Machiavelli and Innovation: The Politics of Design?

Professor Rachel Cooper
David Hands
Andrew Wootton

Keywords: Innovation, NPD, Supply Chain, Design Management, Machiavelli.

Abstract: It is commonly agreed that design can significantly contribute to business success. We know that the role of design, and the characteristics of the designer actively contribute to innovation and creativity, but do we fully understand exactly how this occurs, and how do designers provide real value to the company? These are the vital questions that this paper seeks to answer.

We will present one aspect of how designers operate in a number of diverse environments, and what value they provide to their clients. Drawing on findings from a major research project we are currently engaged in, the paper will illustrate the way in which, utilising their skills and subtle behaviours, designers both ‘source’ and ‘extract’ innovation from the supply chain, drawing it into the client organisation in often invisible ways. The paper uses the work of Niccolo Machiavelli (1469-1527) as a metaphor to characterise how designers often and very subtly succeed in effecting change and innovative practice through design behaviour.

“…No enterprise is more likely to succeed than one concealed from the enemy until it is ripe for execution.”
(Machiavelli, The Art of War, 1521)

Maverick: a person who thinks and behaves independently, esp. one who refuses to adhere to the orthodoxy of the group to which he or she belongs.

Introduction:
Design is a creative activity using market and company information to produce a two or three-dimensional product which will satisfy the customer and act profitably for the company. In an increasingly competitive global marketplace, companies need to adapt to constant market changes. One such way is to use design in order to gain competitive advantage through differentiation. Key to this is effective management of design, both on a company level and within the supply chain. This encompasses increasing the effectiveness of the design process and improving visual communication, as well as integrating design and the value of expertise into core business activities. In essence, it is crucial to ensure that all business functions, such as design, marketing, technology and production are integrated, and embrace design.

The designer is central to successful integration of design. Designers have visualisation skills that enable them to translate ideas into new products. They are able to think creatively, and transform ideas and information into feasible concepts. Certain skills are important for effective design and design management. These include design skills, business skills, drive, perspective and framework, and interpersonal skills.

Drawing on findings of the research project, this paper will illustrate the way in which, utilising their skills and subtle behaviours, designers both ‘source’ and ‘extract’ innovation from the supply chain, drawing it into the
client organisation in often invisible ways. The paper uses the work of Niccolo Machiavelli (1469-1527) (The Art of War, 1521; The Prince, 1513) as a metaphor to characterise how designers often and very subtly succeed in effecting change and innovative practice through design behaviour, suggesting that they are not ‘mavericks’ as commonly perceived but a valuable and often under-used strategic resource.

These findings illustrated through select case study examples provide the foundation of an analysis of the real value designers bring to the supply chain, understanding how designers influence decisions governing product(s), markets, procurement and supply chain policy. Critical in this are the behaviours exhibited by designers, their personality and their operational environment. Comparisons are made between the personality traits of those involved in design projects, between company cultures, and between the operational models that occur.

Design and Innovation

The Oxford English Dictionary defines innovation as “The introduction of novelties, the alteration of what is established by the introduction of new elements or form. A change made in the nature or fashion of anything, something newly introduced, a novel practice or method etc.” It is important to make a clear differentiation between innovation and invention and according to the Chartered Institute of Patent Agents an invention is, “simply something new, something, which has not been thought of before and, which is not obvious.” Invention is therefore the creation of something entirely new to the world, which has not involved the development of an existing product, process or system. The light bulb, the digital watch, the biro, the microwave oven and the telephone are all examples of inventions. However the innovation process also includes the development and re-styling of existing products so invention can be described as “a component of innovation”, (Jones, 1997).

Innovation essentially refers to change and this can be applied to the products/services offered by an organisation and the ways in which these are created and delivered (processes), (Tidd et al, 1997). A new design of car and a new car insurance package are examples of product innovation. A change in the manufacturing methods and equipment used to make the car and the new office procedures and sequencing used to develop the insurance package are example of process innovation.

Innovation and Strategy

In the quest for success in difficult times, innovation is forcing its way into the organisational strategy of many companies. Innovation in various forms has been seen to offer a number of strategic benefits to a business, some of which are illustrated in Fig 1. Companies have shifted their focus from short term cost-based planning to long term planning, which incorporates innovation as a means of gaining a strategic and competitive advantage.

