issn 2193-4673 • Vol. 5 • Issue 1/2024

1/24

digital

international magazine of digital dentistry

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Dr Scott D. Ganz

Editor-in-Chief

Artificial intelligence— do we need to be smarter?

Artificial intelligence (AI) has become the new buzzword that for many represents the future of commerce, inventory control, product design, weather pattern prediction, customer service, data analysis and automation of repetitive tasks. AI can allow a human to play chess against a computer, which can analyse millions of data points in seconds to find all possible moves and related outcomes, or it can manage all the permutations necessary for self-driving cars to navigate our local streets and major highways. AI can also track your personal data to aid in making personalised decisions on future purchases based on past online practices. In the recent Adobe Photoshop release, AI provides users with an interface to create images just by entering text phrases. Apps like ChatGPT, originally developed to mimic human conversation, have helped students write research and term papers with minimal effort and can compose music, write poetry, debug computer programs, and much more.

How does this happen? Machine learning is a field of AI that focuses on enabling computers to learn from and make decisions based on data. Deep learning, a subset of machine learning, attempts to mimic the way the human brain works in order to perform complex tasks with increasing accuracy. Natural language processing uses machine learning techniques to enable computers to understand, interpret and generate human language. The computer "learns" from experience by constantly adjusting to the data it processes. Therefore, utilising advanced technologies, computers and associated devices can be trained to complete certain tasks by recognising patterns in the data they process at lightning speed, saving time and potentially minimising human error. Of course, there are disadvantages, such as the high cost of development and implementation, potential loss of jobs for humans who perform these tasks, and serious calculation errors that could cause loss of property and lives, such as when a self-driving car crashes.

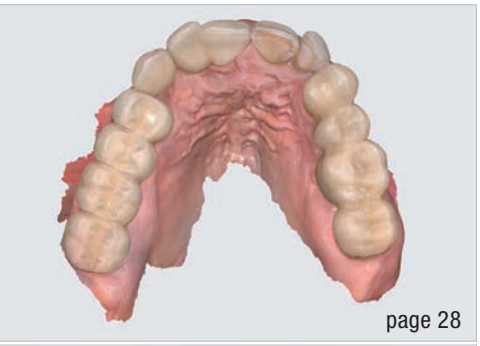
When AI is properly utilised in the fields of medicine and dentistry, it can offer a number of uses and is especially beneficial in improving communication, often employing voice recognition technology, for example in dictation and the transcription of notes, as well as in remote patient treatment. Among its many other uses are the development of new drugs and diagnosis of patients.

Two most recent examples in the dental field include the tracing of the inferior alveolar nerve in the mandible and the labour-intensive task of segmenting CBCT scan data to help recognise anatomical entities based on density values. Both would be part of the diagnostic phase related to identifying pathology, recognising vital structures and identifying variations in normal anatomy. The automation of these tasks saves time for clinicians and dental auxiliaries, improving efficiencies in the diagnosis and treatment planning phase of patient care. This can also affect the cost of healthcare for the future. However, this raises the essential question of who checks to see if the AI program's conclusions are correct?

Therefore, when it comes to the health and welfare of a patient, it is my opinion that we must be smarter than the computer. We must have the ability to assess the outcomes of AI processes in order to evaluate and possibly question the results. Was the inferior alveolar nerve properly traced so that an accurate assessment can be determined when dental implants are being considered for the posterior mandible? We accept that AI will continue to be developed towards improved diagnostic capabilities. Humans need the knowledge, experience and skill set to make the final determination for patient care. We have lots of great information in this first issue of digital for 2024. Enjoy!

