“It is our mission to simplify dental implantology”

MIS Implants Technologies is a global specialist in the development and production of advanced dental implantology products and solutions. The company, which started as a family-run business, was founded in 1995—a time when not many people understood the potential of dental implants, CEO Idan Kleifeld told Dental Tribune International (DTI) at a meeting at the beginning of 2015.

Since its beginnings, MIS has seen significant growth, especially within the past ten years. “Today, the company has succeeded in building a recognised global brand in the market and is the only non-premium company operating on a global scale,” Kleifeld said. Headquartered in Israel, MIS currently has operations in 65 countries worldwide, covering major dental markets, such as the US, China and Germany, through a well-established network of local distributors.

In 2009, MIS moved operations to a large purpose-built production complex located in a new high-tech industrial park in northern Israel. “Our location adds to our uniqueness. Israel is a country of high innovation and offers particularly favourable conditions for manufacturing, because of the quality of education and people’s high levels of motivation. Furthermore, salaries are much lower than in competitor countries, making manufacturing especially profitable,” he stated.

The MIS building in the Bar-Lev Industrial Park spans about 10,000 m² and has two production floors with 50 Swiss high-precision machines running 24 hours a day from Sunday to Friday. “The facility was designed and built for growth. In the near future, our automatic warehouse, which currently covers only half of its potential total area, will double in size,” Kleifeld explained.
DTI further learnt that MIS primarily produces for stock, as products must be shipped to local distributors within two working days. For increased efficiency, processes controlling quality, sterilisation, packaging and storage are largely automated. This allows MIS to produce over 800,000 implants per year.

The production site in Israel has a dedicated training centre with a fully equipped dental clinic for live surgeries. Kleifeld said, "We see education as an important tool to acquire new customers, especially in developing markets. It is an important driver in this business, and we offer doctors both fundamental and advanced training courses on MIS products and protocols."

In 2015, MIS will be introducing some important innovations. Only recently, the company officially opened its MCENTER Europe, the new MIS digital dentistry hub in Berlin in Germany, in order to meet the needs of its growing customer base in central Europe. The centre offers direct services provided by locals to local customers, bringing all MIS digital dentistry products together in one location. It is aimed at providing a comprehensive range of services to clinicians through advanced digital dentistry and CAD/CAM technologies that facilitate fast and accurate surgical implant procedures with reduced chairside time and greater predictability in outcomes.

"We are extremely excited about the opening of the new MCENTER Europe facility, and especially proud to be able to offer MIS quality and simplicity in providing our customers throughout the region with highly accurate and efficient guided implant placement procedures and CAD/CAM solutions," said Christian Hebbecker, MCENTER Europe Manager.

In addition to the new MCENTER Europe, the company will be entering the premium segment for dental implants with the launch of a new implant system later this year. It has a truly innovative design and consists of high-quality implants that are completely new in the market and will fit within the premium segment. MIS plans to offer this new implant system to its global distributors at the end of the second quarter of 2015, for local distribution worldwide.

The name MIS originally stood for "Medical Implant Systems". However, it is also an acronym that reflects the company’s main maxim to "Make it Simple". "It is our mission to simplify dental implantology and, in order to become the preferred choice of dentists worldwide, we offer new and innovative products based on simple, creative solutions. Design and handling are made simpler, and all products are engineered to allow efficient, time-saving surgical procedures," Kleifeld said. "With this simplified approach, we are set to become the largest global dental implant producer," he added.

However, the “Make It Simple” motto appears to apply to more than the company’s products. The MIS philosophy defines almost all areas of the business (from human resources to production), and the organisational structure is simple and characterised by flat hierarchies. "Make it Simple" embodies the start-up mentality that remains vibrant in a company that has become one of the largest in the global dental implant market._

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ClaroNav introduces new device for navigated surgery

ClaroNav is dedicated to the development of surgical navigation solutions. At current IDS, ClaroNav introduced its new device Navident, which is an affordable and practical dynamic navigator for dental surgeons. Timo Krause spoke to Tom Tilmans, Director of Sales & Marketing EMEA, about the new developments.

**Timo Krause: Navident promises a completely new approach of image-guided implant navigation. What was the initial idea for the development?**

Tom Tilmans: The inclusion of the CBCT scan as part of the standard of care for dental implant planning and placement has been of great benefit to the surgeon, the restorative dentist and of course to the patients. A logical next step would seem to be dynamic surgical navigation utilising that CBCT scan as a map. Dynamic navigation combines the advantages of performing highly accurate and minimally invasive surgery with the flexibility to make changes to the digital plan at any time during that surgery. Independent of any implant specific surgical kit, dynamic navigation offers the promise of a simple workflow, easily adapted to the freehand surgical techniques currently employed.

Dynamic navigations systems have been successfully tested since the early 2000s, and proven to provide these benefits in numerous papers. They have not gained widespread use, however, mainly due to their high purchase price and to usage difficulties caused by their immature design. Navident is different. It is affordable, practical and robust.