<table>
<thead>
<tr>
<th>Type of Innovation</th>
<th>Strategic Advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novelty</td>
<td>Offering something which no one else can</td>
</tr>
<tr>
<td>Competence Shifting</td>
<td>Rewriting the rules of the competitive game</td>
</tr>
<tr>
<td>Complexity</td>
<td>Difficulty of learning about technology keeps entry barriers high and makes the product / process difficult to copy</td>
</tr>
<tr>
<td>Robust Design</td>
<td>Basic model product or process can be stretched over an extended life, reducing overall cost</td>
</tr>
<tr>
<td>Continuous incremental innovation</td>
<td>Continuous movement of the cost / performance frontier</td>
</tr>
</tbody>
</table>

(Fig.1 Strategic advantages through innovation: Tidd et al, 1997)

The more dramatic and radical an innovation is, the more attention it seems to receive, however the effects of incremental changes must not be undervalued. Continuous modifications for improvement can help sustain the lifecycle of a product, and in some markets these have more of an impact over time than an occasional radical transformation. Generally where possible, it is recommended that a company have a portfolio of both types of innovation, which vary in impact and newness. Timing and market dynamics dictate which type is the most
appropriate. Since these factors fluctuate at increasing rates, it is imperative that companies are aware of the change factors that effect their industry, market and competition so they can anticipate the eventualities and plan for them.

**Innovation and Competitive Advantage**

Baxter (1996) defines innovation as, “*a vital ingredient for business success*”. Companies must continually introduce new products and modify existing ones in order to prevent their more innovative competitors gaining market share. Research identifies a strong correlation between market performance and new products (Souder and Sherman, 1994; Thomas, 1993) clarifies the importance of innovation, “*Whilst competitive advantage can come from size, or possession of assets etc. the pattern is increasingly coming to favour those organisations which can mobilise knowledge and technological skills and experience to create new products, processes and services.*”

**Innovation as a Process**

Innovation is not ‘a single action but a whole process’ made up of a series of events and activities and involving a number of people and disciplines. The process varies from company to company but despite these variations there is an underlying pattern of important stages. The innovation process on a basic level can be viewed as three phases, the trigger, the opportunity and the need (fig.2). Innovations may also be categorised the type of trigger, by what originally initiated the process, triggers for innovation can come from a variety of and combination of sources and disciplines.

(Fig.2 Elements in Innovation: adapted from Walker, 1986)

The ideas that initiate the innovation process may originate from a wide variety of sources. An invention is just one type of trigger, and usually involves new technology, which can come from the consumer behaviour, market activity or from a new change in design. Triggers often relate to three particular disciplines, technology, marketing and design. ‘Technology push’ refers to ideas that been created and/or developed in internal R&D departments or technological ideas that have been adopted from other industries, technology transfer. ‘Market pull’ defines a trigger that was conceived in response to the end-users needs and/or demands. Also included in this category of triggers are those which were prompted to counter competitor activity. ‘Design led’ innovation triggers, refer to the ideas that change and improve the function aesthetics and performance factors of the product/process as perceived by the consumer. This includes design improvements in manufacturing processes, which may increase efficiency.
Opportunity
Once the idea is identified, resources should be allocated; skills diverted; and support given to seize the opportunity available. Deployment of organisational knowledge and capability ensures the idea is protected and nurtured for its potential success. The experience of innovation provides opportunities to expand and develop skills and know-how.

Need
It is argued that in order for the idea to be commercially successful there must be a need. Often inventions fail because there is no perceived or actual need for it. Need can come internally in a strategic sense as well as externally form the consumer, and both are important elements of success.

Successful Innovation
It is suggested that innovation success is a multidimensional concept, inter-linking factors relating to the strategy objectives with internal and external benefits. A one-off success requires little more than good timing and a bit of luck. However, to repeat innovation success demands careful co-ordination and mobilisation of skills and know-how in the long term.

Measuring innovation success is a complex problem, as the criteria changes with each company and with each case. Companies must establish their own performance measures. Quantitative data, for example, might include the number of hours devoted to new ideas or the number of new ventures in a year, whereas qualitative data could rate company moral and motivation and examine the ratio of skills and knowledge that have been gained from various projects.

Much can be learnt from the success criteria developed for product performance. Souder et al (1998) suggests some of the critical factors for success:

A unique, superior product.
A differentiated product delivers added value to the consumer, unique benefits and provides a competitive advantage.

A strong market orientation encouraging a customer focused new product process.
Understanding of consumer needs and expectations should underlie the design process, good consumer knowledge and feedback enhances the desire for such products and improves marketing activities.

The right organisational structure, design and climate.
Cross-functional teamwork that integrates different discipline perspectives.

Sharp and early product definition.
Definition of the product concept, consumer benefits and core market helps formulate an accurate positioning strategy.

More emphasis on consistency, completeness and quality of execution.
Research, testing and evaluation to improve quality and performance at every stage.

Innovation and Risk
Product innovation does not always lead to company success and the failure rate of new products is a frequently quoted business statistic, “for every 10 ideas for new products, 3 will be developed, 1.3 will be launched and only 1 will make any profit.” (Page, 1991) Statistics vary due to the different definitions constituting a new product and what constitutes product success. However, the figures above highlight the immense risk involved in product innovation. The cost incurred during the development of new products can run into millions and a good
example of huge loss involves the Edsel Ford or the ‘E’ car. In 1952 Ford engineers started work on a new car to compete with mid-size models offered by GM and Chrysler. However the car was not a success with Ford having to spend an average of $10,000 per car (twice the cost of the vehicle) to get the cars roadworthy. Certain aspects of the risk involved in innovation are unpredictable. These include social, political, technical and market factors. Therefore the innovation process must be managed effectively and carefully in order to decrease the risk of mistakes and to ensure that if failure occurs lessons are learned to avoid the same experiences in the future.