Respectfully,

Dr Scott D. Ganz
Editor-in-Chief



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Celebrating **20 years** of **Dental Tribune International**

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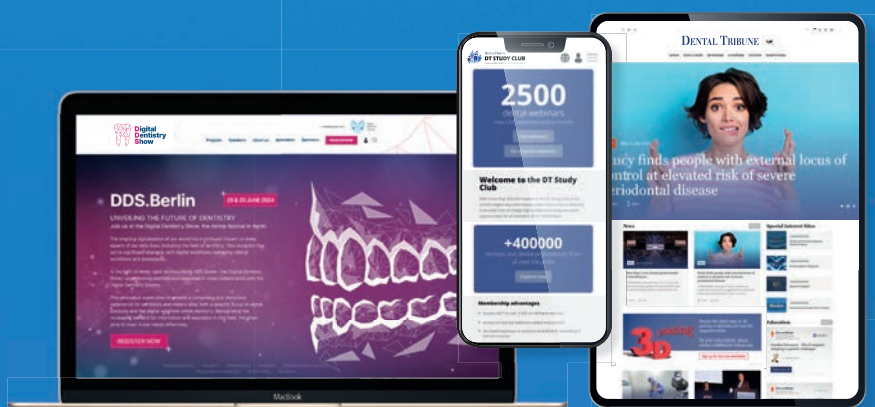
For **20 years**, Dental Tribune International has been at the forefront of dental media, education, and events, shaping the global landscape of dental knowledge dissemination. With a presence in over **90 countries**, Dental Tribune International stands as the world's largest dental network, connecting professionals and industry representatives across the globe. Our commitment to providing essential information to the dental community is unwavering. Since our inception in Leipzig, Germany, in 2003, Dental Tribune International has flourished into a powerhouse. Our integrated approach merges print, digital, and educational media, offering a myriad of marketing channels to engage with the vast dental community worldwide. As we celebrate this milestone, we proudly merge our anniversary with our esteemed German forerunner company, OEMUS MEDIA. With roots dating back to 1994, OEMUS MEDIA has evolved into a pivotal player and trusted partner in the dental landscape, setting trends and standards in the German-speaking markets. Together, Dental Tribune International and OEMUS MEDIA bring forth over **50 years** of collective industry expertise, reflecting our commitment to innovation, quality, and service excellence.



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Dentistry digests a volatile 2023

By Jeremy Booth, Dental Tribune International

Global dental markets proved their resilience during the SARS-CoV-2 pandemic; however, the real test may have been yet to come. In the closing months of 2023, the lingering shadow of the pandemic finally put the lights out at SmileDirectClub (SDC), and ongoing geopolitical conflicts in Europe and the Middle East further darkened consumer confidence in key dental markets. Fourth-quarter results from the giants of dentistry reflected caution by private dental clinics and dental support organisations and financial restraint by patients, and the period was not without its surprises.

The results of global distributor Henry Schein typically offer a pulse check on dentistry. In the fourth quarter, they reminded us that dental markets remain at the mercy of external forces. A cybersecurity incident that was announced in October hampered Henry Schein's fourth-quarter result to the tune of US$8.0 million (net of tax; €7.3 million) for professional fees relating to the incident and caused an estimated revenue reduction of US$350 million to US$400 million.* The company's dental sales for the fourth quarter, totalling US$1.8 billion, were down by 10.9% year on year. According to the *HIPAA Journal*, there were 725 significant cyberattacks on healthcare companies in 2023, up from 277 ten years earlier.

The period was also marked by the dull thud of SDC shuttering its global direct-to-consumer (DTC) clear aligner business. The self-proclaimed democratiser of orthodontic care ended operations in December. Founded in 2014, SDC had been on a strong upward trajectory until the onset of the pandemic and had become one of the largest users of 3D-printing technology in the US. Its closure ended a year of softening demand for adult orthodontic therapy and left thousands of patients in the lurch. The effects of the closure on the competitive landscape for aligner therapy remain to be seen.

