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Life Sciences Practice

Accelerating customer-centric innovation in medtech

Investing in understanding the needs of customers and the healthcare ecosystem in the early stages of innovation can boost performance and reduce the risk of failure.

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Even though customer centricity[1] in product design is required by regulatory processes in medtech, it continues to grow in importance as companies build on their standard of care delivery to focus more closely on meeting customer needs and as they achieve breakthrough growth by delivering against unmet needs. Many medtech companies focus on addressing customer centricity from a marketing and commercial perspective. In doing so, they may not be giving one aspect of customer centricity the attention it deserves: the role it should play in enabling innovation.

Customer centricity is an iterative approach to delivering value to end users across the life cycle of a product or service. In medtech, the terms "customer centricity" and "customer" have broad implications, extending beyond end users to include healthcare providers, physicians, and caregivers as well as patients. "Customer" can also encompass the use of a device in different use cases. Because healthcare is an ecosystem, companies should take into account dependencies on other healthcare stakeholders, including payers, providers, and governments.

Getting customer-centric innovation right leads to better patient outcomes. It can also lead to the treatment of more patients, shorter time to market for products, cost reductions, and improved sustainability. For example, some medtech companies end up developing products with high-cost features that are used by less than 10 percent of users.

Innovating in a customer-centric manner takes more than good processes. For many medtech companies, it requires a fundamental change in mindset toward creating value for customers. It's not easy, but the upsides of superior financial performance and improved customer satisfaction can be significant.

This article focuses on what it takes to get innovation right to address customer needs in an increasingly customer-centric medical world.

Customer-centric innovation can lift customer satisfaction and corporate performance

Following a customer-centric approach can enable medtech companies to deliver better health outcomes by simultaneously meeting customer needs more effectively and improving companies' financial performance.

Prior McKinsey research that tracked the design practices of 300 publicly listed companies in multiple countries and industries over the five-year period from 2013 to 2018 found a strong correlation between high customer centricity (reflected in high McKinsey Design Index scores) and superior

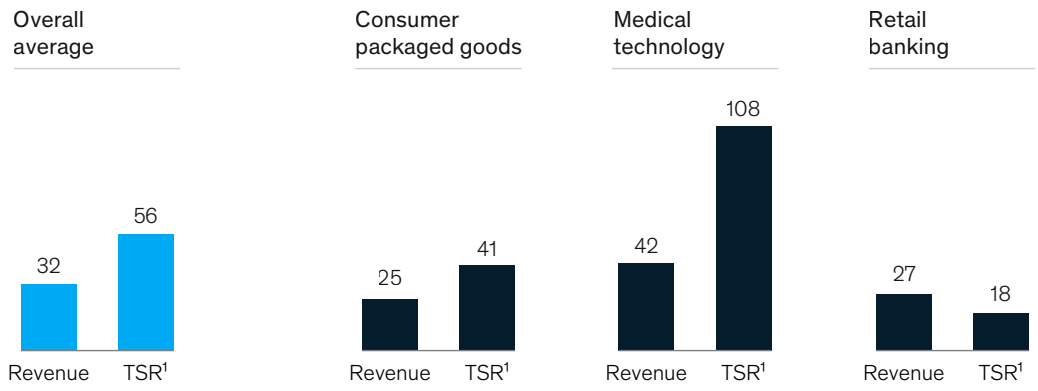
[1] Most companies think about customer centricity in terms of an experience (designed iteratively, incorporating customer feedback) that allows the delivery of value that matters to the end user. However, this mindset does not cover the full picture of customer centricity, which goes beyond the end-customer journey. Thus, when we refer to the customer, this includes healthcare providers, patients, caregivers, and potentially broader stakeholders.

For many medtech companies, customer-centric innovation requires a fundamental change in mindset toward creating value for customers.

Exhibit 1

We know that good design means good business and that good design drives significant growth in medtech.

