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Medical device design: usability is everything

Interview with graduate industrial designer Stefan Grobe, managing director, deforted GmbH

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Aesthetics isn't all there is. When it comes to medical devices, safety, reliability, and usability are far more important. After all, potential users of these products not only include medical experts but frequently also patients at home. That's why it is important to factor in the usability of the product in the early stages of development.



the re-design of one that is well-known. In this interview with COMPAMED-tradefair.com, Stefan Grobe talks about the other aspects that are important in medical device design and why every device presents new challenges. He also reveals the best way for designers and manufacturers to partner up and work together.

This is not only true for the design of a new product, but also for

Mr. Grobe, what aspects are important in medical device design?

Stefan Grobe: The designer must be sensitive to the application of these devices on the human body. Designers need to have a wide knowledge of the users, that being physicians and medical personnel or - depending on the device- patients or users in home environment settings. Designers need to be able to understand both the world of specialists and that of laypersons.

For the most part, the nature of medical devices differs greatly from lifestyle or consumer products. Due to the cost of the device on the medical market, its visual appearance and usability evaluation also play a crucial role.

What role do these two very different types of users and their daily routines actually play in the design?

Grobe: The original idea behind product design is the improvement of function and usability. Designers should follow the KISS ("keep it simple and smart") principle. That's why they need to emphasize the user and try to not only pursue product improvement in terms of aesthetics in their design but ideally also incorporate usability.

The path to approval for the life cycle of a medical device is divided into several phases based on various studies that need to be conducted. What is the best time for designers to enter this process?

Grobe: Ideally we enter right at the very beginning since this allows us to incorporate the aspect of usability as much as possible and early in the design process. We are only able to introduce the right usability ideas if we are a part of the development right from the start. It is usually too late for that, once everything has already been built and the only thing that is missing is the aesthetic touch. Having said that, you do not have to continuously participate in the device development process as a designer; for instance, there is no need to be involved in phases that pertain to mere technical aspects. However, a device always stands a better chance the earlier a designer becomes a part of the process.

What challenges do designers face when it comes to medical technology?

Grobe: Designers in a technical realm should love challenges since every project comes with its very own and unique characteristics. These are often rooted in the individual safety aspects of the individual devices, the respective standards, and approval requirements. Another challenge might be to find the right expert who is able to conduct the usability testing and give productive feedback.

It is also very difficult not to follow existing trends in product design too much without completely ignoring them. Having said that, you must also not break too far away from the norm, which could potentially hinder product acceptance. Even though this is essentially a contradiction, the art of design actually lies exactly in this contradiction.



Medical devices and parts that users hold directly in their hand are especially hard to design because they have to be very ergonomic. Designers have to be willing to experiment here if need be; ©panthermedia.net/ robertprzybysz

Are certain products or types of products more difficult to design than others?

Grobe: I believe all of the elements that the user holds directly in his hands are especially challenging because they require an ergonomic design. In this case, you have to be willing to conduct many different tests and - if need be - also follow a trial and error approach.

What should medical device manufacturers take into consideration when they design a new device?

Grobe: At the outset, the customer should collaborate with the designer to develop and determine the basic concepts, strategy, goals, and objectives of the project. The customer should clearly communicate what he expects and what he does not expect from the designer. And he should obviously choose a partner based on competencies and experience but should also factor in personality. A project is far more successful if the team is also able to get along on a personal level.

Over the course of the project, the client should communicate directly with the developers via a designated contact person because "development" also means communication. As designers, we always need a designated contact person who is accessible and easy to reach and has decision-making power. Effective communication creates less work and makes the overall development process more economical and faster.

Are you currently keeping an eye on any specific trends in medical technology?

Grobe: I notice a big trend of increasing the quality of use and usability. This also includes interaction design, meaning the human-machine interface using touchscreens. With meticulous work, designers can considerably contribute to improved usability. Conversely, many of today's clients would like to upgrade their products with touchscreens, which does not necessarily improve the usability of the device, however. In these cases, a designer needs to consult with customers and discuss use and ergonomics.

A second trend is internationalization. For example, in Asia, German or rather European Design is hugely popular. However, this makes us stand in stark contrast to the complex and often more colorful products that are available there. This is a gap that keeps getting wider and one that we are also acknowledging. Perhaps we designers, who are shaped by Western ideas should take a cue and get a little bolder and cater to this specific market.



The interview was conducted by Timo Roth and translated from German by Elena O'Meara.

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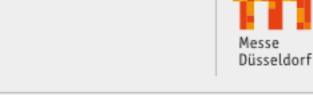
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