

Interview with Prof. Fritz Frenkler

New perspectives, tasks and approaches in medical design

Convincing design results can only be achieved by dedicated and qualified teams

This November, the medical technology industry meets again for Medica in Düsseldorf. Prof. Fritz Frenkler, Professor of Industrial Design at the Technical University of Munich (TUM) and Managing Director of f/p design with offices in Munich, Berlin and Kyoto, discusses new aspects of the development of medical technology and the role of Medical Design.

What will be the biggest challenge for the manufacture of medical devices in the years to come?

Fritz Frenkler (FF): That will certainly be the economic power of Asia in Europe, in particular the strong competition from China and Korea. The Chinese state companies are pushing for the western markets. But even Korean companies such as Samsung, whose medical products have a very high technical standard, play an important role in the market. It will therefore be increasingly important for medical devices to differentiate themselves through functionality, quality, technology, ergonomics and the developed values of the brand. And the brand is not just the logo.

What role do the new regulations for medical devices play in this context?

FF: These rules are true for the whole industry. They serve to increase quality and will act as an impetus for the further development of the European market. However, many Asian companies do not have to subordinate themselves to lengthy decision-making processes. The speed and the lack of barriers to driving development there will likely spur local businesses as well.

How important are AI and robotics for the future of medical technology?

FF: Both developments offer enormous opportunities for the further development of medical technology and medicine. The often quoted fears will play an increasingly subordinate role. If, for example, one goes only out of the manual aspect of surgery, then it does not actually matter to the surgeon whether he works on the screen or in the operating theatre. On the one hand he works as if in a cage with his team and on the other hand he operates a digitally controlled device. The qualitative and mental burden is probably lower here. Absolute precision is certainly easier to achieve with the use of robotics.

Nonetheless, digitization and new techniques present opportunities and risks. How do you get to optimal solutions?

FF: The technology has to be developed consistently with the medical profession and the patient, and I do not see any risk in digitization if it is used correctly and responsibly by management. With the appropriate strategy, there is enormous potential for development here, for example in patient management or drug control. However, digitization can also improve patient management for smaller practices. Waiting rooms could become superfluous. Digitalization makes it easier to manage and archive data, as well as X-ray documents, and thus relieve the doctor and medical staff. This works especially if the interfaces are designed with the focus on the user. An intelligent interface design ensures that people from different cultural backgrounds can operate software and devices intuitively or archive data correctly.

A particular challenge for medical design is to keep an eye on at least two user groups - doctor / medical staff and patient. Do both groups need to be involved even more than before in the development of new medical devices?

FF: Of course. We call this participatory design. Actually, there are even four target groups in medical design, which we have to keep in mind when developing new products and services: doctor, assistant, patient, and now relatives. In the US, and probably soon in Europe, greater emphasis is being placed on comprehensive information on examinations and the individual treatment steps. Everything must be transparent and self-explanatory.

We know that only quantitative surveys and qualitative research can optimize medical technology for all users. Without a scientific approach involving psychologists, sociologists, and even ethicists, one can no longer develop a state-of-the-art medical device that meets all needs.

One of the most important tasks of industrial design is to translate the services of engineers into products that can be used by the respective target user groups. What special challenge does the constellation pose?

FF: Hierarchies in developments in the field of medical technology are no longer valid. Here only interdisciplinary teams achieve convincing results. Because the tasks are very complex and the participants in the development process of a device numerous. Involved first are engineers and doctors, but also software developers and the production. Design can moderate here.

Crucial to this participatory approach is to put the human at the center. The much-quoted Human Centered Design applies in very special dimensions for the development, design and

production of medical devices and services. From the doctor and patient, to the staff who has to maintain and clean the devices reliably and safely.

In medicine - for good reason - the highest quality is always in demand. How important is the economic efficiency of a medical device product?

FF: Whether in the hospital or in the practice, increases in quality and efficiency are constantly in demand. Better quality can save time. Among other things, this should be done via a new approach, that is to say via a higher speed of execution. Therefore, if the development of a medical device product or service allows the physician to spend more time with his patients, then a costly medical device or a new technology is economical. Since it saves time, which benefits patient communication. Because the more direct attention a patient experiences, we know that, the faster and higher their recovery rates are. Patients are also increasingly willing to spend on their health. They have long understood that health is their greatest good.

Medical devices cover a wide field. For which product and application segments is the know-how of Medical Design actually in high demand?

FF: The closer instruments are used on or in humans, the more ergonomics and psychology must be taken into account. Facilities and equipment that a patient may not trust, or that are too restrictive can result in the healing process taking longer. Design is an important factor for the doctor, the patient and the technology to interact successfully.

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Über f/p design

f/p design, mit Büros in München und Kyoto sowie einer Repräsentanz in Berlin, wurde 2000 gegründet. Seitdem entwickeln und gestalten Fritz Frenkler und sein Team in Deutschland und Japan Produkte und Dienstleistungen in den Bereichen Industrial Design, User Interface, Architectural Design und Communication Design. Außerdem berät das Büro namhafte Unternehmen hinsichtlich Design Strategy und Corporate Design. f/p design arbeitet für Kunden in Europa, Asien und Nordamerika und erzielte bislang insgesamt über 60 namhafte nationale und internationale Designauszeichnungen.