

World-class product design: ideas and well-structured practices

Top-performing design functions share ten traits that set them apart

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Product design excellence—design that is innovative, aesthetically appealing, and highly usable—is increasingly vital to success. Companies in electronics, home appliances, and even fast-moving consumer goods have invested in cutting-edge design capabilities that were once mainly the concern of industries characterized by rapidly evolving style preferences, such as automotive and apparel. The incentives are clear: companies with a track record of launching well-designed products show strong sales growth and solid brand images.

Apple is perhaps the most visible example of how good design can drive market success, generating new interest in longtime mass-market categories (such as desktop computers) while creating mass-market demand for one-time niche products (such as tablets). Similarly innovative and iconic product design has been essential to organizations as diverse as cleaning-products company Method and vacuum manufacturer Dyson.

Several forces are coming together to promote design as a fundamental business capability. Rising product complexity, for example, increases the value of intuitive interfaces, while for mature product lines, the threat of commoditization leaves design as one of the few remaining points of differentiation. Furthermore, rapidly expanding middle classes in emerging markets are exposing companies to new sets of preferences and to consumers who are discriminating about the products they choose.

Companies that succeed amid these pressures do quite well indeed; even players in less glamorous industries can use design to thrive. Akzo Nobel's Dulux brand, for example, launched its "Perfect Accessories" line of paintbrushes in 2009. These brushes offered a novel triangular shape to make painting edges easier and came with a paint can opener built into an ergonomic handle. Sales growth was strong—as much as 36 percent annually—and the brushes garnered several awards, including being named "product of the year" by DIY Week.

Yet despite a growing understanding of the importance of product design, many companies' design functions are not keeping up. There are two reasons for this gap. First, given product design's sensitive nature, companies tend to be protective of their design departments and have limited awareness of how the best in the business operate. Second, and even more corrosive, is the widespread perception that because design is inherently creative, a logical, structured approach to assessing and improving the function is of limited value.

To examine these issues, we sought to understand what made top-performing design departments successful. Through interviews and work alongside teams known for producing iconic designs—in industries from automotive to consumer electronics and luxury goods—we identified a set of ten systematic, mutually reinforcing practices. Departments that followed most or all of these practices produced better quality, more innovative designs and used design talent more efficiently throughout the design and development process.

Define a design philosophy

An overarching attribute of well-designed products is that they follow a coherent set of design principles that govern their style and function. Product designs based on consistent principles create a unique visual language that ensures differentiation and product recognition, thereby moving the product beyond purely functional appeal and triggering an emotional connection with customers.

Additionally, the principles should reinforce larger brand messages. Examples include the minimalist look and feel of Apple devices, which subtly conveys the message that the products are simple to use, or the well-sculpted surfaces of a BMW, which evoke a sense of power and strength.

One way to establish design consistency is to encourage leadership from a "guru" in the design process. Among the best known is Jonathan Ive at Apple, whose portfolio recently expanded beyond hardware to include software as well. Alternatively, a clearly articulated design "bible" can achieve the same end, promoting long-term consistency while mitigating the risk of relying too much on one person. BMW's well-defined design vision and philosophy helps bolster the status of the brand and its vehicles. Distinctive elements such as the two-section, kidney-shaped grille

(part of the company’s brand identity since 1933) and the “Hofmeister kink”—the counter curve in the window outline at the base of the rear roof pillar—allow for instant recognition even of the company’s most futuristic concept vehicles.

Align the design organization with product development and market needs

Producing iconic designs is only the start. Ultimately, the product design function’s value comes from supporting the timely launch of successful products. We found that the most effective way to fulfill both requirements is to ensure organizational alignment among the design group, the product planning group (often affiliated with marketing), and the product development functions.

Our research revealed four broad options for structuring these functions, with the choice depending largely on market imperatives and overall company strategy (Exhibit 1). What matters for the design team is that the organizational structure of all three functions should be in harmony, regardless of which option the com-

The design function’s organizational model should align with product development and vary by product and market needs

