background, I feel that it provides a useful comparison to the consultancies in the Republic and in its similarities reveals a lot about the nature of industrial design in Ireland as a whole.

The materials for this thesis have been gathered from various sources. The visiting of the consultancies themselves in places as far apart as Bray and Belfast was essential in establishing an understanding of how each consultancy operates and why this is so. Without talking to the designers themselves, I would not have been able to assess their philosophies and their intentions for the future. In each case I tried in the least,

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the transparency and accountability of the organization. This section also outlines the various methods used to collect and analyze data, ensuring that the information is reliable and up-to-date.

2. The second part of the document focuses on the financial aspects of the organization. It provides a detailed overview of the budget, including the projected income and expenses for the upcoming year. This section also discusses the various financial risks that the organization may face and the strategies used to mitigate these risks.

3. The third part of the document discusses the operational aspects of the organization. It provides a detailed overview of the various departments and their functions, as well as the processes used to manage the organization's day-to-day operations. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

4. The fourth part of the document discusses the human resources aspects of the organization. It provides a detailed overview of the various roles and responsibilities of the organization's employees, as well as the processes used to recruit, hire, and manage the organization's workforce. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

5. The fifth part of the document discusses the legal aspects of the organization. It provides a detailed overview of the various laws and regulations that the organization must comply with, as well as the processes used to ensure that the organization is in full compliance with these laws and regulations. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

6. The sixth part of the document discusses the environmental aspects of the organization. It provides a detailed overview of the various environmental risks that the organization may face, as well as the processes used to manage these risks and ensure that the organization is in full compliance with all applicable environmental laws and regulations. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

7. The seventh part of the document discusses the social aspects of the organization. It provides a detailed overview of the various social responsibilities that the organization has, as well as the processes used to manage these responsibilities and ensure that the organization is in full compliance with all applicable social laws and regulations. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

8. The eighth part of the document discusses the overall performance of the organization. It provides a detailed overview of the various key performance indicators (KPIs) that the organization uses to measure its performance, as well as the processes used to analyze this data and make improvements to the organization's operations. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

9. The ninth part of the document discusses the future of the organization. It provides a detailed overview of the various opportunities and challenges that the organization may face in the future, as well as the strategies used to prepare for these opportunities and challenges. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

10. The tenth part of the document discusses the conclusion of the document. It provides a detailed overview of the various findings and recommendations of the document, as well as the processes used to implement these findings and recommendations. This section also discusses the various challenges that the organization may face and the strategies used to overcome these challenges.

to talk to the owner/head designer of the consultancy and I generally found the consultancies very helpful, with many designers taking time out from very busy schedules to talk to me. The questions I asked them mainly focused on the company background, the designers themselves and on the work that they had done. I also talked to them about their design philosophies and what they felt lay ahead for consultancy design work in Ireland. I found the philosophies of many to be quite honest and pragmatic to the restrictions of manufacturing industry here. I also felt that it was important to get the opinion of manufacturers, members of The Trade Board and design managers who deal with these consultancies, and although in some circumstances this proved difficult, I did receive enough feedback to make a general assessment of the situation as seen from the outside.

As most of the consultancies try to keep a very low public profile, obtaining secondary information proved surprisingly difficult. Indeed several of the companies did not have catalogues or brochures and only 2 had Websites. However the material I received from those who did, along with number of newspaper cuttings was invaluable in providing some background research.

Of the books I read "Kilkenny Design, twenty-one years of design in Ireland" and "Design in Ireland", (the Scandinavian report), were easily of most relevance. Unfortunately both were written quite a number of years ago, and I found the "Design for innovation", NCAD Industrial Design Exhibition brochure very useful in showing who was doing what type of design in Ireland today. In the past Ireland was renowned for being a design peasant in first world terms, but in my thesis I hope to prove that this is no longer so.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 3, 1862.

2. The second part is a report from the Secretary of the Interior, dated January 10, 1862.

3. The third part is a report from the Secretary of the Treasury, dated January 15, 1862.

4. The fourth part is a report from the Secretary of the War, dated January 20, 1862.

5. The fifth part is a report from the Secretary of the Navy, dated January 25, 1862.

6. The sixth part is a report from the Secretary of the State, dated January 30, 1862.

7. The seventh part is a report from the Secretary of the War, dated February 5, 1862.

8. The eighth part is a report from the Secretary of the Navy, dated February 10, 1862.

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23. The twenty-third part is a report from the Secretary of the Navy, dated April 25, 1862.

24. The twenty-fourth part is a report from the Secretary of the State, dated April 30, 1862.

2. Background to Industrial Design in Ireland

Today, Ireland is considered to be a modern and sophisticated industrialised nation, but this was not always the case. It is only 37 years since the Export board, Coras Trachtála was given the responsibility by the Government for the improvement of standards in industrial design, with a general acknowledgement that design performance at that time, “fell well short of European standards” (Frank, 1961, viii). To understand why the state of design was so poor in the sixties, one must look back to the beginning of the Century.

The Irish people had emerged poor and demoralised from the nineteenth century when the population had fallen due to extreme levels of starvation and emigration, and in which the industrial revolution had done them few favours. Local industries had suffered from the emergence of great factories in Britain and the exile of the country's best workers to Britain to build canals, railways and roads had continued unabated.

In 1922, twenty-six of the island's 32 counties became an independent state, although it was not until 1949 that the Irish Free State won complete independence from the British commonwealth. With the continued underdevelopment of agriculture and lack of new industries to replace the old ones, Ireland's economic dependency on Britain remained total for many decades after.

It became an immediate priority that the new state would make an effort to develop new industries and build factories which could mass produce products, however historical circumstances had contributed to a lack of creative and visual activity, and there was little idea of what good industrial design was, in the country at that time.

For centuries native Irish culture had been forced to survive secretly. Irish politics was that of the secret brotherhood, while its people were forced to practise their religion at secret mass rocks or behind closed doors. It was only natural that under such suppression the country's visual heritage would suffer most and it must be noted

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2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the statistical analysis performed.

3. The third part of the document presents the results of the study. It includes a series of tables and graphs that illustrate the findings of the research. The data shows a clear trend of increasing activity over time.

4. The fourth part of the document discusses the implications of the findings. It suggests that the results have significant implications for the field of study and may lead to further research in this area.

5. The fifth part of the document concludes the study. It summarizes the main findings and provides a final statement on the importance of the research.

that recent Irish design had not been that strong to begin with. The strong artistic manifestations seen in the decorated stone crosses, illustrated church books and precious metal work of the early Christian period, had long since demised and were unsuitable for development into modern manufacturing design. The architectural tradition of more recent times, had been a bastardised version of Norman, Victorian and especially Georgian styles imported over centuries with uninspired modifications, due to local conditions and materials.

As other countries began (at least in a small part) to transfer their visual culture to industrial design, Ireland had very few industries and even fewer designers with which to begin this process. In the decades following the twenties, the country tried to gain greater economic independence and in an attempt to create a manufacturing industry, protective import duties were raised. Although this policy worked, the 'home' manufactured goods which replaced the imported ones were of indifferent quality. Original product design was almost completely lacking, and designs in most cases were copies of previously imported products.

The decade which followed the formal declaration of a republic in 1949 brought depression for Ireland when the international community generally prospered. It had been recognised that elastic and equitable foreign trading was essential to economic self-sufficiency, but it became clear in the fifties that Ireland would need to act to raise industrial design standards if it was to improve export levels.

As I have already mentioned, this led to governments handing of responsibility for design standard to the Export board, or the CTT as it is more commonly known and its initial response was to invite five eminent Scandinavian designers to Ireland in 1961, to report on the state of design in the country. The team was made up of designers from different design disciplines and came from teaching as well as practising backgrounds. Their report 'Design in Ireland' was published in February 1962 and was heavily critical of the level of design awareness in industry.

It came to several conclusions about the state of design at that time and made recommendations as to how the situation may be improved. Among these was the

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need to create an Irish Design School which would produce good “home grown” Irish designers, and the need for a new government body which would promote the interest of the public in matters of design. The report was complimentary to some products coming from the craft based industries, but the group found many factory products were badly designed and executed. Of the designers themselves they wrote that ‘when he existed, was regarded as a somewhat frivolous addition to the staff, rather than having the status of a key member of the management team’(CTT,1961,p.3).

After the report was published, C.T.T. established a committee to address the problems of the general low level of design awareness in the country and the lack of skilled management and design personnel. The Kilkenny Design Workshops (K.D.W) were established by the committee in 1963. It was hoped the organisation would have a lasting influence on Irish industry and people and would provide relevant training and experience for designers to develop and eventually enter industry on their own.

The President of the United States, Abraham Lincoln, has the honor to acknowledge the receipt of your letter of the 10th inst. and in reply to inform you that the same has been forwarded to the proper authorities for their consideration. The President is deeply interested in the progress of the war and is anxious to know the results of your efforts. He is confident that you will continue to exert every effort to bring about a speedy and successful conclusion of the conflict. The President is also deeply concerned for the welfare of the people and is determined to do everything in his power to preserve the Union and maintain the principles of liberty and justice for all.

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Kilkenny Design Workshops

To carry out any comprehensive study of industrial design consultancies in Ireland, one must start with the Kilkenny Design Workshops. This state owned body was one of the first native companies to offer services to Irish industry and many of the top practising consultants in the country were either trained or taught at the design service. These include Oliver Hood of 'Hood Associates'; Sean McNulty of 'Dolmen' and Dermot Mc Mahon of 'Design Partners'. The K.D.W were set up in the coach-houses, stables, dairy and smithy of the Earls of Ormonde in April 1963. Situated in Kilkenny approximately 60 miles from Dublin, the workshops were the first industrial design practise set up by a government.



