How a modern implant system is developed

Source_DENTSPLY Implants

_A dental implant system consists of hundreds of components. It includes everything from the highly advanced implant to simple tweezers. For an optimal function of a system, all parts must interplay. They must fit together like cogwheels and create a smooth and well-functioning totality. If just one cog is misaligned, the entire system will suffer. And this may cause unnecessary problems for the dental team and ultimately the patient.

_Mission started

Per Aringskog, R&D Director at DENTSPLY Implants, and his team were well aware of this. To start their development work, they had one of the most thoroughly documented dental implant systems in the business. Decades of research in areas as diverse as mechanical loading and osseous integration had created a product that functioned perfectly, with minimal bone loss and healthy soft tissue. With this as a foundation, the mission now was to create an implant system that was in every detail intuitive for the users. The set target was that the new ASTRA TECH Implant System EV should be the user-friendliest system on the market. Early on, the team realised that no matter how much they thought and tested on their own, there would always be a gap between what worked well on paper and in the laboratory compared to what worked in the everyday clinical reality. In the real world, one had to add unpredictable situations, users with different knowledge levels and the various needs of patients.

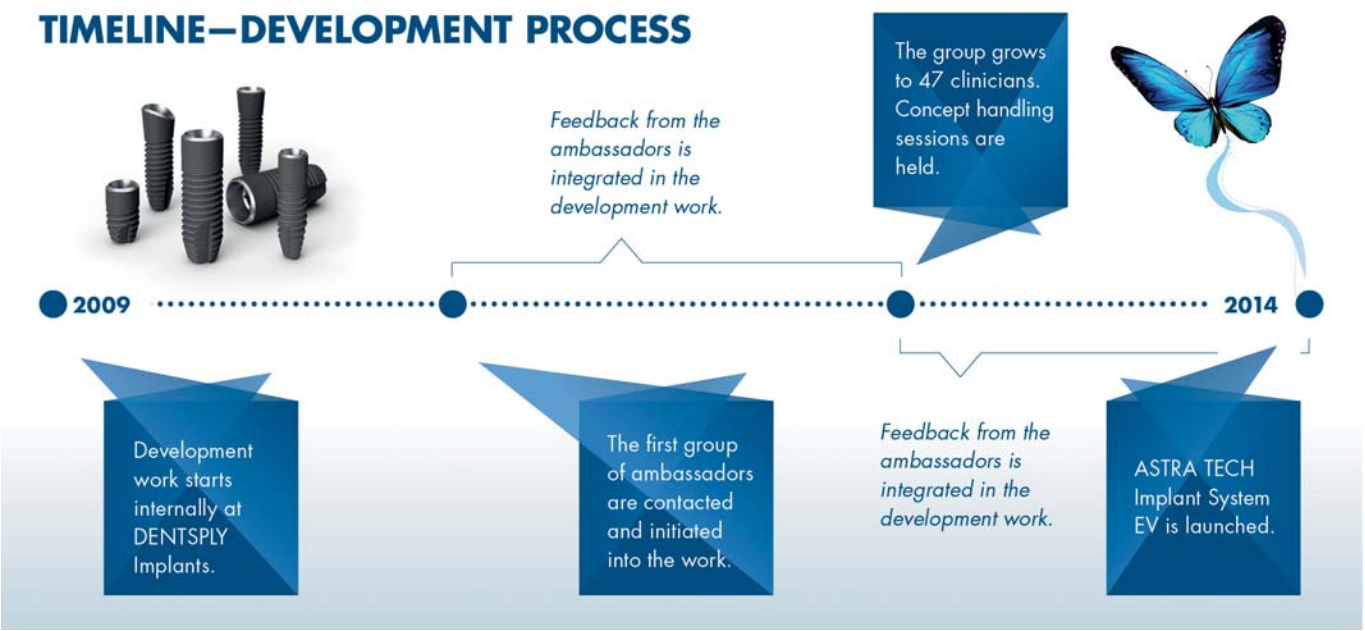
_A smart solution

The solution was obvious—let the users take part in the development work. That way you get a product that already at launch is tested and adapted to tackle the unpredictable. A product that has its origin where it will be used—the clinics.

Per Aringskog and Agneta Broberg Jansson.

The solution is not unique, but it is smart and it works. The method of letting users take part in the development work exists in other businesses. In the software world they have worked with open source code for a long time. Some software developers even publish their software on the Internet. Users and other interested parties can then suggest improvements and further developments. In earlier development projects at the company, there have been smaller focus groups involved. This time however, the team took the idea to a whole new level—a group of 47 clinicians that work with dental implants on an everyday basis was formed. They became known as ambassadors.

"The response to our initial contacts was very positive. Everyone we asked was enthusiastic about taking part," says Agneta Broberg Jansson, responsible at Global Product Management for the ASTRA TECH Implant System at DENTSPLY Implants.



A smaller group whose members had long professional experience with dental implants, was contacted first. The R&D and Product Management team had by then developed a system. Now, it was time for their efforts in the laboratory to face reality. The group was asked to evaluate the core system and contribute to the further development and refinement of the system.

"The input given at this stage contributed to changes in parts of the system. Some designs were improved in ways we could never have imagined if we had not been open about our work," says Per Aringskog.

Even if openness and participation turned out to be the key to success, the contents of the project had to be kept secret. The company operates in a highly competitive market where many smaller players are very interested in using smart solutions, preferably without having to invest in the development work. Secrecy was of the utmost importance for this and similar future projects if they were to bear the expenses. Investing in research and development and constantly challenging and improving is part of the company philosophy.

_One big project

Following the initial phase, the more basic parts started to fall into place. Now it was time to expand the group of ambassadors and to gather broader and more detailed feedback. But, allowing the group to grow was risky seen from a secrecy perspective. From the initial single-digit group of clinicians, the group now grew to almost 50 ambassadors on three continents. But, the saying "Confide in one, never in two; confide in three and the whole world knows" was refuted once and for all.

"It is amazing that we managed to keep the contents of the project secret. But, the participants were so dedicated that they saw this as their own project. We became one big project team with a great internal loyalty," says Per Aringskog.

By now, the work intensified. Six employees visited the ambassadors in their everyday business and held concept handling sessions. The ambassadors also gathered a few times to exchange experiences and thoughts in the early project phase, and the feedback kept coming in.

As the project progressed, Per Aringskog and his colleagues adjusted the system and new tests took place. After five years of work, only fine-tuning of details remained and eventually everything was ready to be launched.

"Each individual point of view might seem tiny, but put together everyone has contributed to the final result," says Agneta Broberg Jansson, one of those who worked closest to the ambassadors._

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