Exhibit 1

	Organizational model	When model is typically used	Associated benefits
Option 1		<ul style="list-style-type: none"> Smaller, resource-constrained design and development organizations No radical differences in appearance or technology across products Example: two-wheelers 	<ul style="list-style-type: none"> More efficient resource utilization; workload can be matched and balanced across project teams Allows design learning to be applied across product types
Option 2		<ul style="list-style-type: none"> Major technological, form, and aesthetic differences across product platforms Regular, frequent product updates and platform refreshes Examples: automotive, home appliances 	<ul style="list-style-type: none"> Allows deep specialization for products within platforms Enables faster product launches
Option 3		<ul style="list-style-type: none"> Strategic focus on launching game-changing product designs Current products require periodic form and function updates, but have a relatively short life cycle Examples: mobile phones, certain software products 	<ul style="list-style-type: none"> Dedicated resources can craft breakthrough designs Design quality improves through use of cutting-edge methods, such as behavioral science for better user interfaces
Option 4		<ul style="list-style-type: none"> Significant differences in form and function preferences between customer segments leave few common elements across products Examples: advertising, apparel 	<ul style="list-style-type: none"> Greater market orientation Better incorporation of segment-specific insights

pany chooses. Doing so streamlines the interface for all development partners and facilitates the execution of the original design and styling intent throughout the product development process.

Encourage exploration of advanced concepts

One of the basic challenges that every design function faces is determining how best to incorporate the latest innovations—in fields as diverse as IT, materials sciences, ergonomics, and behavioral psychology—into real products. We found that product design organizations that deliberately seek out advanced concepts derive benefits that go beyond simply showcasing their vision for the future.

Automotive companies are among the most aggressive in dedicating entire design teams to cutting-edge ideas. With this level of commitment, specialized teams can test the market's reaction to new features by incorporating them in prototypes ahead of production. In this way, Mercedes-Benz's vehicle interior studio in Como, Italy, was able to adapt new techniques for applying wafer-thin sheets of granite to 3-D surfaces—creating a new aesthetic that is now a trim option.

An alternative in more constrained environments is to encourage product designers to set aside a fraction of time for “blue sky” projects. What is more difficult, however, is maintaining that commitment in the face of conflicting resource demands. To ensure that design teams can focus on advanced concepts, organizations should consider dedicating one designer to an “innovation lead” role. The innovation lead can draw on available design resources and champion advanced-concept development. This option has the added benefit of allowing designers to refresh their creative capabilities through a stint developing advanced-concept-based designs.

Companies must also create the right internal conditions for turning inspiration into ideas. While translating those ideas into products will require deep collaboration later in the design process, at this stage, designers need the freedom to focus on creative work. Accordingly, the best design departments lay out the workspace to encourage seamless collaboration within the team, while restricting outsiders' access. One automotive company instituted a closed-door policy one day a week, barring nondesigners from entering the design department at all.

Define separate creative and operational roles

Within a styling department, the activities that can be broadly classified as creative—conceptualizing, developing, and refining the designs themselves—get most of the management attention. But operational activities, such as resource planning and day-to-day coordination, are vital to producing high-quality, timely product designs.

Not surprisingly, the skills required for these two types of activities are quite different. We found that the most effective design departments ensure that creative and operational functions are handled by separate staff. This distinction helps designers focus primarily on creative activities and ensures an appropriate level of support to critical operational functions.

Some organizations might worry that this model would isolate the creative staff. In fact, both sets of roles require meaningful collaboration with process partners such as marketing and product engineering. The nature of the interaction will differ, playing to each side's strengths: creative roles will engage in design-focused collaboration, while operations roles interact for routine program updates and project planning.

Establish expertise in “growth” segments

Most product design organizations have an excellent understanding of their existing core customers. The best organizations, however, also develop design capabilities for noncore segments that could be key enablers of future growth.

These organizations actively seek out designers with relevant expertise, pursuing tie-ups with external design houses or establishing new design organizations. When one global electronics company with an India design center discovered that local consumers often used their TVs to listen to music, it slotted powerful speakers into several India-only TV lines.

Organizations unable to establish local offices in every growth market can achieve the same end by designating two or three product designers as the “expert team” in a particular region or demographic segment. This team then develops the cultural expertise needed to design products for the target market and can work with similar experts elsewhere in the organization, such as in marketing or consumer insights analysis.

Hire and develop top talent

Every design department needs a comprehensive talent strategy that clearly defines how the team must evolve given changing market needs. And that starts with recruitment. The leading design departments, such as those at premium automakers, ensure geographic and demographic diversity by recruiting from top design schools around the world.

But with highly talented designers at a premium, design shops increasingly rely on nontraditional channels such as design competitions to supplement their traditional design school hiring. The Citroën Creative Awards competition, for example, offers winners an internship with the company's design and styling studio, with the potential to be hired on a full-time basis. In China, leading automakers conduct an online design competition in conjunction with several Western design schools and the local version of Car Design News, a popular automotive Web site. In 2012, winning students were awarded fully funded short-term placement at one of the schools, giving the automaker sponsors exclusive access to high-quality talent.