McKinsey Design Index: difference between top quartile vs peers, 2013–18, percentage points



[1]Total shareholder returns.
Source: S&P 500; Fabricio Dore, Garen Kouyoumjian, Benedict Sheppard, and Hugo Sarrazin, "The business value of design," *McKinsey Quarterly*, October 25, 2018

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business performance.[2] Top-quartile performers in medtech in the McKinsey Design Index generated 42 percent higher revenue and more than twice the TSR than their peers in that five-year period (Exhibit 1).

Customer centricity supports corporate performance in two ways. First, it drives growth by increasing adoption and customer retention by addressing unmet needs. Products are refined through continuous learning, testing, and iterating with customers, thus delivering improved customer usability and satisfaction. Second, customer centricity can reduce both R&D costs and the cost of goods sold. In R&D, companies that test early prototypes with customers achieve better product definition and avoid costly changes. Companies that create targeted solutions tailored to the unique needs of customers tend to achieve more market share than one-size-fits-all solutions. Customer-centric products also tend to have less complexity—and lower production costs as a result.

While the benefits of a customer-centric approach are clear, implementing customer centricity in innovation is challenging. Successful implementation can often mean a change in mindset at the leadership level, and it requires buy-in from colleagues in tech and design, among other parts of the business. In a recent Harvard Business Review study of more than 400 executives, more than half of respondents indicated that their companies lacked the internal processes to support customer experience programs.[3] Only 36 percent of respondents indicated that their companies were forward-looking in terms of customer experience management.

Addressing challenges in implementing medtech innovation

The pitfalls in implementing customer-centric innovation in medtech can be numerous. In this article, we focus on three of the most frequent ones we have observed.

[2] Fabricio Dore, Garen Kouyoumjian, Benedict Sheppard, and Hugo Sarrazin, "The business value of design," *McKinsey Quarterly*, October 25, 2018.
[3] "Lessons from the leading edge of customer experience management," *Harvard Business Review*, April 20, 2016.

First, only addressing certain customers' needs can create utility gaps. About half of the companies surveyed in a recent McKinsey Value of Design study don't conduct customer research before generating their first design ideas and specifications.[4] Medtech players often substitute input from key opinion leaders and "power users" for input from broader stakeholders. In doing so, they may miss what average users need most.

Second, addressing only scientific challenges with a technical-feasibility mindset can lead to suboptimal product definition. While looking at scientific gaps may lead to scientific discoveries and new therapy areas, it may not necessarily address the gaps in care delivery and the role of social factors. In the United States, for example, medical care involving doctors, drugs, and medical devices typically accounts for only 10 to 20 percent of health outcomes.[5] Factors such as social circumstances, environmental influences, and behavior and habits play a much larger role. Customer-centric innovation considers the entire care ecosystem beyond the scientific gap. An instructive example comes from one company that sought to roll out a remote electrocardiogram (ECG) device in a middle-income country. While the device could identify heart diseases earlier by letting users conduct an ECG from home, it still required someone to read and interpret the ECG result and for the patient to receive immediate medical care. While this device solved a scientific gap, it did not address all the needs of the care ecosystem and, as a result, was not successful.

Finally, there is a risk that customer centricity can result in the overspecification of products. A feature-oriented mindset can sometimes be restrictive for creating breakthrough solutions that meet patients' needs. It may also create an unnecessarily expensive product when a simpler and cheaper product may deliver better value to the customer. The World Health Organization identified several reasons why some medical devices do not meet customers' needs, including a lack of high-quality information on what approach delivers the

[4] "The business value of design," October 25, 2018.
[5] "Health policy brief: The relative contribution of multiple determinants to health outcomes," HealthAffairs, August 21, 2014.

Customer-centric innovation considers the entire care ecosystem beyond the scientific gap.

best result, the cost effectiveness of innovative technologies, and a desire to provide the newest technology for its own sake.[6]

Introducing customer-centric innovation in medtech: The importance of clinical 'immersion'

Customer-centric innovation starts with research in the discovery phase and extends all the way to the launch (Exhibit 2). The cost of change dramatically increases toward the end of development, so understanding customer needs and locking in requirements early reduces the risk of expensive late-stage changes, costly delays, and challenges of approval, among other risks.