**What are the advantages of using Navident?**

Using the CBCT image as a map, Navident guides surgeons just like a GPS guides drivers. The dental surgeon plans where implants should be placed. Navident, dynamically tracking the drill and the patient’s jaw, provides guidance and visual feedback to ensure the implants are placed according to plan. This provides a range of benefits:

- Reduces errors. With Navident, implants are typically placed 3 times more accurately than freehand.
- Enables flapless drilling, which reduces chair-time, patient trauma, pain, and recovery time.
- Increases surgeon’s confidence and maximises flexibility.
- The plan can be modified at any time, even during operation.
- The device attracts patients by providing a clear and visible competitive advantage.
Navident is designed to simplify the implant dentistry workflow and provides accurate guidance more effectively than rival solutions, including static guides. A single one-hour appointment may be sufficient, in uncomplicated cases, for a complete Navident-guided procedure, including NaviStent fitting, scanning (on site), planning, flapless guided drilling and implants insertion.

How long does it take to get familiar with the use of the system? Is a special training necessary/required?

For optimal patient outcome, we provide our customers the detailed knowledge required to become competent at using Navident.

The Navident workflow exists of four easy steps. Before getting started, people get an overview from patient diagnosis to navigated implant treatment, including hands-on drilling. We aim to be very practically oriented and focus on each step in the workflow.

You have introduced the Navident system to a worldwide audience at recent IDS 2015 in Cologne. Were you satisfied with the traffic and interest at your booth?

The IDS is a great place for companies as ClaroNav to demonstrate its innovative power. People showed great interest in new technology and we received a high number of particularly qualified trade visitors. We experienced a high level of internationality and decision-making competence. This proves the growing interest in dynamic navigation and its benefits.

Let’s have an outlook into the future: Which trends do you see in the field of implantology?

The overall demand for implantology is projected to increase by 10 per cent for the next years, due to lifestyle influences and higher life expectancy. To handle the growing number of patients, clinicians need a solution that increases operational efficiency in their practice or hospital, which supports team collaboration and improves patient care.

Referring to implant navigation, the use of surgical templates often only complicates the workflow because it increases the complexity and the duration of the implantation procedure. Clinicians end up investing in expensive technology and not integrating it completely because of problems in workflow and accuracy or because of clinical issues.

Looking back at the IDS, it’s unbelievable so many different vendors are offering so many different products for treating just one small part of the human body. The industry is dynamic, and successful innovations addressing the clinicians’ needs have the potential to become standard of care. Navident is designed for clinicians who want the most accurate and reliable technology, and achieving time and cost savings at the same time. This is why Navident will change your perspective on progressive dentistry.

ClaroNav is a young company within the dental market—speaking about the future: where do you see the further development of Navident?

Navident provides a comprehensive 3-D software package which allows the dental surgeon to import (CB)CT images, prepare 3-D visualisations of the ideal teeth setup and plan where implants should be placed. The navigation functionalities are tightly integrated and provide guidance and visual feedback to ensure the implants are placed according to plan.

We aim to release product updates, upgrades with new and improved features on both the planning and navigation side. Our current roadmap includes the following three priorities: First, additional prosthetic-driven planning features; second, documentation functions which include pre-op planning and post-op outcome; and third, dedicated versions for other specialties, such as orthodontics and endodontics.

Where and how can the dental specialist purchase Navident, already? And which are the new focus markets that you want to provide with this new system?

We are interested in spreading the technology all over the world and we have had interest from all over the world. We are in the process of qualifying potential distributors in different markets for this purpose. If doctors or dealers are interested in Navident, contact our head office in Canada or our European office in Belgium to inquire about importation rules and representation in their area.

Thank you for this interview.
3-D printing: Next generation of dental modelling

Author: Georg Isbaner, Germany

With 3-D colour scans and colour prints, dentistry has made some significant advancements in digitalization in recent years. At the 2015 International Dental Show (IDS), manufacturer of 3-D printers and production systems Stratasys presented a new system to the dental industry: Objet260 Dental Selection. With this printer, practitioners are able to create models with lifelike textures for precise evaluation and a wide range of shades for customized shade matching. Georg Isbaner, editorial manager of implants, spoke with Avi Cohen, Director of Global Dental at Stratasys, about the company’s latest development.

_Georg Isbaner: Mr Cohen, what is your company’s expertise? What is your product offering to customers?
Avi Cohen: In the dental market, in which I essentially established our products over five years ago, we are by far the leading provider of overall solutions. When we initially began serving this industry, we came up with a printer that prints stone models directly from intra-oral scans. At the 2013 IDS, we released the Objet30 OrthoDesk, a small, low-cost desktop printer. For us, every idea is an opportunity to release a new product. We are very much committed to the dental market and release one or two machines every year.

_Could you tell us about the product you presented at this year’s IDS?
At the 2015 IDS, we presented the Objet260 Dental Selection 3-D printer, which is a new system that enables printing of a full-colour lifelike model—instead of a regular stone model or a one-colour model—from a colour intra-oral scan. The printer brings advanced triple-jetting technology to dental and orthodontic laboratories, allowing 3-D printing of impressively realistic models with a true-to-life look and feel.