1. A view of the Front of the Kilkenny Design Workshops in the centre of Kilkenny City (1975).

The first of these is the fact that the United States is a young nation. It is only about 150 years old, and its history is still in the making. The second is the fact that the United States is a large nation. It covers a vast area of land, and its population is growing rapidly. The third is the fact that the United States is a diverse nation. It is made up of many different peoples, and its culture is a mixture of many different influences. The fourth is the fact that the United States is a powerful nation. It has a strong economy, a powerful military, and a strong voice in the world. The fifth is the fact that the United States is a free nation. It has a long tradition of freedom, and its people enjoy many liberties. The sixth is the fact that the United States is a democratic nation. Its people elect their representatives, and they have the right to change their government. The seventh is the fact that the United States is a peaceful nation. It has never been at war with itself, and it has always been a friend to peace. The eighth is the fact that the United States is a nation of opportunity. It is a land where anyone can succeed, and where there are many chances for a better life. The ninth is the fact that the United States is a nation of progress. It is always moving forward, and it is always trying to improve itself. The tenth is the fact that the United States is a nation of hope. It is a land where the future is bright, and where there is always something to look forward to.

The United States is a nation of many firsts. It was the first to declare its independence from Great Britain. It was the first to adopt a written constitution. It was the first to have a president. It was the first to have a Supreme Court. It was the first to have a federal government. It was the first to have a national flag. It was the first to have a national anthem. It was the first to have a national holiday. It was the first to have a national day. It was the first to have a national sport. It was the first to have a national game. It was the first to have a national dance. It was the first to have a national song. It was the first to have a national flower. It was the first to have a national bird. It was the first to have a national tree. It was the first to have a national animal. It was the first to have a national insect. It was the first to have a national plant. It was the first to have a national mineral. It was the first to have a national fossil. It was the first to have a national monument. It was the first to have a national park. It was the first to have a national forest. It was the first to have a national river. It was the first to have a national lake. It was the first to have a national ocean. It was the first to have a national sky. It was the first to have a national earth. It was the first to have a national sun. It was the first to have a national moon. It was the first to have a national star. It was the first to have a national planet. It was the first to have a national galaxy. It was the first to have a national universe. It was the first to have a national everything.

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Due to the lack of suitable Irish designers many of the first designers came from Britain, Scandinavia, Holland, Germany, Switzerland and the USA. The first disciplines which were practised in K.D.W were the craft based Irish industries, such as textiles, ceramics, metalwork and wood tuning, and the emphasis on craft was quite deliberate and purposeful. "Attention has been concentrated on traditional products. This is where innovation starts, where a country's cultural characteristics show themselves and where the standard for its manufacture is set", (Marchant, 1984, p.19), stated an early work catalogue.

In November 1965, the workshops were officially opened by the Minister for Industry, Mr P.J. Hillary, and for the next seven years craft based industries were nurtured and promoted to the public. By the early seventies however, it had become clear that K.D.W needed to switch their focus away from the traditional industries, now less dominant, and to adapt to design for other 'high growth' industries such as engineering. It was clear that the engineering sector was the industry most likely to reward development for international competition. Major internal changes were necessary if the workshops were to adapt to the industries most likely to take advantage of the new 'free trade' which offered an opportunity for economic development of Ireland.

The first stage of this reorganisation was the establishment of an industrial design consultancy under the direction of Nick Marchant. In 1973, K.D.W had undertaken a survey of Ireland's rapidly growing engineering industry. The survey indicated that there was little understanding of the potential role of design and led to an attempt by K.D.W to encourage engineering based manufacturers to use industrial design services suited to their needs. In the following years K.D.W changed from being a group of individual designer-craftsmen, to a multi-disciplinary design team influencing Irish industry for both indigenous and foreign manufacturers.

By the beginning of the 1980's, a majority of K.D.W's work was commissioned and fees were charged at normal professional rates. This consultancy work included design management and design practice, with technical and research services. While managing a company's design needs, K.D.W were able to influence design policy and help maximise the way in which design could further the company's aims and objectives. In many cases this process also involved setting up management systems to help implement the design policy and a follow-through service which would help to monitor and evaluate results.

Some of the practical design work was passed on to foreign design consultancies which K.D.W had felt were more suitable for that particular project, but many projects were carried out in the workshops themselves. The design practice involved the usual stages of the design process which are the backbone of modern day consultancy work. These stages included: 'briefing'; 'research'; 'concept creation'; 'concept development'; the 'implementation' stage of production drawings and prototypes, and 'post-production' liaison to ensure product quality was high, (Marchant, 1984, p.61).

Much of the design work carried out by K.D.W in the eighties was for new small Irish companies, who had realised that if they were to compete against international competition at home or abroad, they would need to take advantage of their small size and dynamism, and approach their design needs on a broad basis. One such company was Lake Electronics Ltd who had worked with K.D.W since their formation. As a result the company found it much easier to gain large telecommunication equipment contracts from around the world, than might have been the case. The coherent image of the company, which had been shaped by K.D.W through the co-ordination of all of its design needs, was important in convincing many foreign customers of the company's ability to manufacture quality products. Like a lot of products manufactured by Irish companies, initial runs were short and tooling was kept to a minimum.

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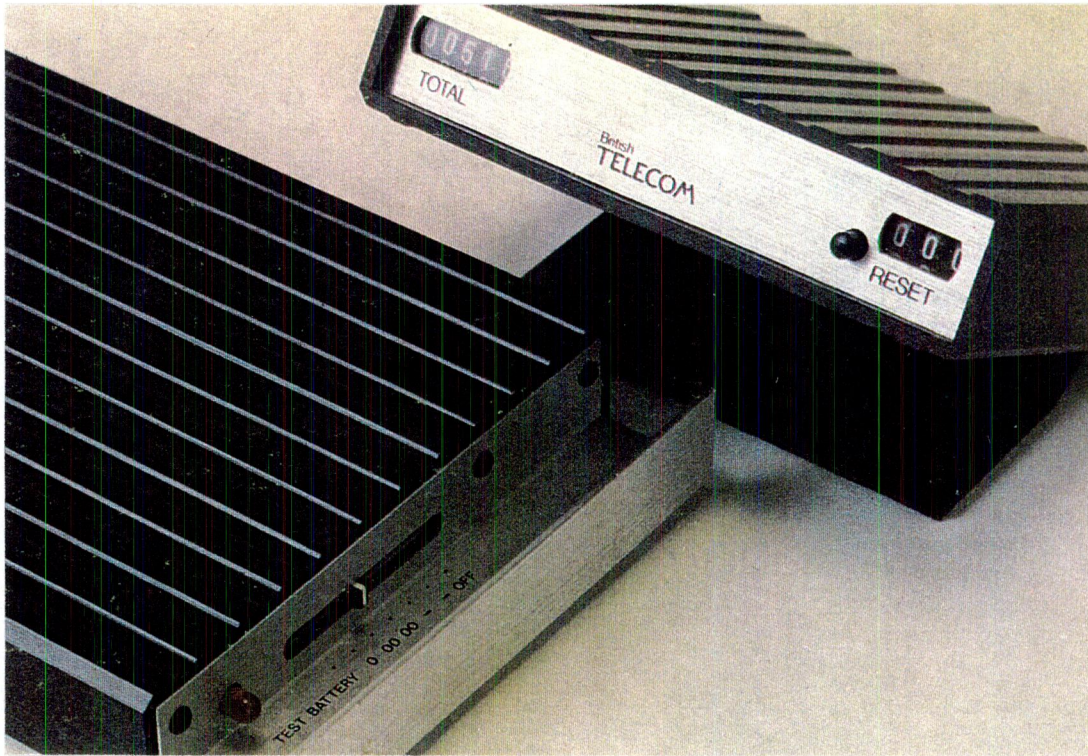
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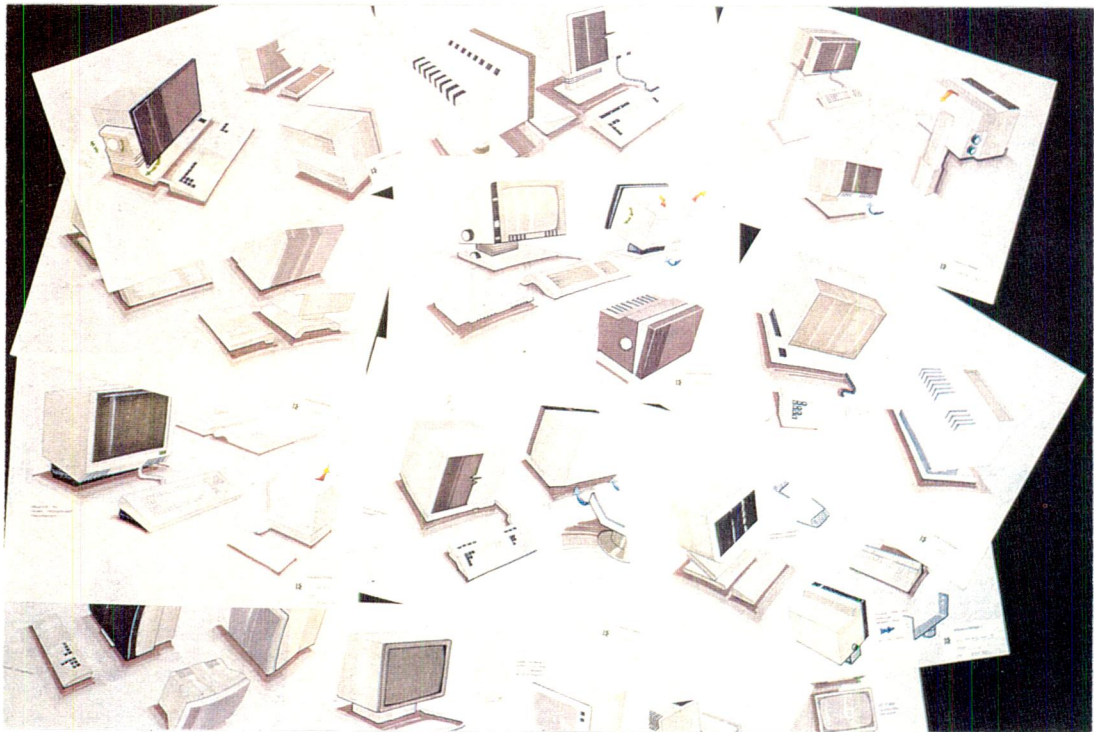
At a later stage of the companies growth, a second generation of products like the telephone 'barring unit' and 'call-meter' would be designed for a much higher volume of production.



