Printing the future

Interview with Rik Jacobs about the rise of 3D printing in dentistry

By 3D Systems

The 21st century has not turned out exactly as predicted by the science fiction writers of the past. There aren’t any flying cars filling the skies or robots walking the streets, but there are devices in our homes, like Amazon’s Alexa, which listen for our voices and carry out our commands. Companies like Boston Dynamics have taken impressive steps towards creating eerily lifelike robots and the US Navy is even testing incredibly precise laser weapons onboard its ships. 3D printing is also seeing a massive expansion in its applications, from the inspiring printing of functional human organs to the more sinister ability to download a massive expansion in its applications, from the inspiring printing of functional human organs to the more sinister ability to download everything I could about 3D printing.”

Rik explained that 3D Systems primarily focuses on reformulating existing polymers into printable, biocompatible materials which would pass regulations. Creating printable and biocompatible materials was essential for the approach to the dental market, and in 2012 he co-founded NextDent, which focused on reformulating existing polymers into printable, biocompatible materials which would pass regulations.

Rik didn’t study dentistry, instead opting to study international marketing management. He became active in the dental sales and marketing sphere around 20 years ago where he sold polymers and monomers, materials which he also sold for the hearing aid market.

As Rik explained, there wasn’t always a belief in the use of 3D printing for dental applications. He elaborated, “People still had some hesitations and questions about the durability of the materials, even five years ago, they weren’t sure that you could print crowns or dentures that would stay in a patient’s mouth for very long. Back then a few things still needed to happen to make 3D printing viable in dentistry; software companies needed to develop software-design solutions, materials needed to be proven and more advanced 3D printers needed to be developed. I was convinced it could be done but people were very cautious, so it was only in 2018, when we were able to combine all these factors, that there was a real tipping point for 3D printing.”

Digitalisation in the dental profession and industry is an often-discussed topic that most agree will come to define dentistry in the near future. Every dentist will be able to find a personal use for some piece of digital technology, but the same isn’t necessarily true of a 3D printer.

3D printing’s relationship to the digital dental revolution is important however, and I asked Rik about what role the technology plays. He said, “Most dentists will find a use for an intracanal scanner as a more accurate and convenient alternative to analogue impression materials, but what gets done with that scan afterwards is important. If the patient needs a denture the dentist can send the scan to a lab so that a denture could be designed and printed, or with a 3D printer the dentist could print the denture themselves in their lab. Of course even the smallest of practices will benefit from outsourcing to a lab with a printer because of the higher speeds, accuracy and lower cost.”

Rik explained that 3D Systems primarily sells their printers and materials to labs, but that dental practices interested in keeping some of their production in-house are increasingly purchasing 3D printers.

As complicated pieces of equipment, learning to use 3D printers to their fullest can require a fairly significant amount of training. Rik explained, “3D printing can sound a little too good to be true, but we’re sometimes faced with people that think they can start using their printer without any training and expect great results, if you put rubbish into the printer, you’ll get rubbish out. That’s something I’m always explaining and emphasising.”

3D printing is sure to play an important part in the digital future of dentistry, and as materials become more and more advanced the applications of the technology will only grow. But printers in labs and in practice are already changing dental workflows, with labs able to provide faster, more reliable and very precise end products with incredible efficiency.

The future may not end up being characterised by a deluge of sci-fi robots and lasers, but there’s no doubt that 3D printing will play an incredibly important role in the increasingly digital profession of dentistry.

Rik Jacobs, the Netherlands

Rik Jacobs is a founder and the former CEO of NextDent B.V. The company was founded in 2012 in the Netherlands as an independent subsidiary of Vertex Global Holding to complement the dental materials portfolio of its affiliate Vertex Dental B.V., which has a 77-year track record in developing and producing traditional denture materials and products. Within four years, NextDent became the leading developer and manufacturer of bio-compatible dental 3D printing materials.

In January 2017, Vertex Global Holding merged with 3D Systems, a company that provides comprehensive Additive Manufacturing products and services, including 3D printer specifically designed for dental applications, print materials, on-demand parts services and digital design tools. Upon this merger, Rik became the VP, General Manager of the Dental business. He holds a degree in International Marketing Management from NHL University of Applied Science.