Adair Turner, CBI director general, identified that: “The lack of ideas is worrying. It is quite a turnaround, since the UK is supposed to be good at ideas but weaker at exploiting them. Unless companies can come up with new ideas they won’t have any innovations to exploit in the future.” More encouraging news from the survey indicated that companies are becoming more responsive and reacting to customer pressures. The survey also identified that over four-fifths of manufacturers have introduced new innovations in the last three years and to counter the lack of ideas companies are developing links with other firms and forging ties with research institutes.

**Design Management**

Design can lead to a variety of positive strategic benefits. However, for these to be commercially realised, a framework of organisation and planning is necessary. Design managers have traditionally assumed the role as intermediary, to organise the design process and manage relationships between designers and other managers. However since the business environment has changed, design has become more involved with the goals of other functions, playing a more significant part of the company's strategy. As an inevitable result, as the role of design has broadened, the responsibilities of the design manager have expanded. Borja de Morzota (1998) offers three levels of design management that account for the variety of activities it becomes involved in (Fig 3).

<table>
<thead>
<tr>
<th>Role</th>
<th>Design operates at a corporate level by influencing and contributing directly to company vision.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational</td>
<td>Design is involved to improve a system or operation. Marketing / Engineering / Communications etc.</td>
</tr>
<tr>
<td>Functional</td>
<td>Design as a tool in achieving a competitive advantage. Creation of new products / markets.</td>
</tr>
</tbody>
</table>

(Fig.3) Levels of Design Management – Morzota (1998)

However, Cooper and Press (1995) argue that the term Design Management contains a fundamental contradiction. Whereas design is based around exploration and risk-taking, management is founded on control and predictability. The outcome of combining the two presents a risk that the management framework might reduce the creative scope of the designer. For those ‘managing’ design the danger of restricting the flair and imagination of designers is an important concern and only the systems that leave space for innovation should be implemented. It is important that design managers truly understand the way designers work so that the project is managed well without inhibiting creativity.

**Barriers to integrating design expertise**

Often companies fail to recognise the importance of managing design capabilities to their full commercial advantage. A number of possible reasons why companies might neglect design are put forward by Rita Siegal, (1982) who argued that short-termism and low-risk management has caused a significant number of US managers to centre corporate strategies on existing markets instead of emerging ones. Such management styles often opt out when it comes down to investing resources into design. Some companies suffer from plain design illiteracy, smaller companies suffer from cost constraints and often larger corporations are prevented by tradition-bound behaviour and internal politics (Fig.4).
Barrier Characteristics

**Design Illiteracy**
Managers who do not know what is involved in design activities and who do not have the experience to appreciate the contribution design and designers’ skills can make.

**Design Segregation**
Companies who repeatedly out-source design expertise may have a tunnel view of what the design function does. Design consultancies are brought in with specific deliverables and objectives to complete which often limit the scope or influence on any other aspect of the business beyond the project in hand.

**Lack of Vision**
Some designers blame managers who lack the creative vision to understand how taking risks and developing new markets through design and innovation will separate the global leaders of the future from the rest. Companies

**Poor Communication**
Lack of co-ordination and shared goals cause a divergence away from corporate aims. Departments become self-sufficient and less team orientated.

**Perceived Risk**
Often companies link design with high risk and fail to acknowledge the potential benefits for strategy and growth.

**Sourcing Expertise**
Less experienced companies may find sourcing & managing design expertise a difficult challenge. Without guidance mistakes can be made and such experiences have negative effects on future use.

**Cost Constraints**
Many managers still view design as just a cost instead of weighing up the potential rewards. Efforts are being made to convince such companies especially SME’s to adopt a design strategy to aid future growth.

**Company Politics**
Company politics surface at all stages of proposed development, self interest from separate business units may often prevent the uptake of a new strategy aimed to create a common corporate goal but which may reduce their individual resource allocation.

**Traditionbound behaviour**
Hierarchical and bureaucratic behaviour. Often a set corporate culture, where strategy is dictated from the top, can inhibit designers and marketers from being creative. Such companies have a clear format and employees are reluctant to stray.

(Fig.4 Barriers to integrating design expertise: Siegal, 1982)

**Case Example One: Company A - Bathroom Equipment**

Company A based in the UK is primarily involved with the manufacturing and marketing of bathroom and sanitary equipment. Its parent company is based in North America. Total sales (which include bathrooms) exceeded $1.8 billion. The company has been significantly affected by market conditions in the recession of the early 1990’s, but through massive restructuring of its product ranges it has managed to remain competitive.