Once hired, ambitious designers need robust training and experiential-learning programs, along with opportunities to refresh their creativity through involvement in blue-sky innovations and advanced concepts. In interviews, designers were passionate about this type of development, suggesting it is a required element of the talent value proposition.

Follow a smart, collaborative design process

Leading design departments follow a rigorous three-phase design process characterized by strong collaboration with process partners.

The first phase centers on blue-sky idea gathering, drawing on sources from traditional market studies to social media and crowdsourcing.

The second, "sketch blitz" phase often relies on informal competition, as designers generate multiple high-level sketches or concepts that explore and stretch the themes developed during the initial phase. Designers then work with product leadership and marketing to select one concept—or set of concepts—that is most likely to be successful.

In the last phase, the design team works closely with product engineering to execute the selected concept. Here the emphasis is on being as efficient as possible, for instance, by relying on virtual rather than physical modeling when possible to save time and effort between iterations.

Manage complexity

Because design decisions determine the final form, look, and feel of a product, design has a crucial role to play in the drive to reduce product complexity and cost. Without careful management, even seemingly innocuous choices—such as providing a few aesthetic options for each major product component—multiply the number of parts that must be procured, stored, and tracked. Allowing additional finishes or trims exacerbates the problem, with part numbers for the same basic design proliferating rapidly.

As a countermeasure, organizations should have regularly sequenced, cross-functional complexity checkpoints throughout the creative process. These pauses allow stakeholders from other functions to review the entire product and help optimize the number of options that the design team seeks to provide.

Trade-offs such as these are easier to make if the company maintains a repository of prior design ideas, which can help make the entire design process more efficient by reducing the number of iterations and speeding up cycle times. Depending on the design function's size and resources, the repository can take the form of a simple, secure networked hard drive or a sophisticated online database with advanced search capabilities. What is critical is that the information is well organized, easily and quickly accessible, and updated consistently.

Use the right tools

A full ecosystem of software tools is available to meet designers' needs from early concept generation, idea development, and design visualization through to digital or physical modeling. Originally developed to cater to automotive design departments, these tools have been embraced in other industries as well. And in recent years their sophistication has grown, allowing designers to easily manipulate and review a variety of surface and form qualities.

Well-equipped design departments also use specialized tools to visualize and compare designs in a “close to reality” environment. Physical-prototyping equipment and 3-D printers allow designers to quickly build models of small and mid-size parts. Many automotive departments even use virtual reality environments to visualize designs, reducing the need for the traditional clay models that once dominated the industry.

Rapid prototyping plays a particularly important role in the product development process for consumer goods and packaging. In this context, 3-D printers allow industrial designers and graphic artists to prototype an entire product, which they can then test to understand how it will function and whether it will appeal to consumers—an invaluable way to gather customer feedback before committing to mass production.

Admittedly, the more advanced tools can involve significant up-front investment. But the cost is usually paid off quickly because designers can evaluate their work earlier in the process, reducing lead times and allowing more design options to be tested.

Purposefully engage with external partners

The final requirement for design organizations is to apply an old idea with new energy: identify core competencies and then use external partners for nonstrategic activities. Doing so frees up design resources for use where they can have the most impact.

For design, the core comprises activities that are strategically important to the organization and require a clear understanding of its tradition and values. Typically, the creative elements of product design are critical for incorporating core brand values into a product and differentiating it in the marketplace. For most companies, then, creative design is a highly strategic activity. By contrast, routine, operational tasks such as digital surfacing or physical modeling do not require an understanding of the company’s traditions and values and can be outsourced with little effect.

Using third-party design partners for noncore functions, such as converting an original design concept into digital and physical models, is fast becoming the norm. Airbus, for instance, partners with Bertrandt, a leading engineering services company, on designing aircraft cabin mock-ups for use in aerospace trade shows.

Additionally, when entering unfamiliar markets or sectors, it may make sense to seek collaboration opportunities even for core creative functions. External partners with relevant expertise can efficiently incorporate market- or sector-specific insights into a proposed design, speeding the product's entry and increasing the odds of its success.

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In today's highly competitive marketplace, product design and styling are only becoming more important. And as companies pursue new consumers around the globe, design organizations must equip themselves for an ever-wider variety of segments and preferences.

Strong creativity and design talent will be essential, but not sufficient. The common perception is that excellent product designs are primarily a result of a "softer," free-flowing approach. On the contrary, our research has shown that implementing a set of structured practices is a prerequisite for any company that aspires to build a truly world-class design function.

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