Digital dentistry is finally becoming a reality

An interview with Hans Geiselhöringer, Head of Global Marketing & Products, Nobel Biocare

Fig. 1_Hans Geiselhöringer at a NobelProcera symposium in Singapore.

_**NobelProcera,** which was first introduced to the public in March 2009 at the International Dental Show, is the most comprehensive prosthetic solution in the history of Nobel Biocare. According to the company, it can design and fabricate prosthetics for every clinical indication and treatment option, from single tooth to full mouth. cosmetic **dentistry** spoke with Hans Geiselhöringer, Head of Global Marketing & Products, Nobel Biocare, about the system and how it will affect the dental lab sector in the years to come.

_cosmetic **dentistry**: *The new NobelProcera scanner has been available since June 2009. How is it intended to influence the workflow between dentists, technicians and patients?*

Hans Geiselhöringer: The new NobelProcera system has to be considered as a single unit. By combining high-precision scanning technology, intuitive design software and industrial manufacturing processes, excellent product quality is guaranteed for almost every clinical indication whether it be on natural teeth or dental implants.

Our years of experience with NobelProcera are helping users not only to begin using digital dentistry but also to achieve immediate success in mastering the new technology. Of course, CAD/CAM-supported work processes contribute to the improvement of efficiency and precision, but the quick exchange of data and information among all partners involved in the treatment process is an important criterion for success. In this way, NobelProcera is breaking ground in dentistry.

_*These are challenging economic times. Why should dentists and dental laboratories change to NobelProcera?*

Dentistry will see significant changes through these new technologies in the years to come. We have indeed reached the moment at which 'digital dentistry' is finally becoming a reality and I am convinced that this is the time to change from conventional to CAD/CAM technologies. NobelProcera was designed to grow with the rising demands of the user through regular updates of the system and the software.

With the new generation of CAD software, the construction of frameworks is no longer necessary, which is another important element. Automated processes no longer provide only a recommendation for the later framework production after scanning the master model or the impression. Moreover, ideal dimensioning can be achieved through only an additional scan of the setup with the help of lateral scans. Working processes that once took hours to complete can now be achieved in a few minutes.

I know that it is difficult to introduce new systems into the daily work routine of a laboratory and to keep technicians up-to-date with new developments, but from my point of view, it is better and more efficient to have one system for all indications. In addition, a system like NobelProcera gives users the opportunity to outsource production, which saves time and the need for continued special training of technicians. NobelProcera also helps to reduce costs for each step in production.

Our systems, products and concepts are certainly validated by scientific research, as we want to be a reliable partner for our clients.

_*NobelProcera utilises conoscopic holography technology. What are the advantages of this technique over comparable systems?*

There is no truly comparable system available on the market yet; NobelProcera is the only scanner that exclusively utilises conoscopic holography technology. Most other systems are based on triangulation, which does not offer the same amount of applications offered by NobelProcera. These disadvantages have already been discussed in several publications and, therefore, I won't discuss them here.

The conoscopic holography technology of NobelProcera is based on a particular type of polarised light interference process that has been proven in several long-term trials and in other fields of industry. The main advantage over conventional CAD/CAM systems is that the conoscopic system is based on collinear measurement, which means that the light source and the detector are not arranged at the same angle. The collinearity offers not only higher accuracy of measurement and sensitivity robustness against optical defects, but also the ability to scan a wide range of geometric figures and shapes, including cavities. Besides high accuracy, productivity in dental laboratories can be further increased by batch scanning.

However, it is the precision of NobelProcera that gives the ability to scan several implants or whole implants systems in a patient in order to realise supra-constructions like the NobelProcera Implant Bridge or the new NobelProcera Overdenture solutions. I think the sheer amount of applications cannot be achieved by any other system on the market right now, with the exception of high-precision industrial scanners.

_*Although a wide range of materials is available for almost all indications, the focus is often only on zirconium oxide. What other materials are available, and what are the main differences between them?*

You are talking about something that has been on my mind for quite some time and it is something I see everyday in my own laboratories here in Munich. Zirconium oxide is an excellent material for many clinical indications but not for all. Long-term stability is not the only decisive factor; the

