Like never before, the world of dentistry is currently experiencing the effects of the digital revolution. Computers and digital devices are making previously labour-intensive manual tasks easier, faster, cheaper and more predictable.

Digital dentistry refers to any dental technology or device that incorporates digital or computer-controlled components. Technologies based on these components are rapidly advancing in dentistry. New materials including zirconia or lithium disilicate and new devices such as intra/extraoral face scanners and cone beam computed tomography (CBCT) have increasingly found their way into the field.

Predictions are that scanners will be an integral part of the dental office and lab workflows in the near future. In particular, intraoral scanners (IOS) will allow to standardise impression taking procedures, thus increase comfort for the patient as well as reduce working time and consequently costs. The overall majority of dental labs already use lab scanners routinely and it can be expected that many practitioners will follow this trend. One benefit of this development will be better communication between dental office and lab, in order to optimise the digital workflow.

Computer aided design/computer aided manufacturing (CAD/CAM) and innovative fabrication procedures such as 3-D printing and layered manufacturing are also changing the way we treat our patients. They are an essential part of digital dentistry and their improvement is essential for reaching a wide penetration of new technologies in daily practice.

New materials with high aesthetic value were recently introduced into the market and by now are used by many practitioners to fabricate ‘white’ restorations. Owing to their chemical and mechanical characteristics, they can be used in a lot of indications. However, it must be noted that they have contraindications and limits. A deep knowledge on these aspects is highly desirable for the practitioners in order to get the best results from each available aesthetic material.

In the coming months and years there will be a huge inflow of new and improved materials and devices. However, digital technologies have already begun to dramatically change the world of dentistry, changing patients’ expectations towards dental treatments.

Accordingly, dental professionals need to change the way they think, communicate and work, to adapt to a new challenging scenario that is increasingly driven by the abstract world of digital bits. For them to wait in adopting or integrating these technologies would leave them decades behind.

Marco Ferrari is a professor at the University of Siena’s Department of Prosthodontics and Dental Materials. This afternoon, he will be presenting a paper on the impact of new ceramics and digital workflows on dental practice as part of the 2015 AWDC congress programme.