2. Lake Electronics ltd's telephone call meter and barring unit.

K.D.W also designed for international industry. With the number of overseas companies with manufacturing subsidiaries in Ireland greatly increasing in the early 1980s, so too were the opportunities for improving Ireland's design reputation internationally. Beehive Ireland Ltd, manufacturers of computer equipment, were part of the electronic industry's emigration into the country, as companies made use of the Irish government's incentives to attract foreign industry. As the development of independent products, was one of the better ways of securing a subsidiaries future, it was only natural for them to develop computer desk top terminals specifically for the European market.





3. Beehive Ireland Ltd. Concepts for a desk top computer terminal, 'Eurobee Ft 10' with its tilt-lift-swivel mechanism.

The 'Eurobee FT 10' project was completed from initial sketching through to tooling and full production by K.D.W in under 12 months. As well as designing the chassis and chasing, a tilt-lift swivel mechanism for the visual display unit was designed through the development of models.

The First Private Design Consultancies

Although K.D.W were the largest and most high profile design consultancy in the country in the seventies, they were not the only one. The formation of Manis Coffey Associates Ltd in 1970 had preceded the K.D.W consultancy by 3 years. Still in existence today the company is a 'Engineering Design Consultancy with emphasis on low cost, practical mechanical engineering solutions.' (SDI,95/96,p.29).

Another such pre K.D.W consultancy was Michael Ozmin Designs, established in 1971. The company carried out work for Irish industry, including C.T.T. referral projects for 4 years until in 1975, Michael J Ozmin was appointed Professor of Design at the National College of Art and Design.

Due to the vacuum caused by the lack of industrial designers in the country in the 1970s, several English designers came over to Ireland to practice. Among these were Barry Dipper and Peter Metcalf.

Having previously spent 4 years working with the C.T.T.'s Design Advisory Service, Peter Metcalf began to direct the Irish wing of the English consultancy 'Total Concept and Design Management Ltd.', in 1976. When Total Concept choose to discontinue its practice in 1978, Metcalf decided to continue practising here under the name Metcalf and Associates. In 1983 he was forced to give up his consultancy and return to England because of ill-health. Subsequently, Metcalf, Delaney and Associates was run by Richard Delaney, a former employee of Metcalf's.

One of the most significant factors in the development of design consultancies here, occurred with the establishment of the industrial design degree course in 1975. The course was set up as a joint venture with the National Institute For Higher Education of Limerick (now the University of Limerick) and the National College of Art and Design, and it has played a huge role in the education of home grown designers ever since. An early prospectus claimed,

“Industrial Design is seen as a creative problem-solving strategy and the course is designed to enable its graduates to fulfil a personal vocation through entry into industry as designers qualified to control development manufacture at all levels.” *ny*

The type of course had been greatly influenced by the state agencies responsible for design, including the C.T.T. and K.D.W and in terms of the latter it would seem ironic that this course would play such a large part in the down fall of a body that helped sculpt its existence.

In 1980, the first students from the degree course graduated and this led to an expansion in the consultancy world. Of the original graduates only 2 were offered employment with existing consultancies, one with K.D.W and one with ‘Total Concept’. In fact few opportunities existed for graduates for several years, but the response to this situation was radical and pioneering, with many opting to establish their own consultancies with virtually no outside assistance.

The competition caused by the existence of Design 4, Design ID and Beaver Design had a detrimental effect of K.D.W. One of the main roles of the workshops was to promote design, but because these consultancies were now in direct competition with K.D.W little was done to persuade industry to use their services. Although it had long been accepted that the role of ‘promoter’ and ‘consultant’ were contradictory, it was now clear that this could be damaging to Irish design, with the existence of a new generation of consultancies. K.D.W closed in 1988, and was never quite as influential as it might have been at improving design in this country. However, it is fair to say that the task was a difficult one, and the help it received from the government and especially the department of education was limited.

In the work it did, it made many companies aware of the importance of design, and the designers within the workshops gained a valuable understanding of the industrial design situation in Ireland. Much of this knowledge was brought into private consultancies and this alone was a significant achievement.

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Denis O'Connel graduated from the first NCAD industrial design graduation year in 1981. By October of the following year, after a period on the product development course at the Innovation centre in Limerick, he had established Design, Innovation and Development Ltd., (Design ID). The consultancy grew and was to employ several other graduates of the course, among them Philip Kenny (later of Blackbox), and Gearoid O'Conchubair (now a senior lecturer on the course), who had both graduated in 1982.

The second year of graduation also spawned the 3 partners of Design 4. Brendan Farrol, Stephen Lennon, and Dave Roberts had all taken part in an Anco product development programme, and in March 1982 decided to form their own consultancy. By July 1983, Farrol and Lennon had resigned to form Beaver Design, and this consultancy practised until the late eighties, when Brendan Farrol decided that he wanted to take his work a new direction, and set up Allies Ltd. Stephen Lennon has since taken up a design position at MB Games, while Dave Roberts is now a lecturer of industrial design at Sligo R.T.C.

In 1987 Philip Kenny, having left Design ID, set up the consultancy Blackbox. After 5 years of struggling to find enough work to secure the consultancy's future, he sold Blackbox to Design ID shortly before their demise later that same year. "The pool of manufacturers is small here, and I just didn't have the connections," said Philip, explaining the importance of being able to pick up clients quickly after setting up, from which you may be able to expand through referrals. The demise of Blackbox and Design ID, were stark reminders of how difficult design consultancy work in Ireland could be, especially after a period of recession, but the sector has grown stronger since.

Hood Associates.

After training at the Royal College of Art, Oliver Hood, an Englishman, was one of the many foreign designers to come over to Ireland to practice at K.D.W. Hood Associates was established by him in 1984 after he left his position as head of industrial and furniture design. Although the company refers to itself as being product designers, Hood's have worked on a very diverse range of designs for industry. Designs have ranged from household products to medical equipment, and even large de-watering units for effluent treatment stations. The consultancy prides itself on its technically excellent designs boasting that they have worked on over three hundred products in the past ten years on which more than 85% are in production, (Hood Associates, 1994, p.6).

Hood Associates Product Designers

4. Hood Associates logo.

The personnel make-up of the consultancy also indicates a slightly different approach than that of other Irish consultancies. A more 'hands on' approach to design by the 5 designers including Hood himself, is complimented by the use of two full-time modelmakers. The inclusion of a tool designer and marketing person indicates a desire to ensure expertise with manufacturing cost and quality, with a high percentage of projects going into production, and also a desire to promote the consultancy to industry and the public.

The workforce of 10 is completed by a secretary and design engineer, but the number should go up in the near future. The output of the consultancy has increased recently, due to use of Computer Aided Design (CAD) systems, and fees have inflated with the increase in the level of quality this equipment allows.

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In 1992 Swiss electronic giant Logitech commissioned Hood to develop an advanced trackball computer mouse, in spite of competition from two rival American consultancies, also tendering for the job.



5. The thumb operated 'Trackman Marble', along with another index finger operated mouse, that Hood have designed for Logitech.

“The mouse differs from previous trackball devices in that it uses miniature cameras instead of contact sensors to follow the movement of the ball. As a result, dust or dirt, which would be picked up by an ordinary mouse, cannot penetrate the device or deteriorate its performance.”

said Hood, (O’Neil,10/8/97,p.10) describing how the balls movement is transmitted without any moving parts.

As a result the ‘Trackman Marble’ cannot suffer from wear and tear to mechanical parts, and is much more reliable than previous button-based devices. Differing from other trackball devices, Hood have designed for Logitech, this product is thumb operated. During development stereolithographic models were used, instead of sketches to ensure optimum function and comfort.

In March 96, the mouse won an illustrious iF (Industry Forum) award, during Cebit, the world electronic Fair in Hanover, Germany, and in the 2 years since its commercial release, 2 million copies have been sold,(O’Neil,10/8/97,p.10).

An interesting aspect of some of Hoods work is that some of the designs are carried out for entrepreneurs. One such case led to the design of a device which secures beach umbrellas. ‘The umbrella device is a big seller abroad. It screws into the sand and stops umbrellas from falling over’,(O’Neil,10/8/1997), said Hood of a device which may seem pointless here, but serves an important purpose in places like Australia and the middle east where there are laws to prevent loose umbrellas becoming a hazard.

Another area which produces new products is that of a company diversifying from previous work. One such Irish company ‘Laser Chaser’ make and distribute cutting discs and abrasives for the building industry. They approached Hood’s with a channel cutting device which would replace the hammer and chisel process conventionally used to recess cables and pipes into walls and floors.