Align Technology beats its own expectations

Aligner shipments from Align Technology in the fourth quarter totalled 592,635 units—a year-on-year slip

of 0.6% and a sequential decrease of 1.6%. The company had warned analysts in October that it expected sluggish case starts to linger into the fourth quarter, owing to what CEO Joseph Hogan described as "deteriorating trends, including decreased patient visits and increased patient cancellations, along with fewer orthodontic case starts overall, especially among adult patients". Hogan said in a press release that results for the period were better than expected, "primarily reflecting a sequential increase in clear aligner volume for adults and non-comprehensive cases, growth in Canada and the EMEA (Europe, Middle East and Africa) region, as well as increased revenues from systems and services". Hogan clarified to analysts that fourth-quarter aligner volumes were down year on year in the Americas and EMEA region and up in the Asia Pacific region. Net revenues for the period totalled US$957 million, a year-on-year increase of 6.1%—made up of aligner sales of US$782 million, up by 6.9%, and imaging systems and CAD/CAM services revenue of US$175 million, up by 2.9%.

For the full year, sales of US$3.9 billion represented a 3.4% year-on-year gain, helped by a 4.1% increase in aligner revenues and modest increases in aligner shipments (0.4%) and in revenues from sales of imaging systems and CAD/CAM services (0.1%).

Hogan told analysts that Align began offering discounts in the fourth quarter to patients in the US and a selection of other markets who had been affected by the recent bankruptcy of a DTC aligner company. Without naming SDC, Hogan said the bankruptcy event had caused "many consumers to reach out to Invisalign providers to address their unmet needs, including helping those DTC patients with incomplete treatments".

Dentsply Sirona reports growth in dental implants and orthodontics

The fourth quarter ended a transitional year for Dentsply Sirona and marked the first anniversary of its new leadership team. Fourth-quarter sales totalled US$1 billion—up by 2.9% year on year, or by 1.9% on an organic basis, despite tepid US dental market conditions. US sales were down by 0.4% (a 1.2% organic drop), and those in Europe and the rest of the world increased by 5.3% and 4.3%, respectively.

Looking at the company's business segments, orthodontic and dental implant sales increased by 10.3%, bolstered by SureSmile aligner sales, which grew by 13.0%. Chief Financial Officer Glenn Coleman told analysts that double-digit growth in the company's dental implant sales had been a bright spot in the period, driven by 35% growth in China and higher demand in Europe. "Globally, premium and value implants saw similar growth rates. Our US implants business was down slightly in the quarter, but showed less of a decline than previous quarters, and we anticipate a return to growth in 2024," Coleman said. Sales in the company's essential dental solutions business, which is made up of endodontic, restorative and preventive products, increased by 4.5%. CEO Simon Campion said that a 7% drop in sales of connected technology solutions had been "more than expected, mainly due to equipment and instruments with softness in imaging, which we anticipate will continue in 2024".

> [...] results from the giants of dentistry reflected caution by private dental clinics and dental support organisations [...].

For the full year, Dentsply Sirona posted net sales of just under US$4 billion (a 1.1% increase), and the company ended the year with an operating loss of US$85 million—a substantial improvement on its operating loss of US$937 million from 2022.

Campion told analysts that Dentsply Sirona had executed critical transformational initiatives during the year, including cost-saving initiatives and an expansion of training and education: "In 2023, we were proud to offer over 9,200 training and education courses globally through live, online and hybrid formats, which reflects about a 30% increase compared to the prior year," Campion said.

Emerging markets perform strongly for Straumann Group

Fourth-quarter sales at Straumann Group totalled CHF 624 million (€669 million), a year-on-year increase of 5.5%, or 13.2% on an organic reporting basis. Sales in North America decreased by 2.0% during the period, and those in the EMEA region increased by 0.4%. The Asia Pacific and Latin America regions were stronger, showing sales increases of 26.7% and 16.1%, respectively.