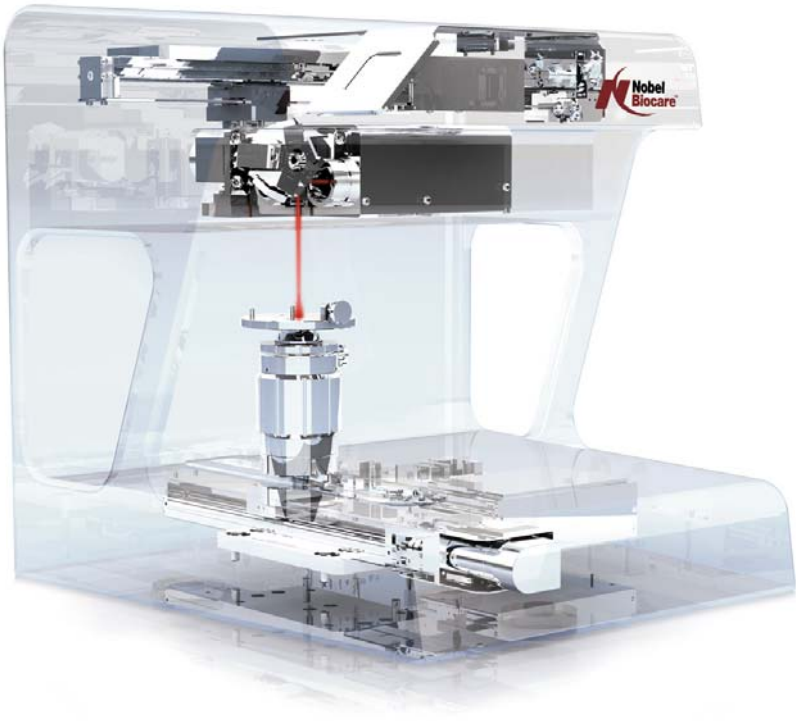


Fig. 2_The NobelProcera Scanner.

requirements and preferred treatment methods of the practitioner involved, and the financial costs to the patient have to be considered as well.

Besides zirconium oxide in four different colours for restorations on natural teeth, implant abutments and screw-retained prosthetic solutions, aluminium oxide is available as the material of choice in aesthetically demanding areas, for example in the anterior dentition. Titanium can be used in all cases in which zirconium oxide is not clinically acceptable.

We are also going to extend the material offering in the upcoming weeks with cobalt-chrome alloys and acrylics. I expect our laboratory clients will appreciate this offering, as they can pass this on to their clinical partners for support of all clinical indications.

_How do these developments benefit the long-term success rates of conventional and implant-supported restorations?

For Nobel Biocare, long-term success is primarily connected to the safety and quality standards we offer our patients and customers. Owing to our many years of experience in the CAD/CAM field and our high requirements of material and product quality, we are able to offer a five-year warranty on all our products, based on the harmonised working processes and the support we give the user regarding optimal construction design. For example, the software takes material-related specifications during the virtual framework design into account and warns users if requirements for dimensional stability are not met.

_Critics say that the automated fabrication of dental restorations may be the death of dental technology as we know it. What is your response?

Definitely not. In a tough market environment like the one we are operating in now, large-capacity laboratories, as well as small- and medium-sized companies gain significant advantages from using CAD/CAM. Improved efficiency and rationalisation do not automatically result in a reduced workforce. In fact, there are new opportunities for specialisation. Human resources, for example, can be used more economically, as uneconomical and time-consuming production steps, such as cast fabrication and moulding, are eliminated.