6. Laserchaser's die-cast aluminium charring machine.

A die-cast aluminium chasing machine was developed with 'grinder' drive twin blades. The 'Laser Chaser' unit allows a channel to be cut at different depths and widths and protects the user from injuries with a completely adjustable guard. The unit also contains a facility for dust extraction, leaving the process much cleaner and safer than before.



1. The first section of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in all financial dealings.

2. The second section outlines the various methods and procedures used to collect and analyze data. It details the steps involved in gathering information from different sources and how it is processed to generate meaningful insights.

3. The third section provides a comprehensive overview of the results obtained from the data analysis. It includes a detailed breakdown of the findings, highlighting key trends and patterns that have emerged from the data.

4. The fourth section discusses the implications of the findings and offers recommendations for future actions. It suggests ways in which the information can be used to improve operations, enhance efficiency, and make more informed decisions.

5. The final section concludes the document by summarizing the main points and reiterating the importance of ongoing monitoring and evaluation. It stresses the need for continuous improvement and adaptation to changing circumstances.

Allies Limited

Having been an original graduate from the NCAD degree course, Brendan Farrell was one of the original founders of Design 4 and Beaver Design. In 1989 he resigned from Beaver Design and formed Allies Limited, feeling that he wanted to take his consultancy work a slightly different direction from that of his colleagues. Brendan was soon joined by Tony Gould and Allies has since grown into one of the largest consultancies in the country with 11 people working at its studio in Shankill, Co. Dublin.



7. Allies Limited logo.

Specialising in design of computer (approximately 40% of work), electronics (25%) and whiteware products, it has worked with a host of national and multinational clients. Allies like other design consultancies here today are improving Irish design immensely and a vast majority of the Allies designed products are exported. Brendan now reckons that the consultancy is responsible for designing products being exported for 200 million pounds a year. Of course the company also does work (about 50%), for foreign manufacturers based either abroad or with subsidiaries here.

Brendan feels that Allies can only gain more and more foreign work, especially in America with Allies' more competitive prices and a high quality of design work likely to pay off even more favourably in the future. Of recent times the company has been looking to move to a larger headquarters with the number of staff likely to increase in the near future.

The company has become very strong in the area of technology driven product design and has harnessed the use of 3 Dimensional computer technology to good effect. The quality of Allies design work has been reflected in the fact that several of Allies products have won major international design awards. Two such products were finalists in the 1997 'European Design Prize' awards.



8. Eurologic's eye catching and attractive 'XL 400' data storage system.

The 'Voyager 400 raid' series, a hard drive equipment tower for secure storage of large database was manufactured by an Irish company called Eurologic. Specialising in the manufacturing and marketing of a range of data storage systems for computers, Eurologic worked in tandem with Allies in the design of the '400 series' to help marry innovative technology and styling into an excellent finished design. Aimed at the fileserver and mid-range markets, the '400 series' has a drawer-like unit that can accommodate a wide variety of storage devices - hard disks, CD units, tape-streamers, power supplies controller and display units, in both narrow and wide formats. Up to nine of these 'drawers' can be stored in a tower arranged in flexible combinations, and the entire system can be expanded indefinitely with the simple addition of more towers. The XL 400 is one of the first products in its class to have a cooling mechanism which can cope with drives as fast as 10,200 RPM, and the patented controlled release mechanism ensures the easy insertion and removal of the carrier.

When designing the unit, Allies' intention was to abandon the conservative and austere functional style of most electronic data storage systems. With the miniaturisation and efficiency of today's technologies, there is no longer any need to keep data hidden in the back-room and the colourful and attractive appearance of the '400 series' enables it to sit proudly in any front office or home. A good guide to the success of any design is the feedback from the client and in reference to the series, John Maybury, Eurologic's managing Director has said, "to be successful in the rapidly changing hardware market, you've got to be better than the competition, and that means delivering better functionality, performance, pricing, supplies and value than your competitors. We believe that our innovation and superior design will allow us to achieve all that."

Another product which featured in the European Design awards is the 'Trintech' electronic payment system. Trintech is a small Irish company which is one of the leaders of credit card acceptance equipment and PIN-pad technology in Europe.

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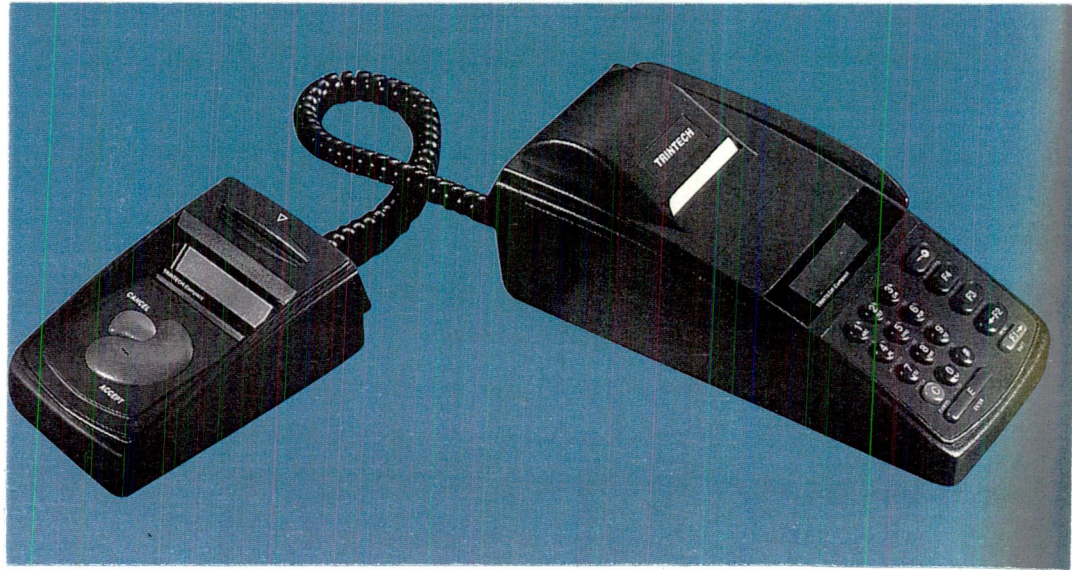
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Allies worked with them in the design of the 'Compact 4000' which deals with PIN based debit card transactions.

The unit consists of a small physical 'footprint' and an easier to use graphical user interface. The jewel-like compact mouse is particularly arresting in its appearance.



9. Trintech's 'Compact 9000' in combination with PIN-Pad can easily deal with PIN-based debit card transactions and credit card validators

As the unit was designed to allow all financial transactions to take place in shops, restaurants, and taxis etc, it was important that the design was inconspicuous.

Production costs were kept low, as Banks, the main customer for such products, are in a position to shop around internationally, to find the best value for their investment. To date Trintech has been remarkably successful in this respect, with current product users including Bank of Ireland, Bank of Scotland, SE Banken in Sweden and the Berliner Bank.

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Dolmen Associates

Like Oliver Hood, Sean McNulty received vital experience of working with Irish industry with his time at K.D.W. Having also had previous spells at Design ID (as design manager), and Dimensions he decided in 1991, that new possibilities had been offered by modern computer technology. In January of that year he formed the product design consultancy, Dolmen Associates, based on Dame St. Dublin.



10. Dolmen Associates logo.

By January 1993, the company had expanded to 4 members and the first 'seat'(computer workstation) employing the use of design engineering software had been acquired. At £50,000 this now outdated piece of equipment (current equivalents are 8 times faster), enabled Dolmen to vastly speed up design and development work, considering that their formation was only 7 years ago, Dolmen have been relatively quick in harnessing the computer technology at their disposal. Without any outside body to help fund or support these consultancies it takes a number of years before, the capital investment can be made to acquire up to date 3-dimensional CAD(Computer Aided Design) and visualisation systems, but having now acquired the 'seats' Dolmen have been resourceful in their use of them.

Design work is now carried out in shifts, to ensure these highly advanced design tools are fully utilised. The technology includes 3-D CAD systems, running Pro-Engineer and Wave Front software on Silicon Graphics workstations. The biggest advantage

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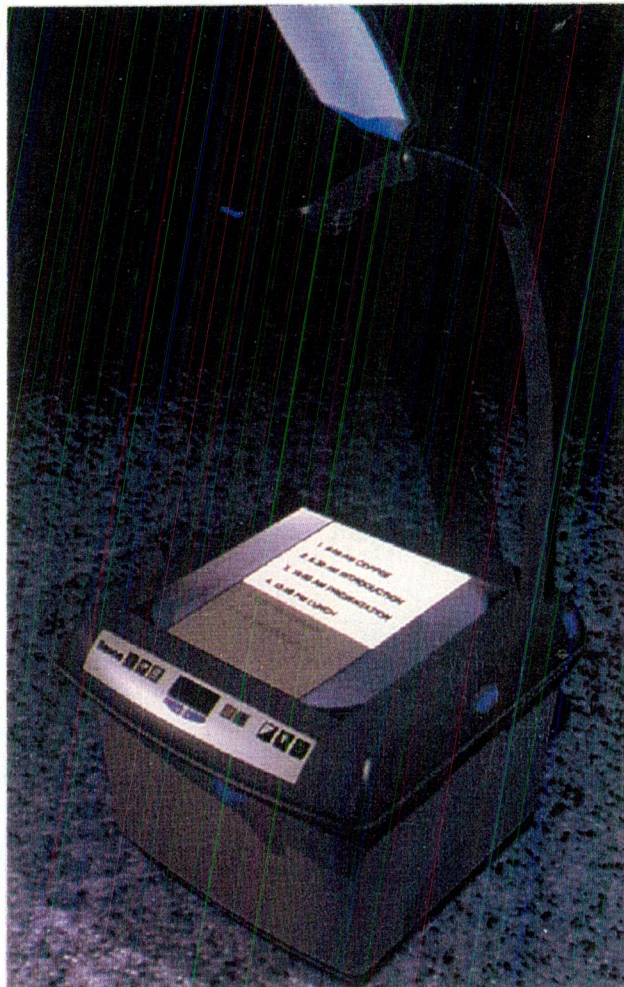
of using these systems is that photo-realistic visualisation of a product concept can be produced at an early stage of the design process and engineering analysis can be carried out on screen saving valuable time and money.

