

The Existing Gap Between Design Management and Management—Contributions on How to Bridge It Successfully



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Abstract Design Management has been successful in connecting the knowledge areas of Design and Management. Companies, services, products, brands, and customers/users are now using design, marketing, and technology to create customer/brand interactions. Design Management has enabled Design to become more business-oriented, while Management has embraced Design and Human-centered approaches for a more strategic output. In the world of business, Design is recognized for its strategic value and is sometimes used as a synonym for innovation, research and development of products and services. To hold its place in the industry, Design Management must embrace a wide range of concerns such as marketing and management, innovation, quality control, training and development. Design is also criticized for lacking a thorough theoretical base, but its practice and theoretical discourse draw on a wide and diverse field of knowledge and skills. Design Management is a critical component of a company's expertise, as it is based on the design process and the creative capacity of designers to visualize solutions. It is also leaning towards prospective methods in a co-design process, which use skills like observation, dialogue, and empathy to improve both the products and services, as well as the processes themselves. Design Management is an ongoing conversation between the company and its environment, which can help to reinforce the credibility of design, improve customer orientation, and develop the creative aspects of corporate culture. This paper documents design management contributions to management such as: user orientation, market research, aesthetic value, brand, collaboration, system thinking, creativity, autonomy, prospective research on environment and vision. In the form of a literature review this paper highlights how management can reinforce their brands, products and services, the credibility of the design function, design strategy, performance indicators, research and experimentation by applying design management at its core., providing a synthesis of the existing research, highlighting the major findings and themes that emerge from the literature on design management.

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Keywords Design management · Design thinking · Business · Management

1 Contextualization

1.1 Bridging the Gap Between Design Management and Management

This paper provides us with a literature review, which provides a comprehensive and critical evaluation of existing research on Design Management. The purpose of this literature review is to identify gaps in the current knowledge, synthesize and analyze the existing research, and provide a context for the research being conducted. Focusing on the themes and issues related to the research area, and providing a synthesis of the existing research, highlighting the major findings that emerge from the literature. It then summarizes the key findings and themes, and highlights the implications of the research for further work.

Design Management has been able to bridge the gap between the Design and Marketing/Management areas of knowledge. Nowadays the way companies, services, products, brands, and customers/users communicate and generate customer/brand interactions is undergoing rapid and transformative changes with the aid of design, marketing, and technology. Marketing and Design can come together to better plan and implement new solutions for these new, upcoming challenges, with the use of human centered tools and with a Design Management approach. When we focus on digital products and services and the future of technology, the key players are User Interface designers and User Experience Designers. They both work with creating empathy with the users and all the stakeholders involved in the design process, both develop a collaboration and articulateness in their work, and both use design thinking approaches for prototyping their ideas into fully functional products and services. While UI designers' knowledge is around color theory, typography, design systems and the interactions of user interface the UX designers are more focused on product strategy, user research and analysis, visualizing the information architecture and testing and iterating between the different stages of the process. In the context of sustainability, design and design management encompass all processes, objects, and design services, including UI and UX design, as well as digital technology. Designers can use sustainable design principles to create products and services that are environmentally friendly and socially responsible, and this applies to all areas of design, including digital design. Design thinking plays a crucial role in sustainable design by encouraging designers to think holistically about the problem they are trying to solve. It involves considering the environmental and social impacts of the design decisions, as well as the user experience. By taking a human-centered approach, designers can create products and services that meet the needs of users while also being sustainable. Overall, design and design management, including UI and UX design and digital technology, play a significant role in promoting sustainability. By