You can, for example, print jaw models directly from CBCT scan data, with high-definition tooth, root and nerve canal anatomy rendered in contrasting materials and colours. Holding the printed model in your hands, you can feel and touch the surface, the smoothness and the resolution. Everything from the CBCT scan data is presented here. So when designing a denture for which implants are to be placed, you know exactly where the nerve is and how to avoid it.

In addition to that, when scanning a patient’s mouth, you have the option to do this in colour be-
cause the new standard in scanning is colour, and the standard in printing models from the scans will be colour as well, with the ability to print hundreds different colour shades and properties. With our printer, you can also create models with different levels of smoothness, so that, for example, a model of the gingiva is as soft and of the same colour as it is naturally.

**For which stage of treatment does the dentist need such a colour model?**

With our device, there are 90 different selection possibilities and 11 options for a printed model, so imagine how many you could print. If, for example, you touch your jaw model at the teeth, it is very hard; if you touch it at the gingiva, it is very soft. Using a mixture of soft and other materials enables us to print the real softness of the gingiva.

Now let us talk about the practical usage. You are doing an implant model and you need to determine the emergence profile of the crown that sits on an implant screw. This requires a gingival mask. Today, this is done manually. Everything is digital, but the gingival mask is still manual. With our technology, you can print the gingiva, select the colour and Shore A value, and test how the crown emerges from the rubber and thus the gingiva. We lend realism with materials, properties, textures. This is the only machine in the market that can do this.

**Do you think that 3-D printing is an advantage for dentist–patient communication?**

Absolutely. Imagine that when the dentist scans the patient’s oral cavity he obtains a full model of what the patient’s mouth looks like, every broken tooth and every problem, allowing diagnosis and identification of the treatment required. With this, the dentist can explain how he or she is going to treat the teeth. You see this tooth is broken, that one has moved. The model offers a full understanding of what the patient’s mouth looks like and it does not look like a stone model; it looks like the patient’s own mouth, in realistic colour. So, it is like the patient looking at himself or herself. With this, the dentist involves the patient in understanding what the dental process will be.

**How long does it take from capturing the oral scan to receiving the 3-D model?**

We print at a speed of about 1 cm in height per hour. In printing, the size is less relevant than the height. You can print 1 cm of enamel in 1 hour or even 2 cm in the same time. Relatively, this is considered to be very fast.
3-D printing takes the efficiencies of digital design to the production stage. By combining oral scanning, CAD/CAM design and 3-D printing, dental laboratories can accurately and rapidly produce crowns, bridges, stone models and a range of orthodontic appliances. With a 3-D printer doing the hard work, dental laboratories eliminate the bottleneck of manual modelling and help the business grow. For those eager for the day when everything from scheduling to finished restorations can be achieved digitally and automatically, the future is here.

And it could probably enhance quality for people who cannot afford or do not have access to this kind of treatment.

Correct! Those are my thoughts exactly. Let us take, for example, the production of a digital denture. A printed full denture would be so cheap. The digital file is saved, so that instead of €500, it would cost €50. Should you lose your denture, you could just call the dentist, go to his or her practice and your new denture would be ready. It would be similar to glasses: today they are so cheap that you can buy glasses for €5 and change them every day. With dentistry, it will be like this one day. Okay, I broke my denture; I want a new one with even brighter teeth. Have it printed in the dental office and come back in an hour and put it in.

Do you think there might even be a kind of tooth fashion? Maybe wearing a different set of teeth for an evening out?

That is a funny idea. For going to a club, you could have a brilliant set of teeth; for Halloween, you could wear vampire teeth— you could select the type of teeth just as you want. That definitely could be possible.

The wear or the abrasion of prostheses is considered to be a difficult matter. At the moment, implant prostheses are made of very strong and hard material. However, Prof. Daniel Edelhoff, for example, promotes the notion that the crown should wear within a period of four or five years and then be replaced, because he considers it to be more natural and more protective regarding the natural dentition. Do you see an advantage in this respect with printed models?

You can definitely control the softness. You can also control that only the top occlusal area will be soft, and you can control how long it will last, two years or ten. This is, of course, in theory in the future. Also, the price is going to be so much affordable, as we said earlier. You could have different types of dentures at home; for example, if you want to eat peanuts tonight, just put in the appropriate unit; if you want to drink soup, put in the soft one. What I like about the Objet260 Dental Selection 3-D printer is that it creates new possibilities. People come up with ideas that I had never thought of. They approach us with suggestions for printing in new directions that our developers had not even thought of. This is not just a machine; it is a dream machine, a tool. From this, you can go in any direction you want to.

So, it brings engineering directly to the people who really need to work with it?

Correct! It brings engineering and innovation, new ideas and maybe some intellectual properties of what this should look like to dentists and laboratories, definitely.

Thank you very much for the conversation.