The engineering programme 'Pro-Engineer' is very sophisticated, with an ability to cope with the most complex of curved forms. It allows the weight and volume of an object to be predicted in any given material and accurate stress analysis can be done to enable costing of a component at an early stage. 'It is very important to be able to evaluate the character and quality of designs before time and money are spent on prototyping', said Sean in reference to the value of the technology.

When complete, an engineering drawing of a product concept can be brought into Wave Front, the advanced visualisation package where colour, texture and degrees of transparency and reflection can be applied to provide a photo-realistic image. The system is so good at providing a visual representation of a concept that the marketing process can get to an advanced stage early in the products conception. It also ensures that a client knows exactly what he/she is getting long before the product is manufactured.

Dolmen now consists of 9 designers and an administrator with turnover constantly increasing by at least 25% a year, and Sean would expect the number of designers to eventually increase to 11 or 12. The company's work is done in 3 main areas, that of the electronics sector, the desktop-office commodity sector and the leisure transport sector, such as caravan and boats, although other areas are also covered.

After an initial brainstorming session, involving all designers, each product is designed by a team consisting of at least 2, but with possibly 3 or 4 members to make sure that ideas are cross referenced and well balanced. One such team designed the Sasco overhead projector, of which Sean is very proud, having taken the design from the initial concept development, right through to tooling and the manufacturing pre-production launch.



11 Sasco overhead projector featuring an innovative 'reveal' mechanism to assist the user making presentations.

This 'turnkey' operation (from initial concept to pre-production overview stage), took 3 designers solidly working for 9 months to complete, and was managed throughout by Dolmen themselves.

Designed for Irish company, Holt Ltd., the American size tournament pool table is another example of a successful design for the export market. The aim was to develop a design which would utilise modern manufacturing processes for a traditional style American pool table. The table succeeded in meeting the quality and performance standards of the Dutch and German markets and has been awarded the German Red Dot Award for Design excellence.




12 Holt Limited's traditionally styled American Pool Table, manufactured utilising modern manufacturing processes.

As well as reducing the number of component parts by 30%, Dolmen design enabled the labour requirements for on-site assembly to be cut by 50%(Dolmen,1996,p.5). The entire concept to first batch production of 45 tables was completed in 12 weeks and, tooling and design fees were amortised over the first order production of 75 tables. The design created an exciting new image for the Holt brand in a traditional market place which resulted in a total sales increase of 20%.

Design partners.

Set up in 1984, Design Partners is a product design consultancy situated in the very scenic surroundings of Fassaroe house in Bray, Co. Wicklow. Having trained in England before the existence of the industrial design course in NCAD, Brian Stephens returned home and along with David Morgan who had been working in The Trade Board, established the consultancy.

The logo for Design Partners is displayed within a solid black rectangular box. The words "Design Partners" are written in a white, sans-serif font, centered horizontally and vertically within the box.

13. Design Partners logo.

Initially locating in a building owned by Morgan, the consultancy has recently moved into a new studio at the site which has proved close enough to Dublin city centre to be practical and far enough into the beautiful Wicklow countryside to prove popular with the company's clients.

Design Partners mostly designs consumer based products for Irish (about 50%), and foreign manufacturers. The majority of products are designed for export and among these are pens for AT Cross, leisure products for Camping Gaz, and medical equipment for Puritan Bennet, and Elan Corporation.

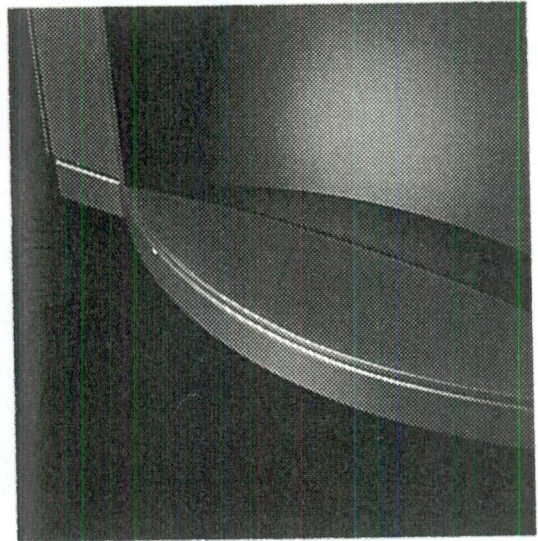
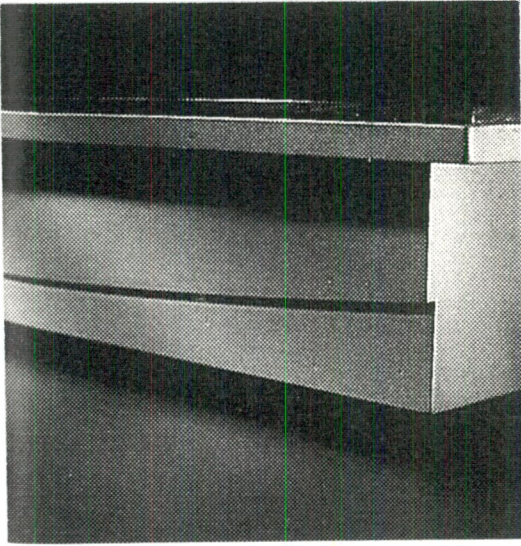
Design Partners are much more conceptual design based than the likes of Hood Associates and specialise "in generating new products for manufacturers who have a strong product focus," (Design Partners, 1998, p.1). However they are quick to point out that there is a lot more to their concepts than a strong aesthetic appearance, and are very aware of the dangers of working with manufacturers that do not understand the design process properly. "We are looking to work with companies who have design as a strategic part of their philosophy," said Dermot McMahon, a senior designer at Partners.

as a strategic part of their philosophy,” said Dermot McMahon, a senior designer at Partners.

The idea of a manufacturer that understands and involves itself with the design has been taken a step further in recent years with the emergence of new technology. Some manufacturers are now refusing to deal with consultancies that do not have engineering packages like ‘Pro E’, which are similar to their own. Partner’s CAD/CAM services in both 3D solids and surfaces, allows it’s clients to be involved in the progress of a design and through the use of code worded E-mail can easily send a detailed drawing of a design to a manufacturer in seconds. The consultancy now consists of 3 modelmakers and 6 designers, having taken 2 more on recently. The premises consists of a studio and an extremely well equipped workshop with 3D CNC milling and silicon tooling capabilities, and can easily produce multiple part prototypes or in some cases first batches of production.

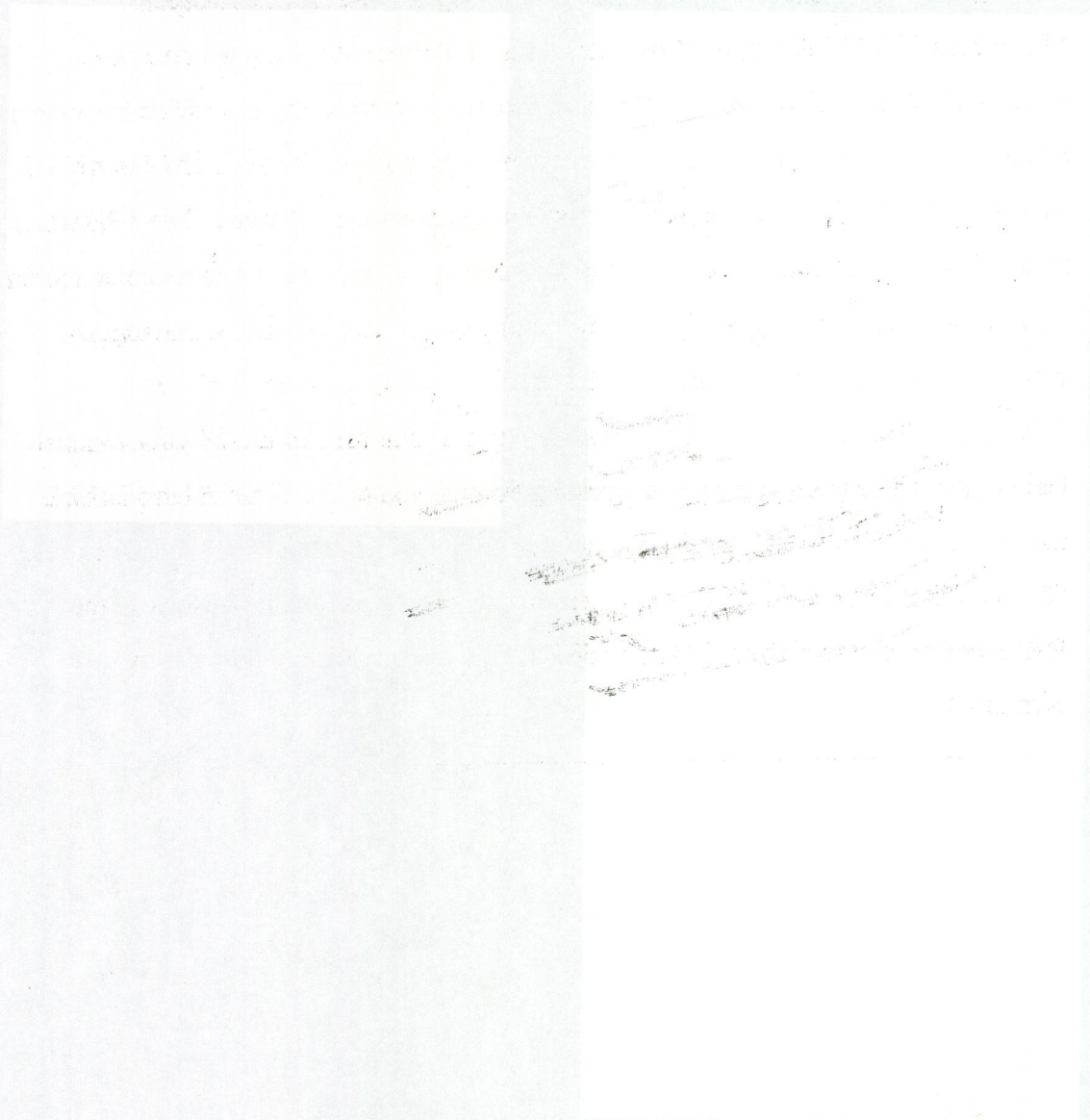
Designed by Partners 2 year ago the Mediacom ‘Pandora Video Conferencing System’ has also been partially manufactured and constructed, in small batches of 10, in the consultancy’s workshop. Established in 1995 Mediacom specialise in the manufacture of video-conferencing, multimedia communications and interactive information systems. The conferencing is “conceived as an ‘engine’ for easy and flexible integration into any audio-visual enviroment,”(Thackara,1997,p.222), and can be used for corporate conferencing, distance learning, and telemedicine.