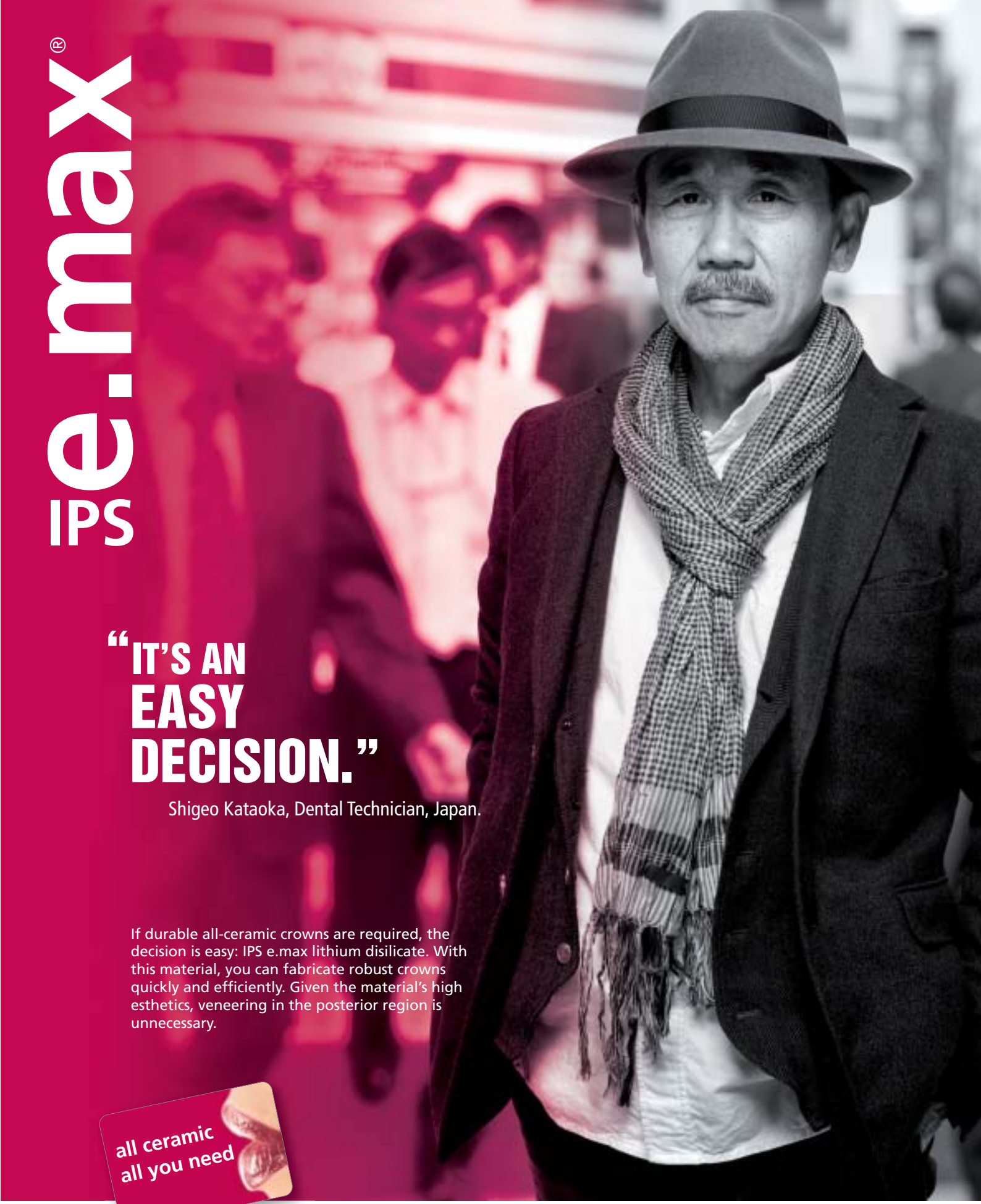
The answer to whether it would be profitable to run an own milling system in the laboratory is also no. Only large-capacity milling centres can do this. Ongoing observation of all production processes, constant surrounding conditions and freedom of choice of materials and their complementary milling systems are only a few reasons that speak for a centralised fabrication of frameworks. In addition, time-consuming maintenance, updating and the need to change milling heads are eliminated, which can only be economical under full capacity.

However, we do not only talk about shortening and simplifying the production processes but also about minimising risks that could result from CAD/CAM-produced restorations. Remaking incorrectly fitting restorations no longer strains the budget of laboratories because if these systems are utilised correctly, free remakes are usually included in the warranty.

_What consequences will arise from these developments for dental technicians?

In the near future, we will see further specialisations and the rise of new professional categories, for example dental designers and dental engineers. These new professionals will play a pivotal role in dentist–patient communication. By eliminating inefficient and error-prone working processes, more resources will be available for such important aspects as treatment planning and communication with practitioners, as well as the functional and aesthetic finish of the restoration.

Needless to say, this new CAD/CAM technology won't be able to replace the individual experience and expertise of dental staff. However, it is a useful addition to ensuring our patients the best quality and safety._



www.ivoclarvivadent.com

Ivoclar Vivadent AG
Bendererstr. 2 | FL-9494 Schaan | Liechtenstein | Tel.: +423 / 235 35 35 | Fax: +423 / 235 33 60

Ivoclar Vivadent Marketing Ltd. (Liaison Office) India
503/504 Raheja Plaza | 15 B Shah Industrial Estate | Veera Desai Road, Andheri (West) | Mumbai 400 053 | India
Tel.: +91 (22) 2673 0302 | Fax: +91 (22) 2673 0301 | E-mail: info@ivoclarvivadent.firm.in

Ivoclar Vivadent Marketing Ltd. Singapore
171 Chin Swee Road | #02-01 San Centre | Singapore 169877 | Tel.: +65 6535 6775 | Fax: +65 6535 4991

ivoclar vivadent®
passion vision innovation