using sustainable design principles and design thinking, designers can create products and services that meet the needs of users while also being environmentally and socially responsible. Together with engaging marketing practices it is possible to combine it into real business opportunities. This paper will focus on understanding how Design became more business focused through Design Management and how Management can improve on that knowledge by embracing Design and Human-centered approaches in a more strategic way. Design management and management science are two different fields of study, with different approaches and objectives. Design management is focused on creating, managing, and improving the design of products, services, and processes. Management, on the other hand, is focused on the development of models, methods, and tools to help organizations manage their operations and make better decisions. The gap between design management and management science can be bridged by recognizing the need for both disciplines to work together to achieve better results. Design managers need to understand the principles of management to effectively use management tools and methods in their work. Similarly, managers need to understand the principles of design management to effectively incorporate design elements into daily activity. By working together, the two disciplines can create a synergistic relationship that helps organizations achieve better results. Design managers can use the tools and methods of management to ensure that their designs are effective, cost-efficient, and aligned with the organization's goals. Similarly, management can use the principles of design management to make sure that their business, brands, services and products are designed in a way that takes into account user needs and preferences.

2 From Design to Design Management

2.1 A Brief Introduction

The word design has a Latin origin, it comes from the verb “designare” which means to determine. Design uses continual differentiation to make the vague into definite. It has many definitions, as a verb it could mean to work out a structure or form, or sketching, it can also mean to plan or make something using artistic skills, to visualize and invent. It could also mean to have a intend for a specific purpose, to plan, to form or conceive in the mind (in a visual way). As a noun it can assume a plan, a sketch or a preliminary drawing or decorative work [1].

There remains to be a lack of agreement as to the meaning of design that extends further than design research and design education, where the term is used in many ways and tends to relate to different activities and outcomes. Sometimes it is even used as a synonym for innovation, research and development and product development [2]. There is also a lack of understanding found in the world of business of what the real meaning of design is. Bürdek [3] says that businesses across the world recognize the strategic value of design and that in the 80's a group of business economists

understood that design had a real economic impact, it was not just concerning design aesthetic purposes anymore. Gorb [4] reflects on if Design Management is to hold its position in the industry it must embrace a wide range of concerns such as marketing and management. He believes that Design Management should concern innovation and the place it holds in the process of creating profit for the business, quality control and maintenance in production and service organizations and the development of effective lines in terms of education, training and development.

Cooper and Junginger [5] says design is criticized for lacking a thorough theoretical base but its practice and theoretical discourse are drawn on a wide and diverse field of knowledge and skills. Walsh mentions the Four C's in design are much like the 4 P's in Marketing (product, price, point of purchase and promotion). With the C's being:

1. Creativity—the creation of something new;
2. Complexity—a decision making based on different opinions and variables;
3. Compromise—balancing multiples and somewhat conflicting requirements;
4. Choice—choosing between different solutions for all levels of the problem [2]

Authors like Kalantzis, Maryand Cope [6] talk about the way design is highly connected with the social sciences, psychology, sociology, management, science, engineering and the humanities and the principles and practices of design concern social change, creative economy, and knowledge society. Design is considered as a process for transformation, it is central in society's agenda.

Research on Design Management (DM) has been broad and still the definition of DM varies according to the perspective of the researcher, whether he or she is a practitioner, design thinker, design manager, design leader etc. The main theories published on Design Management start to appear around the late 70's (1977) according to de Mozota and Wolff [7] The authors refer to Design Management as the space between design science and management science and indicate that it is a forced interdisciplinary field as both designers and managers are not truly interested in it. The reasons they point are threefold:

- (1) Academia on both sides have rarely connected;
- (2) there is a lack of interest from management for the concrete and the aesthetic perspective and;
- (3) the designers lack of interest in management and its measure of value in their activity.

Fortunately, the authors also state that mentalities are changing and that although Design Management research has not yet entered mainstream research in management science there is an emergent role that seems to be gaining importance—the Entrepreneur, which designs and shapes its own company, using design thinking methods and practices and its posture is closer to a designer than of a classic manager. This could indicate that we are leading towards a better understand of Design Management and how it can bring value to businesses. In order to improve design management and management understanding of each other we need to educate managers on design thinking in order to help them make better decisions. We should also foster

collaboration and communication between designers and other team members as the design activity is multidisciplinary and transdisciplinary. Designers should be open to understand the business context in which they are working and how their work can impact the business. Designers should be included in strategic planning to ensure that their design decisions are in line with the business goals and lastly design concerns should be heard and considered when making management decisions.