The product uses the conventional telephone keypad as it’s user interface console and this makes it look very simple to use. Revelent text and figures are displayed on programmable back-lit keys on the unit and graphic icons are used to indicate special control keys. The unit is designed so that it can be easily used and then can ‘disappear’ into it’s surroundings. Partners felt that it was important that the unit was neither inconvenient to use or store, and in this stylish and simple looking solution both problems have been addressed. “Design Partners believes that really good products are tools which enhance the user’s life, offer an environmental solution and provide sustained growth for our clients,(Design Partners, 1998, p.1).

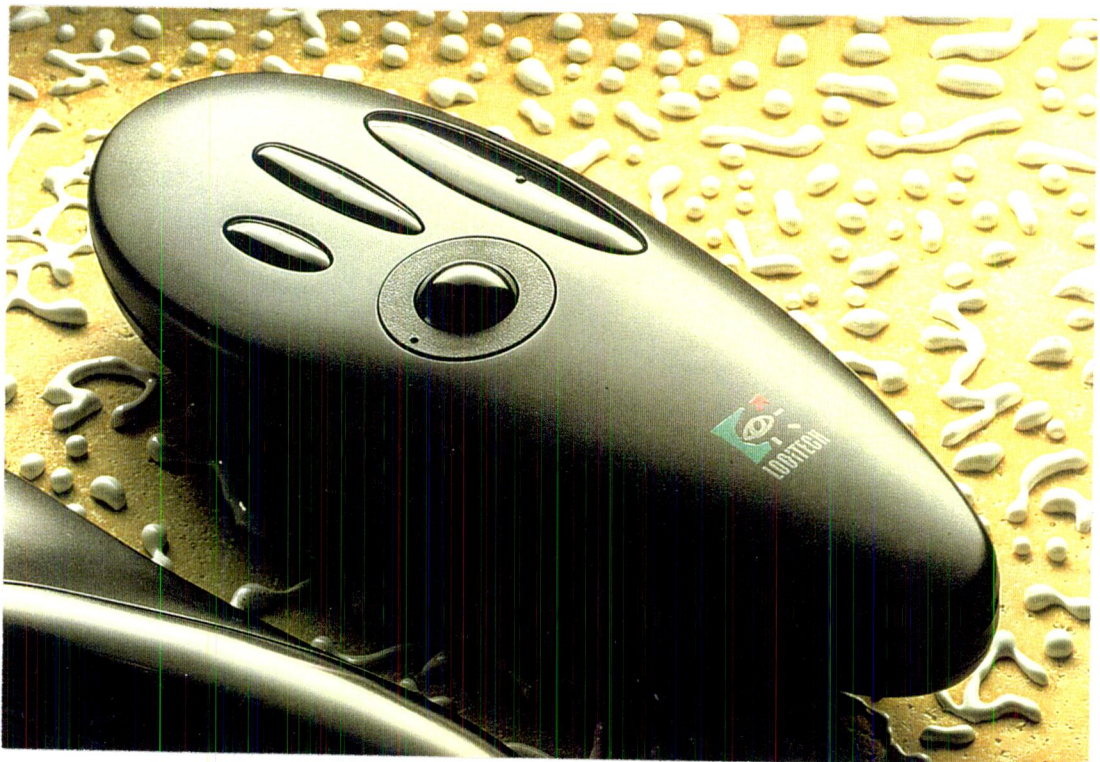


14. Mediacom's Pandora Video Conferencing system is designed for easy and flexible integration into any audio-visual environment.

Mediacom now pursues a better design and development structure than before they worked with Design Partners, realising the importance of the design process in bringing together the engineering and marketing elements of their manufacturing. "To be honest, we didn't realise before hand how much it could contribute to competitive differentiation," said John Coburn, the company's managing director, (Thackara,1997,p.223). The unit was shortlisted for the European Design Prize 1997.



Another Partners' product to have featured in design awards is the Logitech 'TrackMan Live'. Like Hood Associates, Design Partners have gained contracts with Logitech to design computer mice and pointing devices, and are still involved in projects with them today. Designed by Partners 3 years ago, the 'TrackMan Live' is a cordless hand-held remote control mouse for manipulating software. The 3-button trackball was developed especially for presentations and acts like a remote control for a P.C. The radio transmitted signals have a range of 10 metres without having to point at the screen. Like Hood's trackball device, the 'TrackMan Live' was developed with the use of models, to ensure comfort and ease of use by your thumb. The sleek black mouse creates an interesting comparison to the 'TrackMan Marble', and shows how two consultancies can arrive at different aesthetics for similar devices. The 'TrackMan Live' was also nominated for the 'if awards' and has also won the 'Red Dot award' for highest design quality at 'Design Innovation '95', Essen, Germany.



15. Logitech's Trackman Live - a hand-held remote control mouse perfectly suited for manipulating presentation software.

O'Sullivan Associates (OSA)

O'Sullivan Associates is a Dublin based design consultancy which has progressed from doing product design and presentation service, to doing a website development work. The company was initially set up by Nial O'Sullivan 2 years after his I.D. graduation in 1990, and he was later joined by Marcus Gosling and Peter Sealey. From there the company has grown to a workforce of 8, and OSA now has a partner company NUA limited which employs 26 workers.



16. O'Sullivan Associates logo.

OSA occupies a purpose built 5000sq. ft. workshop and studio complex in the city centre, and work is currently being undertaken to expand the premises. At an early stage of OSA's development it was difficult to build enough credibility to compete with the more established players in the industrial design consultancy world. However their ability to work with new and diverse technologies which would later lead them away from product work almost completely, did help them to clinch design project work with several of the world's leading manufacturing companies, including Adidas, Goldstar and Electrolux.

One of the most commercially successful of these was the product development of the Adidas Predator Football boot. Developed in conjunction with Craig Johnson, the boot was designed to improve the ability to control and to put extra spin on the ball. OSA took the initial concept and developed this by doing extensive material research and by constructing numerous prototypes with alternative 'grips' on the front section of the boot. These were then tested to identify which material and design were best suited to improving the performance of the boot.

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research. It also provides a brief overview of the methodology used in the study.

2. The second part of the report is a detailed description of the study area. It includes information about the location of the study area, the population of the study area, and the characteristics of the study area. It also discusses the data sources used in the study.

3. The third part of the report is a detailed description of the study results. It includes information about the findings of the study, the conclusions drawn from the findings, and the implications of the findings. It also discusses the limitations of the study and the need for further research.

4. The fourth part of the report is a conclusion and recommendations. It summarizes the findings of the study and provides recommendations for future research. It also discusses the importance of the study and the need for further research.



17. Adidas 'Predator' football boot with stabiliser system and better ball control capacity.

Along with the initial part of the project, a brief was also set up to design a new stud system for the boot. The aim was to give better stability and grip to the player. By producing a range of prototypes OSA were able to determine a suitable compromise to maximise the grip and minimise mud clogging on the sole plate. The Predator went on to become a world-wide success and the Adidas best selling boot ever.

From its conception OSA have found that due to the nature of an industrial designer's training, it is very easy for them to adapt to new technological advancements whether they are presentation software or website developments. The initial step forward was into 3D modelling. A lot of this involved product and architectural presentations.



18. Scale model [400 millimetres high] of a San Francisco office block.

As well as providing scale models OSA started to specialise in computer generated models and illustrations. Acting as a service company OSA used a range of advanced presentation techniques for the likes of Brown Thomas, Irish Nation-wide as well as a number of international clients. One of the best examples of such work was the video presentation for a proposed development in Dun Laoghaire. A computerised model was built for the site and this was turned into a computer generated animation. This allowed the client to not only to view the model but to see it from many different angles in a seamless animation. From the experience gained in presentation, OSA moved into video graphics and image creation services. In work varying from brochure advertising to animated TV production, techniques such as digital video editing, high end computer graphics and animation, 3D illustration and photo manipulation and photographic model making were all used.