In 1998 Company A identified a suitable opportunity in the complex shower market, to introduce a new and progressive shower range that could be developed and promoted throughout Europe and North America. The shower market was in a period of slow growth and maturity, therefore the new range had to offer unique benefits to the customer in order to gain a firm foothold in this highly competitive arena. A design consultancy were identified and selected to work on the programme. The New Product Development Director at Company A was instrumental in developing the project brief that was then further refined with the design consultancy. Two main factors were crucial in the formulation of the brief; firstly, Company A were entering a highly competitive and mature marketplace, therefore it had to have a clear direction and focus on its long term aims. Secondly, although the company did not have an existing product range to work with, it did have a large inventory that could be ‘consolidated’ into a successful product range. During this critical early stage, suppliers connected to Company A joined the team.

This collaboration between Company A and the design consultancy led to a collection of hydro massage products that respond to how the user would want to feel when showering. This would be achieved through the touch of a single button on the control panel connected to the shower unit. The full range includes showers, baths and combination units of the two. The difference between the new range and the standard bath / shower is that it offers a range of different ‘sensations’ called ‘moods’ which further enhance the bathing / showering experience.

**The Role of Innovation**
The design consultancy was instrumental in providing two innovative approaches to the project at its initial stages. Firstly, they had a long and exemplary history of working with medical products technology, this was to determine their approach in the way they developed the user interface / controls for the shower units. In particular, they were keen to investigate pure technology and then apply it to the development programme. Following an
exhaustive investigation of rival product offerings and developing a greater understanding of the manufacturing
capabilities of Company A, the design consultancy was confident from the outset that the company had the right
expertise to develop the new product range.

Principal Designer at the consultancy comments that: “...we were pretty sure from the outset that Company
A had all the necessary skills, whether they could assemble them in together to make a product; but
they had all the basics, they made baths, they made valves, they made shower kit etc...”

The originality of the whole concept manifests itself as innovation in terms of ‘presentation’ and ‘function.’ Very
early on in the initial conceptual stages, the design team decided to pursue the feasibility of a pre-programmed
user control panel that has pre-set showering options. This was a significant departure from product offerings of
rivals to Company A. By investigating comparable products within the marketplace, the designers were able to
identify design-led opportunities whereby they could differentiate the new product range, with clear and
identifiable attributes and benefits to the consumer. The project team were quite clear and focused on developing
a product range that is solid, robust with a strong emphasis on offering the product range not as a shower, but
more importantly a ‘shower experience’ through ‘moods’.

Multidisciplinary Team Involvement
A key factor in the success of the project was the involvement of key stakeholders throughout the duration of
the entire programme. The Product Manager for Company A worked closely with the designers providing
invaluable input as to the viability of design concepts concerning design for manufacture and supply chain
management. Over a period of 2-3 months, the project team developed, tested and at times rejected ideas,
selecting the ‘moods’ concept for further development. Primary concern was to how the design development
team could assemble the functional features of the showering system to create the specific moods, and then to
develop this whole generic concept throughout the entire product range.

The Benefits of Design Leadership
At the initial stages of the design programme the design consultants were very much outside the company,
providing design expertise as a preferred supplier, liaising predominantly with NPD Director and the Product
Manager. Design development meetings would occur on a weekly basis with Company A, principally working
with the Technical Manager to develop the ‘moods’ concept. By working closely with the product manager, the
designers developed a greater understanding of how Company A functioned; this included looking at their
limitations and constraints of what they could or could not achieve, in particular their manufacturing capability.

Communicating the Design Message
As the project developed to the ramp up and manufacturing stages, the designers were suitably positioned within
the organisation having direct access to all the suppliers knowledge and expertise; this strategic repositioning of
the design consultant allowed the product to be further designed and developed that took clearly into account
product limitations. By working from within the heart of Company A, the principal designer at the design
consultancy could communicate the essence and design ‘message’ of the ‘moods’ concept to marketing, finance,
management and manufacturing – thus maintaining the integrity of the design.

Company A’s principal designer’s involvement throughout all stages of the project was enabling the integrity of
the concept to be maintained. This was particularly critical when developing the point of sales advertising imagery
and brochures to both European and American audiences. The principal designer at the design consultancy was
not only designing and developing a full product range, but also developing a strong brand identity in the
marketplace for the shower system. Also, he was the primary conduit for the relationship between the two
companies, although he was supplied by a team of other designers, he lead the project and the relationships; it
was through his personal style and team leadership abilities that the relationship between the two companies
developed in a manner that facilitated trust and the resulting brand concept and product line.