Pribble III [8] believed as Mozota and Wolff [7] that design is a powerful tool and that it should be applied in every area of business to provide a strategic competitive advantage and to achieve its corporate objectives. He recognized the need for more and better design work and refers to it having to begin in a two-way education process—teaching designer students how business works and teaching design to management students. Pribble III suggested that design should be integrated into every area of business, from marketing to operations, to help companies gain a competitive advantage and meet their objectives. Higher education in both design and management could play an important part in creating awareness and understanding of how we could potentially integrate these two disciplines [8].

We can find studies that divide Design Management into three scopes: the strategic, the tactical and the operational, this is done according to the levels at which the design is being managed within the company [9–12].

The main objective of Design Management is to allow the company to nurture an environment where it can achieve its strategic goals in a more efficient and effective way [11, 13]. Design Management benefits design and corporate strategy as it can enhance their creative processes, create an innovative culture and communications for ongoing corporate growth, advancement, and success [12]. If design is managed and used strategically and in a systematic way, the company can secure a competitive advantage by becoming more attractive for the industry. This can be achieved by having designs (products/services or brands) that are highly differentiated, have a user centered approach, circular thinking at its core, better quality, and an appealing aesthetic, that of its competitors. This will increase customer awareness which will potentially increase ROI (return on investment). David Hands [14] and Katherine Best [15] says that implementing Design Management creates added value for clients, business, and all the involved stakeholders, and it can do that by meeting their different interests and needs at the appropriate stage of the design process.

de Mozota and Wolff [7] in their study compared two fundamental works on design management research which are two handbooks: *Handbook*, Oakley et al. [16] and *Handbook*, Cooper et al. [5]. They produced a figure that analysis the words most frequently cited in those handbooks; this provides us with five themes that characterize Design Management (Fig. 1). The words in bold are new ones (as of 2011), in italic they are disappearing.

The authors refer that Design Management is integrating words used in management such as brand, innovation, strategy, and value and that this changes the vision of DM only focusing on managing design projects. Design Management is the strategic, organizational, and operational discipline that focuses on the proactive and integrated management of design activities in organizations. It encompasses the design of a company's processes, products, services, and experiences, and the development

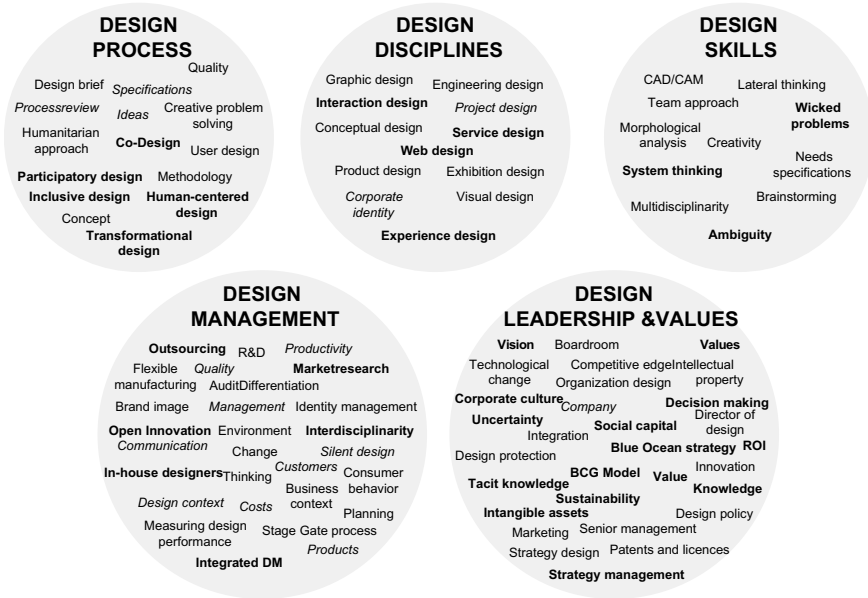


Fig. 1 The words of design management adapted from de Mozota and Wolff [7, p. 4]