Due to their increased involvement in new multi media techniques OSA were able to capitalise on the developments of the internet in the early 1990s. A partner company Nua Ltd., was set up in mid 1995 in regard to internet consultancy work and to aid with world web developments. Sharing OSA's workspace at South Cumberland Street, Dublin 2, Nua concentrates on internet strategy and marketing, while OSA now acts mostly as a research company moving towards high band media interaction with the use of digital video and sound.

The experience gained at the early stages of the internet development. allied with a great deal of opportunism shown by the company, has now placed Nua in a position to challenge as one of the world's leading internet consultancies. Nua specialise in projects for large organisations and software companies. Given their relatively small size in global terms, the company's success has been remarkable with a list of clients that include Thomas Publishing, Ericsson, Siemens, Nixdorf, Iona Technology, The Sunday Business Post, McCann Fitzgerald and Telecom Eireann.

In mid November 1997 it was announced that Nua limited had won a significant contract with the US publishing giant Thomas, without ever meeting representatives from the company. AEG (American Export Group) an operating wing of Thomas Publishing Co.'s international division have hired Nua to design and display a database, which will be available in six languages and will connect overseas buyers of American products to exporters, vendors and distributors in the US.

Set for an early 1998 launch, the 'American Export Register' will be the most extensive international web database of its kind. The contract was won against competition from 11 American companies and Nua now hope to break into the American Market, (the current client base is split evenly between Britain and Ireland), with plans to open an American office at an advanced stage.

“Winning this contract is a major achievement for us”, said Gerry McGovern,
Managing Director of Nua

“America is rightly regarded as being several years ahead of Europe with regard to Internet development. Therefore to win such a contract in the face of heavy competition from American companies proves that Nua is a serious player in Internet developments internationally,” (znet.com, November 12,1997)

Nua and OSA face a bright financial future with research completed in 1997 leaving both well placed. It is hoped that turnover of above 1 million for 1997, will increase 2 or 3 fold in 1998.

The Design Factor

Based in Belfast city centre, the Design Factor was set up by William Lea in 1985. In an attempt to move away from the hustle and bustle of design consultancy work in London, Lea moved to Belfast and set up on his own in the present premises in Exchange St. The company now consists of himself, 2 industrial designers, 2 graphic designers, a manager and a part-time secretary who work in a well-equipped studio with an in-house workshop and photographic facilities.

The logo for 'The Design Factor' features the word 'The' in a black serif font, 'Design' in a blue sans-serif font with a small pink triangle above the 'i', and 'Factor' in a black serif font. A red wavy line is positioned below the word 'Design'.

19. Design Factor logo.

An extensive range of design services can be provided due to the presence of NT based MAC and PC management and design systems along with a CAD solid modelling system. The design Factor's work includes graphics, packaging and instruction brochures, as well as industrial design. "The work we do is design for industry and not industrial design" said Lea, placing emphasis on the idea that The Design Factor not only provides a product but an entire idea of a product. The consultants skills in graphic design are used to provide a support for 'on product' and 'information design' and within the broader scope of corporate identity, brochures and technical manuals (which between them provide 25 to 30% of the company's work) for a co-ordinated company image.

With an office of 15,000 metres sq. there is space to expand the workforce, with the addition of another industrial designer later this year. Like other consultancies, the growth in the number of designers is very controlled, so as to ensure work that is up to the highest quality. After Lea himself, has sorted out contractual documentation and has helped with the breakdown of the brief, each project is handed to the

designer/designers who will then take responsibility for the design, including client liaisons. "Everybody here is a main player" he said, commenting on the hierarchical system of the company.

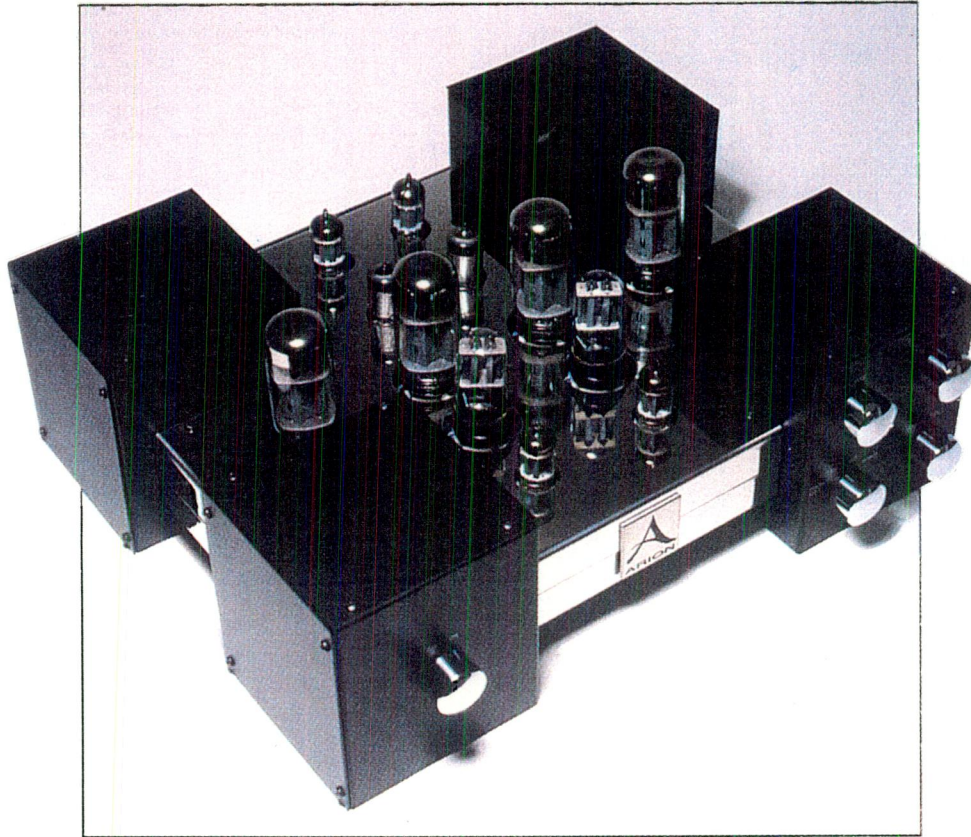
In the six years since its' introduction to Belfast, The Design Factor's turnover has increased at a steady pace, now eight fold of what it was in 1991, with figures for the 1st quarter of this financial year already at a level of 50% of the whole of last year's. The reason for such an increase in turnover lies in the reputation and credibility gained from the initial 5 years here, when almost all work was done exclusively for Northern Irish companies. As with other southern Irish consultancies the Design Factor has worked hard to make sure they are designing for the proper clients. As an Englishman in Northern Ireland however, William Lea has tried to gain credibility and acceptance by working with a higher proportion of Irish manufacturers than other Irish consultancies.

One such local company is the Lisburn based Arion, which grew out of sales and marketing of very high-end domestic hi-fi equipment and have developed their own very innovative and acoustically excellent range of units. As with many of their designs, it is important to keep in mind the limitations of the local manufacturing industry. The Hi-Fi 'Electra' unit was produced in low volume, with a high unit cost of about £1,000. Flaunting its 'retro' style, the plain, but elegantly produced design was firmly based on the practical needs of the units construction, involving separating the internal transformers to minimise 'cross-talk' and developing a design that could be produced in small quantities across a range of 8 different units. The system consists of 4 simple powder coated sheet metal cubes which support the transformers and electronics, which are welded to a stainless steel bed. The 'Electra' aimed at the export market, is an example of a Design Factor design, which has placed a stronger emphasis on cost reduction, in the materials and manufacturing process than it might for a larger international company.

First main paragraph of handwritten text, starting with a capital letter. The text is dense and covers approximately the top half of the page.

Second main paragraph of handwritten text, continuing the narrative or discussion. It begins with a capital letter and spans the middle section of the page.

Third main paragraph of handwritten text, located in the bottom half of the page. It concludes with a period and is followed by a few lines of smaller, less legible text.



20. Arion acoustic's 'Electra' amplifier.

Some of the most rewarding and prestigious work the Design factor has done for foreign companies has been done for the Swiss telephone manufacturing company Landis and Gyr. From a background in manufacturing controls and coin validation mechanisms for the vending industry, Landis and Gyr developed on to manufacturing a series of pay phones. One of the first in the range, the 'Agifon 50' formed the basis of an on-going relationship between Landis and Gyr and The Design Factor which has lasted over 10 years. The unit has a simple mechanism that does not include a coin return and is ideal for the quick 10 pence call. The phone is widely used world-wide and can be found in many homes, restaurants, hotels and large office receptions.

The latest phone in the series with which The Design Factor have been involved with is the 'BT 2000'. When Landis and Gyr were invited to tender for the latest British Telecom street phone they asked The Design Factor to help them to create a presentation to complement their engineering excellence. As a result of the impression created, Landis and Gyr won over competition from Plessey and BT's own in-house design team, which had designed BT's previous phone. A multi-million

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pound investment resulted and The Design Factor were left to design a phone which was to be on every street corner by the year 2010. From a very restrictive design brief a vandal proof phone was designed, which could be serviced by opening up in a very confined space. The large radius corners derived from the need to open the phone in the smallest of phone boxes, and this gives the phone quite a friendly appearance for something so tough. Security was essential due to the cost of the internal parts, which enabled the phone to relay sophisticated information about when it was full of money, under attack or simply needed cleaning.