Maverick or Machiavelli?
It is suggested that Machiavelli posited two fundamentals crucial for effective political leadership: virtu and
fortuna. Firstly, virtu refers to Machiavelli’s own abilities (a subtle combination of leonine force and skilful
cunning); and fortuna, the unpredictability of good fortune. Although, this represents a significant departure
from his earlier work, the impact of fortuna plays no part in Machiavelli’s scheme. Now, if we relate these two
fundamentals to case example one – Machiavellian similarities do arise. Firstly, the role of *virtu* prevails throughout the design development programme; inasmuch that design *integrity* was maintained (as opposed to political intent). Due to the robust character of the design concept, the design consultant was keen to ensure that it remained undiluted throughout the course of the NPD programme. Having early on recognised the true potential of the ‘pebble’ concept to be continued throughout all facets and applications of the idea, from designed form through to branding and promotional imagery, it was crucial to the designer that it remained ‘pure.’ This then leads to the other key fundament - *fortuna*; by establishing a mutual understanding with his counterpart within the organisation and developing a working rapport that flourished, it was fortuitous to both the smooth execution of the project and the way in which design integrity was maintained. Machiavelli argues that:

“...I am not unaware that many have held and hold the opinion that events are controlled by fortune and by God in such a way that the prudence of men cannot modify them, indeed, that men have no influence whatsoever. Because of this, they would conclude that there is no point in sweating over things, but that one should submit to the rulings of chance. I believe that it is probably true that fortune is the arbiter of half the things we do, leaving the other half or so to be controlled by ourselves.”

Machiavelli argued that the one who adapts his policy to the time prospers [likewise, the organisation that anticipates market changes and responds accordingly], and alternatively that the one whose policy clashes with the demands of the time does not. Therefore, it could be argued that the design [manager] who is in control events is suitably positioned to identify, adapt and respond to change within the NPD programme – as opposed to vicissitudes of ‘chance’ controlling and dictating design decisions throughout the project. Taking this sentiment further, Machiavelli argues that:

“...this also explains why prosperity is ephemeral; because if a man behaves with patience and circumspection and the time and circumstances are such that this method is called for, he will prosper; but if time and circumstances change he will be ruined because he does not change his policy.”

Case Example Two: Company B – British Airways

The Industry
Air travel generates over $300 billion in revenues globally. However, its critical role in facilitating tourism, world trade, international investment and economic growth, greatly amplifies its overall economic impact. Air travel is central to the globalisation that is taking place in other industries. The number of international air travellers has increased steadily since the war. During this period, privatisation and deregulation have both improved levels of efficiency and removed restrictions on who can fly where. The resultant competitive pressures have led to a declining trend in airline yields that has in turn stimulated a growth in air travel.

British Airways
British Airways is the world’s largest international airline. During the period April 1998 to April 1999, the airline operated an average of over one thousand flights a day on a route network of about 426,000 miles. BA has its main bases at London Heathrow Airport, the largest international airport in the world and London Gatwick Airport, which is now the sixth largest.

Formed in 1974 by the merger of British Overseas Airways Corporation (BOAC) and British European Airways (BEA), BA was originally owned by the UK Government. In February 1987 the company was privatised, and now with around 265,000 shareholders (including 71 per cent of BA’s employees) is owned entirely by private investors.

The Project
Club World, BA’s long haul business class was the first brand developed, with the promise that it would deliver the business traveller to his or her destination relaxed, refreshed and ready to do business. In 1995, the brand underwent a major improvement programme that saw the introduction of the ‘Cradle Seat’, while 1999 heralded a number of improvements on the ground, with the refurbishment of Arrivals Lounges at Heathrow and Gatwick.
The trigger for the design project was the combination of business issues outlined above. Work on the development of a radical new Club World product and service began in 1999, with the aim of redefining air travel in the 21st Century. On completion in 2000, the final Club World package represented an investment of more than £200 million.

The project was managed by the Design Management function within BA, who was given the brief by the Brands department, "to redefine business travel to astound." The ‘openness’ of this brief was identified by the Design Manager as a contributor to the projects final success.

The Design Manager assembled the Internal Design Team on the basis that "anyone who would touch or interface with the product—from its inception to its maintenance—should be involved with its design." This included:

1. Brands – Referred to as the "project owner"
2. Design Management – Responsible for ensuring the effective manifestation of the BA brand and Club World sub-brand
3. Product Development – Responsible for programme management from a marketing perspective
4. Engineering - Initially, a Design Engineer to agree rough time scales and practicalities. Later in the project, a Programme Manager.
5. Cabin Services – Including representatives from Catering.

Internally, there were five people—one from each of these areas—that were responsible for delivering the seat. To a large extent, decisions on the project were devolved to these five internal team members.

**First Competitive Pitch**

For the first creative pitch, the brief devised by the Design Manager was very open, instructing the designers to explore "the future of premium air travel". The brief addressed five key passenger aspirations, including sleep and privacy. While the designers’ ability to apply constraints and distil the most practical ideas was seen as important, the primary aim of this brief was to test the designer’s creativity and innovative thinking. One of the criteria established by the Design Manager in judging the consultancies was "Creativity without bounds". In response to this, the designers focused on creating an experience that matched the aspirations in the brief, questioning a lot of the thinking behind the development of current aircraft seating.