of strategies and systems to support them. Design Management is concerned with the design of a company’s competitive advantage and its strategic use of design to create value for customers and society. It involves the development of a design-driven culture and the promotion of design thinking within an organization to ensure that design plays a key role in the company’s long-term success.

Cooper et al. [5] made a chronological evolution of Design Management and its themes that represent DM (design management) domains and criteria and shows us the evolution of the field in a matrix built around four themes.

Table 1 provides us with the four types of value Design Management can add, the way it can solve problems, how it develops and fuels its design skills and how design leadership can help accomplish the companies’ goals. Design Management adds value through aesthetic differentiation, product quality and perception value which increases a company’s economic value. It also adds value during the coordination of the process in aiding with problem solving, by using human value as a cultural transformation and by bringing framing skills to strategic value conversations.

Table 1 The chronological evolution of design management and its themes adapted from Cooper et al. [5]

DM adds value through...	Economic value (aesthetics, differentiation) product value (quality) perception value	Process value (coordination, problem- solving)	Human value (human and cultural transformation)	Strategic conversation value (building skills framing problems)
DM solves design problems relating to...	All aspects of company’s artifact	Managing innovation	Strategic diagnosis changes in society, in politics	Cultural changes digital transformation design for all
DM develops and fuels design skills in the function of...	Direction Marketing Operations Communications	R&D Interdisciplinary innovation team	Finance Human resources	Every function in the company
Design leadership (design direction, artistic direction) helps the accomplishment of goals such as...	Create a brand and an identity (coherence between design disciplines) Create profit for the company	Create new products and services Improve the innovation process and its efficiency	Make companies aware of design strategy Change for customer oriented and creative culture	Make a company sustainable in a globalized context of societal well-being
Period	1965–1992	1993–2005	2005–2014	2015–2017

3 From Design Management to Management

3.1 Design as a Strategic Tool

The role Design Management plays in a company’s expertise is firstly based on the design process, the creative capacity designers will visualize solutions and apply them for example in the context of brand creation and customer experience. Design Management is leaning towards prospective methods in a co-design process, it uses usability methods, where skills like: observation, dialogue and empathy during the course of the project help improve both the products and services but also the processes themselves as we could see in Table 1 [7].

Authors de Mozota and Wolff [7], have seen recent trends in management with the emergence of the entrepreneurial spirit, they state that new designers-entrepreneurs (Airbnb), and the issues of work transformation, companies’ social responsibility, and the blurry boundaries of industries will change and perhaps bring the gap closer between Design Management research and critical management.

In the following figure the authors represent the two forces of DM which takes into consideration the force of Management toward design (M to d), the force of

Design in management (D to m) and at the center Design Management. They mention Management can reinforce the credibility of design with tools for management the design functions, by implementing performance indicators and by its support and giving space to experiment. Design in management can form a space for innovative systems and help companies see the changes that need to happen. Design is also able to reinforce the conversation between the company and its environment, but can also improve customer orientation, collaboration between participants, develop the creative aspects of corporate culture and give autonomy to the participants [7].

Design has to become part of the company's strategic goal in the initial stages of the strategy development [17]. Design management must affect all levels of company activities. de Mozota [10] sees the implementation of design management as a program of activities inside the company formally set to internally communicate the importance of design for the company's long-term goals. This approach corresponds to the model by Bruce et al. [18], which also describes a sequence of steps that should be taken in design management. Management can use design management effectively by setting clear objectives and expectations, defining the design process and roles, planning resources and scheduling tasks, monitoring the design process, and evaluating designs. Additionally, management should also ensure that all involved are working together and communicating effectively to ensure the successful completion of the design project. The first step is to adopt measures according to which the lead designer creates the initial project concept. The second step is an evaluation of the project concept followed by the development of the solution. The next step is user research, validation of product development, revision, and an assessment of the product design. Other activities are directed at the development of a prototype and its verification, followed by experimental manufacturing, production, promotion, and the product launch on the market.