21. Landis and Gyr British Telecom multi-lingual BT 200 public payphone

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1861. It is a very important document, as it sets out the President's views on the secession of the Southern States. The President states that he is bound to maintain the Union, and that he will use all the power at his disposal to do so. He also states that he is not a slaveholder, and that he does not believe in slavery. This letter is a key document in the history of the American Civil War.

2. The second part of the document is a letter from the President to the Congress, dated March 1, 1861. It is a very important document, as it sets out the President's views on the secession of the Southern States. The President states that he is bound to maintain the Union, and that he will use all the power at his disposal to do so. He also states that he is not a slaveholder, and that he does not believe in slavery. This letter is a key document in the history of the American Civil War.

3. The third part of the document is a letter from the President to the Congress, dated May 1, 1861. It is a very important document, as it sets out the President's views on the secession of the Southern States. The President states that he is bound to maintain the Union, and that he will use all the power at his disposal to do so. He also states that he is not a slaveholder, and that he does not believe in slavery. This letter is a key document in the history of the American Civil War.



Its multi-lingual interactive display leads the caller through the sequence of operation and is able to give useful call-based information as well as allow a number of direct dial facilities to be marketed by BT for company rental and hotels etc.

Several hundred thousand units have already been installed to date and to the satisfaction of William Lea will be joined by many more in the decade to come, leaving him to comment "good design should be relatively timeless. My kudos is seeing my design on the street."

Implications for the future.

Since the early 80' the growth of industrial design consultancies has been dramatic, and the process of improving indigenous design standards has gathered pace. Ireland is currently in a period of economic growth, but there are many who feel that it's manufacturing industry is not as healthy as it might seem. The government's attempts to encourage foreign manufacturers to set up subsidiaries have been beneficial to the country as a whole, but this tends to distract attention away from any inadequacies in indigenous manufacturing industry. Although there is a large amount of export design work carried out by consultancies in Ireland, and design awareness has greatly increased in recent years, the level of design consciousness among manufacturers still needs to be raised.

Most manufacturers no longer need to be preached to about the benefits of good design in industry, but it is still important that manufacturers are taught how to integrate it into their manufacturing process. The Trade Board, who continue to have statutory responsibility for the standard of design in Irish manufacturing, still provide a design service for industry, however this takes the form of specific practical help and does not address the wider issue. It is naïve to think that this service, however useful in an individual case, can solve the overall problem of encouraging manufacturers to use design, and educate them in the communication and management of it.

In the last few years improvements have been made in this area, with Forbairt and The Trade Board having both made attempts to address the problem. Among these were the 'Design Ireland' initiative, and the design promotion drive by Andrew Bradley, which involved the visiting of manufacturers all over the country. However without a prolonged government initiative, success in this area will be limited, and this will not happen without a unified voice from the design sector asking for it. Since the demise of K.D.W, Ireland is alone in Europe in being without a national agency for design promotion.

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There seems to be a certain amount of complacency from within the design sector, and as long as the consultancies have sufficient work, and export figures remain relatively high, change will be slow. However for the long term health of the industry, the consultancies must come together whether under the umbrella of the Institute of Designers in Ireland(I.D.I), or another body and lobby for some action to be taken. Most consultancies have no affiliation with the I.D.I, and it can be said that there is a limit to what can be achieved from an organisation that has little prolonged contact with industry. Understandably the consultancies prefer to work with companies who appreciate good design, and it must be refreshing for them to be able to design for large multi-nationals without having to face the harsh realities of manufacturing design here. However it is for the good of all in the design sector, if Irish companies are prospering due to good design, but many companies still need to be encouraged into design , and currently no-one is doing this.

The nature of consultancies in Ireland is that they are usually owned and run by the head designer. Although the owners have been able to keep a tight control of what area of work they do, and how they do it, there are several disadvantages to this situation. As the owners have understandably tried to continue designing, instead of focusing on the business, marketing and management side of their consultancies, these aspects are not what they might be. These problems must be addressed in the future and changes may be needed in the industrial designers education to give him/her a better business sense. The last few years have seen the emergence of a number of independent design managers. Among these are Andrew Bradley, Dan Marr and Martin Crotty, and hopefully their arrival will lead to an improvement in the management and communications between indigenous manufacturers and consultancies.

It is clear that the standard of design work itself, compares favourably with consultancies abroad, and Irish consultancies stand to gain more work in the future, because of the lower rates they charge for their services. This 'low price' stems from the lack of appreciation for design here in the past, and the nature of indigenous manufacturing companies who can not afford to invest much in the design process. As

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3. The third part is devoted to the case of a system of particles.

4. In the fourth part, we shall discuss the problem of the interaction of particles.

5. The fifth part is devoted to the case of a system of particles with interactions.

6. In the sixth part, we shall consider the case of a system of particles with interactions and a single particle.

7. The seventh part is devoted to the case of a system of particles with interactions and a system of particles.

8. In the eighth part, we shall discuss the problem of the interaction of particles and a system of particles.

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11. The eleventh part is devoted to the case of a system of particles with interactions and a system of particles with interactions and a system of particles.

this situation has progressively changed, the consultancies have tried to stay competitive within the sector here and this can be used to their advantage in the future.

Ironically it has been the need to take complete control of design projects for small indigenous manufacturers, who were relatively unfamiliar with the complexity of design consultancy work, that has led to the Irish companies popularity with foreign manufacturers. Irish consultancies have become very good at following through with technical detail and manufacturers prefer to carry the design through to finish in one continual process. This is complemented with a pragmatic approach and the ability to carry out a multiple number of tasks.

The secrecy and protective nature of the sector here has been looked on favourably by some foreign manufacturers, but to progress in the future, there must be a greater willingness to work with other small companies with specialist skills, to gain the large high fee contracts. The continual internationalism of design consultancy work means that consultancies must now be prepared to make use of their ability to work in teams. This is something they have shied away from, in the past.

1. The first part of the document is a letter from the President of the United States to the Congress, dated January 1, 1861.

2. The second part is a report from the Secretary of the Treasury, dated January 1, 1861.

3. The third part is a report from the Secretary of the Interior, dated January 1, 1861.

4. The fourth part is a report from the Secretary of the Navy, dated January 1, 1861.

5. The fifth part is a report from the Secretary of the War, dated January 1, 1861.

6. The sixth part is a report from the Secretary of the State, dated January 1, 1861.

7. The seventh part is a report from the Secretary of the Army, dated January 1, 1861.

8. The eighth part is a report from the Secretary of the Navy, dated January 1, 1861.

9. The ninth part is a report from the Secretary of the War, dated January 1, 1861.

10. The tenth part is a report from the Secretary of the State, dated January 1, 1861.

11. The eleventh part is a report from the Secretary of the Army, dated January 1, 1861.

12. The twelfth part is a report from the Secretary of the Navy, dated January 1, 1861.

13. The thirteenth part is a report from the Secretary of the War, dated January 1, 1861.

14. The fourteenth part is a report from the Secretary of the State, dated January 1, 1861.

15. The fifteenth part is a report from the Secretary of the Army, dated January 1, 1861.

16. The sixteenth part is a report from the Secretary of the Navy, dated January 1, 1861.

17. The seventeenth part is a report from the Secretary of the War, dated January 1, 1861.

18. The eighteenth part is a report from the Secretary of the State, dated January 1, 1861.

19. The nineteenth part is a report from the Secretary of the Army, dated January 1, 1861.

20. The twentieth part is a report from the Secretary of the Navy, dated January 1, 1861.

21. The twenty-first part is a report from the Secretary of the War, dated January 1, 1861.

22. The twenty-second part is a report from the Secretary of the State, dated January 1, 1861.

23. The twenty-third part is a report from the Secretary of the Army, dated January 1, 1861.

24. The twenty-fourth part is a report from the Secretary of the Navy, dated January 1, 1861.

Conclusion.

In the last 10 years the standard of products being produced here, and the attitude of the manufacturers who produce them have been altered significantly for the better. During that same period export figures for industrial produce have increased 3 fold, and the consultancies mentioned in this thesis have played a big role in that. A lot of the initial problems suffered by the consultancies have been overcome and with the harnessing of new technology such as, rapid prototyping SLA machines, 3D CAD/CAM computer programmes, and the internet, Irish consultancies look set for a bright future.

As attempts have been made in recent times by the likes of Sean McNulty to get the consultancies more involved in the I.D.I, it is becoming increasingly possible that a body will be formed to sufficiently promote design to Irish manufacturing industry. The existence of these very consultancies helped lead to the demise of K.D.W, but it will be to the advantage of all in the sector, if there is a body put in place to fulfil the role it once had.

Of course, industrial design itself has changed, with the emergence of new materials and technologies, and issues ranging from de-featuring to trans-generational design, the future promises to be very interesting. However with the consultancy sector in this country now reaching a stage of experience and maturity, the future of manufacturing design in this country looks to be in good hands.

This thesis could never have been an extensive record of design consultancies in Ireland, but I feel that in the consultancies and work I have documented, I have a reasonable representation of an area of design in this island, up to now unrecorded.

The first part of the report deals with the general situation of the country and the progress of the work during the year. It is followed by a detailed account of the various projects and the results achieved. The report concludes with a summary of the work done and a list of the publications issued during the year.

The second part of the report contains a list of the names of the persons who have been employed during the year, together with a brief description of their duties. This is followed by a list of the names of the persons who have been employed during the year, together with a brief description of their duties.

The third part of the report contains a list of the names of the persons who have been employed during the year, together with a brief description of their duties. This is followed by a list of the names of the persons who have been employed during the year, together with a brief description of their duties.

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