The initial competitive pitch stage lasted seven weeks. During this period, design and concept development work was undertaken at Tangerine’s design studios, separately to the BA Internal Design Team. A number of skills required for the project unavailable within Tangerine (such as model making, computer-aided design (CAD) and ergonomics) were outsourced to external subcontractors. Tangerine had worked with some of these on previous projects.

Communication with BA during the competitive pitch stage was almost entirely through the Design Manager. This initial position is indicated as Stage 1 in Figure 6.

A number of traditional design methods were used by Tangerine to "think things through", develop and progress the design concepts. These include sketches and drawings, talking to people identified as having useful knowledge, informal meetings and group discussions.

---

**The World’s Largest International Airlines - Passengers Carried**

<table>
<thead>
<tr>
<th>Airline</th>
<th>Scheduled Passengers 1999 (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>British Airways</td>
<td>24.8</td>
</tr>
<tr>
<td>Lufthansa</td>
<td>19.6</td>
</tr>
<tr>
<td>Air France</td>
<td>17.2</td>
</tr>
<tr>
<td>Korean Air</td>
<td>11.9</td>
</tr>
<tr>
<td>JAL</td>
<td>10.6</td>
</tr>
<tr>
<td>Japan Air</td>
<td>11.6</td>
</tr>
<tr>
<td>United Airlines</td>
<td>11.4</td>
</tr>
</tbody>
</table>

Figure 5. The world's largest international airlines. Source: IATA
From their work questioning present current aeroplane seating design, the designers presented two schemes for a plane that embodied about half a dozen concepts, and addressed a number of issues:

1. Current seating is engineering-centred, not passenger-centred
2. Giving passengers the freedom to behave as they want
3. Space efficiency should be passenger-focused
4. Quality sleep requires a flat bed
5. The cabin environment should visually feel more comfortable

Second Competitive Pitch
While there were not any regular feedback meetings during this period, both consultancies were given access to the knowledge and experience within the various departments at BA. This ‘distancing’ tactic was seen as deliberate by the lead Tangerine designer:

"If we were uncovering issues that might need addressing, they would support us—but they didn’t want to hold meetings. The whole purpose of using the design consultants was to find something new, and they didn’t want to burden us with airline history. I think that was fairly important to them."

The brief for this second paid pitch was focussed on Club Class travel, rather than premium travel in general. In response, the designers at Tangerine focused on the Club World brand. One of the ways they did this was by attempting to understand the other experiences that the Club World traveller might have. This included the type of car they might drive and the type of hotel they might stay in.

After asking BA for access to a plane, Tangerine was given the use of an aircraft shell housed in a hanger at Heathrow. Using the block models in this environment enabled the designers to put their designs into context. Decisions taken with confidence in the studio were now questioned, and the design concepts refined accordingly. This concept testing work was recorded through photographs and video for presented back to the BA Team at the end of the second paid pitch.

The value of the aircraft shell, both as a design development tool and a means of communicating concepts are recognised by Tangerine. Indeed, use of this resource is viewed as an important factor in Tangerine’s final success in the second paid pitch, illustrating their proactive "make things happen" approach. Interestingly, although the rival design consultancy would also have had access to the aircraft shell, they did not ask for it. This decision is reflected by their reportedly more "studio-centred" approach.

Although computer simulations were developed at later stages, it was the physical models that helped the designers develop and refine their ideas. Concepts were focused around optimising the different passenger experiences whilst on the aircraft. An idea that arose from this design work was that of ‘selling time’ to passengers. With adequate privacy, and a well-designed environment, time spent travelling that may be considered ‘dead’ time would become ‘live’ again. This could be achieved only by making the space flexible, and delivering the freedom that allowed passengers to use their travel time for something else. Consequently, Tangerine’s seating environment concepts adapted to enable passengers to comfortably work. Space was provided to place their laptop computer, and the footstool doubled up as a place on which to put their briefcase and extra papers.

Design Development
After final selection, the Tangerine design team moved to work from the BA offices (this position is indicated as Stage 2 in Figure 6.). While the Design Manager remained their main contact, Tangerine was given direct access to the other departments within BA as they required.

A brief closely focused on the Club World brand was introduced. This brief had been developed by the Design Manager, with input and approval from other parts of the Internal Design Team. A major part of the brief was provided by BA’s Marketing and Brands departments, communicating market and brand positioning information. The designers initially worked on a number of concepts, which were then focused into a single concept for full development. During this period, design reviews were held with the entire Internal Design Team at BA. The designers found these meetings very useful:
"We were getting feedback from the wide team—live. Not filtered through one person, but delivered directly back."

The relationship with the Design Manager at BA was very important during this concept development stage. As Tangerine states:

"It was the way in which we might gather information from the Design Manager, or he might feed information to us, that enabled us to get to the right point; the right feedback."