Latin America performed strongest for Straumann in 2023, having 16.3% sales growth for the full year; however, full-year sales performance was more subdued in the EMEA and North America regions, which together account for some 70% of the company's total business. EMEA sales for 2023 reached CHF1.05 billion, a year-on-year increase of 3.7%, and North American sales of

> "Latin America performed strongest for Straumann in 2023, having 16.3% sales growth for the full year; however, full-year sales performance was more subdued in the EMEA and North America regions […]."

CHF689.00 million represented an increase of less than one percentage point. Straumann banked CHF2.4 billion in 2023, an increase of 3.9%, or 9.8% on an organic reporting basis, and Chief Financial Officer Yang Xu pointed out that the negative impact of foreign exchange rates on Straumann's bottom line in 2023 was three times greater than it had been in the prior year.

Xu told analysts that Straumann gained market share in all regions where it operated in 2023—this despite the North American dental market having experienced consumer weakness, particularly in implant-based restorations. Patient flows were steadier in Europe, and volume-based procurement of dental implants in China had a positive impact on the company's sales in Asia. During the company's earnings conference, CEO Guillaume Daniellot described gains made in China in 2023 as having been of critical importance to its total sales of premium and challenger implant brands in Asia.

Envista Holdings says the North American market is down by double digits

Fourth-quarter revenue at Envista Holdings Corp. generated US$646 million and core sales declined by 2% year on year. The company's specialty products and technologies segment performed strongly; however, Principal Financial Officer Stephen Keller explained that this gain was more than offset by a decline in sales of equipment and consumables. "Geographically, our developed markets declined by 4.8% [and] strong growth in Western Europe [was] offset by a double-digit decline in North America," Keller told analysts. At US$2.57 billion, earnings for the full year at Envista declined by less than 1% compared with 2022.

Orthodontics continued to be a bright spot in Envista's portfolio, and Keller explained that the category had expanded by nearly 15% during the quarter, boosted by strong sales of brackets and archwires in emerging markets and continual growth in sales of the Spark aligner system. During the full year, Spark grew by over 50%. Another highlight was the company's intra-oral scanner business, which grew by 30% during the quarter, driven by strong demand for DEXIS intra-oral scanners. Envista's dental implant business saw a modest decline in the period, and Keller commented that strong sales in China were offset by underperformance in North America.

The company posted an operating loss of US$203 million for the quarter, owing to a non-cash charge of over US$258 million related to impairment of goodwill and intangible assets. Keller explained to analysts: "This impairment was primarily the result of an increase in the discount rate driven by sustained higher interest rates and the impact of a more volatile macro-environment."

Envista announced in late February that it had begun a process to find a successor for CEO Amir Aghdaei, who over a tenure of ten years led Danaher Corp.'s dental platform and its spin-off to Envista.

Job cuts at Ivoclar foreshadow challenging first quarter

The dental industry has begun 2024 with caution. Dentsply Sirona conducted a survey of customers in 12 geographies in January and found that US dentists were feeling slightly more upbeat about the future of the industry and their practices. Campion warned analysts, however, that the negative outlook shown by Dentsply Sirona customers in Germany and Australia in the fourth quarter had persisted into the new year and that patient demand in China was continuing at reduced levels.

The difficulties presently facing dental companies were hammered home by an announcement this month that the Ivoclar Group will reduce its global headcount by around 6% in 2024. The Liechtenstein company with around 3,700 staff said that adverse currency impacts on its 2023 revenues of CHF856 million (€918 million) had led to an overall year-on-year fall, despite sales increases in all regions where it operated. Some 240 jobs are set to be cut at Ivoclar, and a redundancy scheme has already been established.

Ivoclar CEO Markus Heinz commented in a press release that the cost-cutting measures are essential for the future success of the company. "We have an obligation to act in the face of this extremely difficult currency situation, the unfavourable geopolitical and economic developments and the associated costs that have risen disproportionately," Heinz said.

* *All conversions were calculated on the OANDA platform for the last day of trading in 2023 or in the fourth quarter of 2023.*

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