Investing in customer centricity in the discovery phase often uncovers complex and sometimes hidden needs and provides deep insights into the behaviors and constraints of healthcare providers, patients, and caregivers. This can guide researchers in prioritizing research opportunities, and it reduces uncertainty of product requirements. For many companies, the discovery phase is performed solely by the marketing team. However, in our experience, companies that take a cross-functional approach to the discovery phase often create products that better meet customer needs.

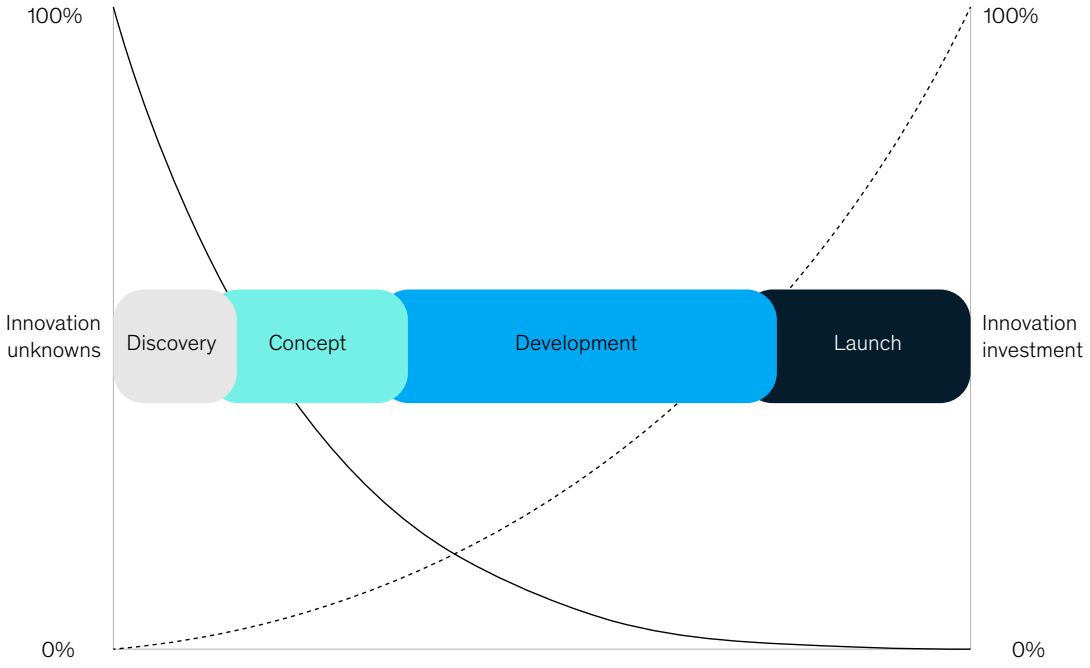
Some companies are involving customers early in the process, using design research to gain a much deeper understanding of their needs. The most revealing design research method is clinical immersion, or "ethnography," during which product development teams and design researchers go into the field to observe patients and users and their environments. Observation is the most effective

[6] *Medical Devices: Managing the Mismatch*, Geneva, Switzerland: World Health Organization, 2010.

Exhibit 2

Investing in customer centricity at the early stages of innovation reduces the risk of costly failure.

Illustration: Timing for addressing innovation unknowns



Note: Our guiding principle is that 80% of unknowns can be solved with the first 20% of innovation investment.

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way to uncover needs, since people rarely do what they report doing. Clinical immersion is not limited to how patients are treated but also includes the environment in which the treatment takes place. Examples include environment of procedure rooms, the skill sets of medical coworkers, and basic infrastructure. Clinical immersion allows engineers to develop a deep understanding of workflows and empathy for customers in a certain ecosystem, which can be missed if relying on expert interviews alone.