Clearly, for design concepts to be developed effectively, the quality of the relationship—the ‘chemistry’—between BA Design Manager and the Tangerine designers was critical. The activity of asking questions, sourcing information, testing ideas and creating design concepts during this period is referred to by Tangerine as a "discourse", in that it wasn't a series of separate 'stages', but rather was fluid and continuous.

As the primary business aim of design project was the reinvigoration of the Club World brand, Brands were seen as the customer for the project and had final say in the Internal Design Team. Consequently, the idea of a fore and aft seat configuration—innovative but potentially risky— was recognised as a unique branding opportunity and bought into by the Internal Design Team quite early on.

Because of the relatively tight timescale to complete the project, about a month after the seat manufacturer met with the design team, BA Design Management asked that Tangerine's design team relocate to the manufacturer’s offices (this position is indicated as Stage 3 in Figure 6).

This direct contact with the seat manufacturer engineers was key to Tangerine driving towards the final design solution and convincing the seat manufacturer to adopt novel design ideas and change their normal way of working.

The importance of ‘chemistry’ in the project is demonstrated again by the relationship between Tangerine and the seat manufacturer’s Project Manager. He was an American engineer who had previously run his own business, and had a rather entrepreneurial nature. The Project Manager was pivotal in pushing the seat manufacturer to move beyond the manufacturing techniques that they were familiar with and would normally use. For the first time, the seat manufacturer used thin wall castings, utilising stereo lithography rapid prototypes. While Tangerine would work with individual design engineers allocated specific components, if things became ‘sticky’ the Project Manager was key in resolving the situation.

Throughout this development period, the new service routine—the 'soft product' aspect of the Club World project, and the services that would be around it—was being developed by the branding consultancy FutureBrand. The FutureBrand team designed fabrics for the seat, and specified the choice of materials and trim. They were managed by a second BA Design Manager, and were integrated with Tangerine through BA Design Management.

Despite FutureBrand and Tangerine having different sets of skills and doing different pieces of work, as both teams were briefed and managed by BA Design Management, both adopted the same key aspirations for the product and had very clear agendas. This unity of purpose meant there was less need to hold long meetings together—often issues were resolved through a telephone conversation. Over the course of the project, a number of meetings were held between Tangerine and FutureBrand, these did not amount to more than about five hours in total.

Communication and the ability to persuade are viewed as very important design skills by Tangerine. On the Club World project, this encompassed not only the ability to explain the reasoning behind the concept to the engineers during design development, but also educating some parts of BA about why they were trying to achieve it—why it was important.

In communicating the total ‘vision’ of the concept to the entire BA design team, Tangerine's relationship with Design Management—again, the ‘chemistry’—was key. Firstly, Design Management at BA are all product designers themselves, so they understand very well both design thinking and the design process. Secondly, Design
Management’s role in the development project was very much as a force for integration—both of ideas and individual group.

During the design development phase, weekly Design Team meetings were held at the seat manufacturer’s offices. Tangerine and the Design Manager’s roles within these meetings are interesting. The lead designer from Tangerine describes his role as being “championing the Ultimate Design”, and quite adversarial in nature. The BA’s role (and specifically the Design Manager’s) was to champion individual aspects of the design that addressed identified passenger needs. The political aspect of these roles was very important in moving the design forward.

The importance of the relationships between the key individuals involved in designing and realising the Club World seat cannot be overemphasised. This relates less to the ‘project process’ in the traditional sense, but more to the environment and framework within which activities were undertaken, opinion and support were canvassed and decisions were made. The role of BA Design Management in both establishing this project framework, and integrating project participants was critical to success. This factor is well-understood by Tangerine:

“...Our ability to deliver...was heavily down to the process that was established, the people that were involved, and the way in which those people were integrated together. The designing is actually relatively easy when the framework is right. The problem with designing is it’s very difficult when the framework is wrong.”

Figure 6. Changing organisational position of design consultancy during development
Maverick or Machiavelli?

Voltaire said, "Machiavelli taught Europe the art of war; it had long been practised, without being known."

Machiavelli considered the Art of War to be his most important work; where war was war and all other considerations in the fulfilment of victory are subordinated. The Art of War, published in 1521 was one of only two works appearing in print prior to his death in 1527. The Art of War comprised of seven books, and this paper will focus on book two where Machiavelli concentrates on arms and military training. Through the use of dialogue amongst a group of friends Machiavelli discusses the importance of planning and military training prior to engagement on the battlefield. The parallels one can draw here are clear in relation to the successful development of the flatbed seat at BA. Firstly, up-front planning was key to ensuring that a ‘creative’ framework was in place to effect innovative behaviour. Machiavelli articulates this point through the voice of Fabrizio, that:

"...Although the number of men in each company could not be themselves a reasonably sized army, nonetheless, each man can learn to do what applies to him in particular, for two orders are observed in the armies: the one, what men ought to do in each company; the other, what the Company ought to do afterwards when it is with others in an army; and those men who carry out the first, will easily observe the second: but without the first, one can never arrive at the discipline of the second."