Figure 2 raises four important issues that are yet to be "solved". How can we measure the value of design beyond the measure of client value and brand perception? How can we think about the products themselves without the company behind them? How can we materialize a company? And finally, how can systems thinking work within the company's structure?

Measuring the value of design beyond client value and brand perception can be done by looking at the customer's experience for example. This can include surveys, interviews, and customer feedback. Additionally, we can look at user behavior data to see how people interact with products, services, and brands. For example, how many clicks or page views a user takes to complete a task. Thinking about the products themselves without the company behind them can be done by focusing on the user needs and the problem-solving capabilities of design. This can include user research, competitive analysis, and usability testing. Additionally, A/B testing can be used to test different versions of the design to find the most effective solution. Materializing a company can be done by creating a visual identity that communicates the company's values and mission. This can include brand design, website design, and print materials. Additionally, we can create a story or narrative to emotionally connect with customers. Systems thinking can be used to evaluate how a company's processes,

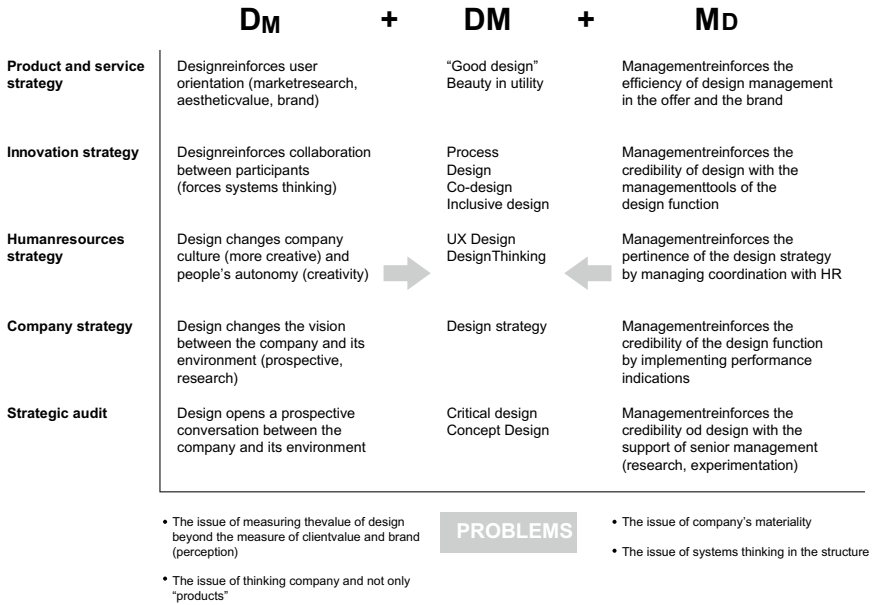


Fig. 2 The two forces of design management adapted from de Mozota and Wolff [7, p. 4]

structure, and culture support its goals. This can include understanding how interdependent parts of the organization interact with each other and how changes in one part of the system can affect the whole. Management should set clear, measurable goals for the design strategy, and use them to evaluate the success of the strategy. When implementing a design strategy, it's important to ensure that the right team is in place. To ensure success, the team should include designers, developers, product managers and marketers. Establishing clear processes and guidelines is essential for any design strategy. This helps ensure that the strategy is implemented in a consistent and efficient manner. Analyzing and measuring the results of the design strategy will help provide insights on what's working and what needs to be improved. Management should also ensure that everyone in the company is aware of the design strategy and the goals associated with it. This will help ensure that everyone is on the same page and working towards the same objectives.