Some of this ethnography is "hypothesis led"—that is, focusing where there is a very tangible product need. In other cases, the ethnography is "discovery led," with no preconceived notion of the product or service. As well as revealing people's needs more effectively than in interviews, clinical immersion can shift the engineer's mind from features to needs and bring breakthrough ideas to the market. Engineers build empathy for users and become their advocates for the duration of product development. Some in the medtech sector view clinical immersion as expensive and labor-intensive. However, companies usually can conduct clinical immersion with just two engineers (and potentially one person from marketing) with a time investment of several weeks.

Holistically understanding the needs of customers requires that companies follow a robust process in which needs are traced during the development process. Traceability in innovation reduces the risk of costly mistakes, such as targeting the wrong customer segment and missing features or poorly implementing them. It creates value by informing product or service requirements.

Traceable techniques include the following:

— *Need statements.* Observations are fact bases, not insights. Need statements synthesize observations into themes from which insights can be derived. A need statement should list key problems to solve, the target users, and objectives.

— *Need prioritization.* The team needs to align on which unmet needs have the greatest potential for impact.

— *Requirements translation.* User needs must be translated to system requirements. These are design inputs that describe how the concept functions will be achieved and what the acceptance criteria for verification are.

— *Interaction mock-ups.* Product and service experiences can be simulated through interaction mock-ups. These can range widely in sophistication, from simple value propositions to high-fidelity mock-ups, which allow testing for end-to-end experience. Mapping every feature to unmet needs allows better feature prioritization and user testing.

— *Gap analysis.* The results of mock-up usage are systematically evaluated against the unmet needs identified during the field immersion. This can highlight aspects that have been left unaddressed—and which can be deprioritized only after analysis and justification. The gap analysis exercise also allows teams to plan sprint cycles and backlogs.

The COVID-19 pandemic and subsequent travel restrictions were game changers for clinical immersion because they required new virtual capabilities for the in-market team and rapid adoption of collaboration and immersive technologies. Virtual clinical immersion offered a rapid, cost-effective, and scalable alternative to in-person clinical immersion. The level of research output was similar to in-person immersion, with collaboration across multiple geographies and without limits on the number of observers or research participants. For example, during the peak of the pandemic, one company used virtual clinical immersion to understand the unmet needs of healthcare providers in primary-care settings when screening patients with vision impairment and other eye complaints. The aim here was to enable prompt referral of cases. Through collaboration with local facilitators; use of state-of-the-art immersive capture technology (including 3-D scans of clinical environments by smartphone, as well as the capturing of contextual knowledge of clinical environments via virtual reality and augmented reality (VR/AR) headsets); and synthesis via an online-collaboration platform, the team was able to

identify unmet needs, develop the concept, and test it with end users.

Focusing on specifications that add value for the customer

Leading companies are changing the way they define products, moving away from a technical feasibility–based mindset to a more holistic approach that balances feasibility, customer desirability, and business viability.

This is particularly important when a medtech company designs products for a new market. Many companies introduce the same products that they have sold in existing markets, which may not deliver the same value in different environments. Focusing on specifications that add value for patients in a particular market is essential for delivering better clinical outcomes.

One example of this is the design of a medical device to reduce the rate of neonatal death from asphyxia. Through two months of clinical immersion at top-tier, ground-level, and referral hospitals, one company identified about 50 unmet needs. The clinical-immersion process, however, identified several features in the incoming product that were not required. This led to a very simple device that met user needs but that also reduced the cost by 75 percent compared to the company's original model.

Such examples are just a few of the ways in which the medtech sector is moving toward providing products that fit the ecosystem and meet specific customer needs. Customer centricity in the early stages of innovation can be challenging—but its rewards of better products, greater value, and the reduced risk of costly failure or expensive late-stage changes can be significant.

Customer-centric innovation is a journey. It is important to start at a modest scale and build, based on experience, capacity, capability, and the characteristics of each product. Throughout the process, companies need to gauge and understand the extent to which current products or future product ideas address both unmet needs of the consumer and the medtech ecosystem. They also need to be realistic about their own ability to deliver. This is a journey often best approached by starting small with pilot programs and only then making the call about whether to invest across the organization or the product portfolio.

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