The project framework for design activity within BA was highly sophisticated, allowing key participants to move freely within the organisation. The importance of establishing this ‘supportive’ framework to ensure project success was identified and implemented early on. It may be argued that innovation is not the product of how designers think, but more as a product of how they behave. Again, Machiavelli takes this sentiment further, suggesting that:

[Fabrizio]...For anyone who understands how to draw up his troops for battle, any other errors he may commit in conducting the war will be tolerable; but anyone who lacks this discipline, even if he excels in other particulars, will never conduct a war with honour, for winning one battle cancels out all of your other mistaken actions; thus in the same manner, all of the good works you previously accomplished are useless when a battle is lost."

The political aspect of driving the project to a successful conclusion cannot be over-estimated; political in the sense that both key individuals from the design team and BA’s Design Management function shared a common goal in achieving the design vision. Machiavelli touches upon this aspect by arguing that:

[Fabrizio]...Men who wish to accomplish an undertaking ought first to prepare themselves with care so that when the opportunity arises they will be able to carry out what they have proposed to do. Since preparations, if they are made carefully, remain unknown, no one can be accused of negligence if his plan is not discovered before the opportunity arises; but when it arrives and he does not act, it becomes obvious that he either did not prepare himself enough or did not have enough foresight..."

Conclusions

There are 2 domains within design in organisations – the designer and the client/organisation itself. When these are both brought together it is important to manage the ways in which the ‘client’ and the designer build their relationship in order to access and share knowledge, and also to innovate and make decisions. In the first case study, Company A, the relationship between the Technical Director and designer was one of a mutual ‘sharing’ relationship from initial meeting through successive stages of product development to commercialisation. In the second case study, it was the relationship between the Design Manager and lead designer at Tangerine jointly ‘negotiating’ the organisational complexities that was key to the successful development of the concept.

Also, the number of suppliers is a variable that will change from client to client, and this will affect the ways in which knowledge is transferred, and also the degrees of power held by the designer and the supply chain. The designer will have a more direct influence over a client with no supply chain.
It is important that there is a key individual/design champion to facilitate the designer client relationship, in order to maximise innovation. The role that this person would play would vary to some degree depending upon the model used. However some common characteristics would apply, namely: authority, access to people within the organisation, a gatekeeper, open to change and new ideas, empathetic, a designer or with designer characteristics, empowering, a good networker, persuasive, a good communicator, particularly of brand values of the organisation, and the ability to facilitate and manage relationships with users and suppliers. Within the intermediate model the key individual may be the managing director, and issues regarding finance will be of greater importance, due to limited resources. This requires openness and sharing of information with the designer, in order to get feasible design solutions. Tighter project management is also key in order to ensure that the project runs to schedule and hidden costs do not arise. If the design function is out-sourced it is important that the key individual has the skills to build relationships with the network of suppliers sourced by the designer, in order to be able to take over these once the designer has exited the company. In the ‘direct’ model trust is a key issue, communication must be open and transparent and the key individual and the designer must work together to understand suppliers and users, and to learn from them. However, clearly defined roles and boundaries of the project are important, and the organisation needs to understand the value of the designer and what they can expect.

Parallel's can be drawn here to the work of Machiavelli, in the way that he advocates skilful leadership in the pursuit of success in public life. This paper argued that these insights can be directly related to the leadership qualities of designers and the way they manage the relationship with their opposite counterparts within the client organisation. Machiavelli argued that

The modern state [or large NPD programme] is too complex to be managed by any single human being, therefore the effective ruler [project sponsor] will naturally need to have advisors who assist in governance. Choosing the right people for these jobs and employing their services appropriately, Machiavelli supposed, is among the practical skills most clearly associated with good leadership. A good ruler will invariably choose competent companions who offer honest advice in response to specific questions and carry out the business of the state [or programme] without regard for their private interests; such people therefore deserve the rewards of recognition, that unshakeably secure their devotion to the leader. Ineffective leaders, on the other hand, surround themselves with flatterers whose unwillingness to provide competent advice is a mark of their princes' inadequacy.

All of this talk about skilful leadership would be pointless, of course, if human beings do not in fact have control over their own actions, but must constantly live at the mercy of blind fate or fortune: virtù; fortuna. In the end, Machiavelli argued that even if serendipity determines the greater portion of our destinies [likewise – project outcomes], we can still take full responsibility for whatever remains. Acknowledging the possibilities for failure, the skilful ruler does better to act boldly than to try to calculate every possible eventuality.
References:

Professor Rachel Cooper
David Hands
Andrew Wootton

The School of Design Research
Faculty of Arts, Media & Social Sciences
The University of Salford
Centenary Building
Peru Street
Manchester

Professor Margaret Bruce
Lucy Daly
Richelle Harun

Department of Textiles
UMIST
PO Box 88
Manchester
UK