4 Main Conclusions

4.1 *Recommendations for Further Work*

Today, the concept of ‘innovation’ is not just limited to technological progress but also includes the design and implementation of new business models. This means that innovation should not just be seen as a one-off event, but as an ongoing process of continuous improvement and exploration. Innovation is therefore often seen as a key factor for economic growth and social wealth. It can be achieved through various means, such as technological advancements, changes in organizational structures and new products and services. By finding new ways to create value, businesses can increase their profits and customers can benefit from improved products and services. Innovation can also be beneficial for society. For instance, it can help reduce poverty by providing new employment opportunities and increasing access to goods and services. It can also help sustainability by helping to reduce waste and pollution. Furthermore, it can help improve public services and infrastructure and create new markets. Finally, innovation can help to make our world a better place. By using new technologies, we can reduce our environmental impact and create a more equitable society. As businesses continue to innovate, we can look forward to even greater benefits in the future.

Design thinking used in a Design Management perspective can help organizations to become more iterative, to anticipate and respond quickly to changing environments and to increase their competitive advantage. It also provides a systematic approach for addressing complex problems and for creating innovative solutions. It is a holistic approach to problem solving that involves understanding the needs of customers, stakeholders, and employees, and using creative and analytical thinking to develop an integrated, comprehensive solution. Design thinking is also an important part of innovation. It can be used to develop new products, services, and business models that are more customer-centric and have greater potential for success. Design thinking encourages companies to look beyond the immediate customer need to identify opportunities for growth, disruption, and increased customer value.

Design and design management have a significant contribution to sustainability issues. By creating products and services that are environmentally friendly and socially responsible, designers can help reduce the environmental impact of consumer goods. They can use sustainable materials, design for durability and reuse, and create products with a low carbon footprint. Design thinking can also be applied to sustainable design, taking into account the entire life cycle of the product or service, from raw materials to disposal. Design management can incorporate sustainability into the design process by establishing metrics to measure the environmental and social impacts of design decisions and integrating sustainability into the design brief. Lastly, design education can play a crucial role in promoting sustainability by teaching students to design products and services that are environmentally and socially responsible. Overall, design and design management can contribute to a more sustainable and equitable future.

Therefore, it is important to develop approaches and tools that are tailored to the specific needs and resources of the entrepreneur. These tools should focus on creating a framework for the entrepreneur to identify opportunities, create new value propositions and develop innovative solutions. Such tools would enable the entrepreneur to quickly and efficiently implement Design Thinking, Open Innovation and Design Management. In order to achieve this, the tools must be based on a comprehensive understanding of the entrepreneurial context and the special requirements of the entrepreneur. The tools must also be easy to use and accessible to entrepreneurs of all backgrounds, including those with limited technical skills.

Author Diwan [19] When it comes to designing solutions for social innovation and social change, a systemic design approach is crucial. This means taking a comprehensive systems approach to understanding and untangling the various factors and components that contribute to complex problems. To achieve this, it is essential to involve the target population that directly faces the problem in the design process, democratizing design and incorporating their suggestions and necessary details into the solution.

The future of design and management is likely to be strongly intertwined. Design management, which focuses on how to effectively use design to create value and achieve organizational goals, has become increasingly important in recent years. Design management also plays a critical role in the development of new products, services, and processes. Additionally, design management is central to successful business model innovation and the evolution of business processes. As technology continues to advance and the global marketplace becomes increasingly interconnected, design management will become even more important. Companies will need to understand how to best leverage design to create value, optimize processes, and create successful products. Design management will be essential to staying competitive and responding quickly to changes in the market.

As we move forward, it is vital to evolve the design education curriculum to prepare the next generation of designers to design robust solutions that meet the needs of the twenty-first century. By adopting a systemic approach, democratizing design, incorporating design research, and evolving design education, we can create innovative solutions that drive social change and address wicked problems in complex systems [19].

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