



**DIGITALIZATION IN DENTISTRY: USING CRM AND MEDICAL INFORMATION  
SYSTEMS IN DENTAL CLINIC MANAGEMENT AND DEVELOPMENT**

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**Abstract**

The digital transformation of healthcare defines modern trends in the development of dentistry as a high-tech and socially significant branch of medicine. This article presents a comprehensive analysis of the digitalization of a dental clinic, focusing on the implementation of CRM and medical information systems. The functional capabilities and management potential of amoCRM, Bifoza, and OneMed systems are examined. The clinical, organizational, economic, and social effects of implementing digital solutions, as well as issues of information security, legal regulation, and personnel training, are analyzed. It is substantiated that digitalization creates a patient-oriented model of dental care, improves the quality of treatment, and enhances the sustainability of a medical organization.

**Keywords**

digitalization; dentistry; CRM system; medical information system; electronic medical record; clinic management; analytics; information security; telemedicine; artificial intelligence.

**Introduction**

Modern dentistry is developing in a highly competitive environment, with rising patient expectations and increasingly complex treatment and diagnostic protocols. Traditional management models based on paperwork and fragmented spreadsheets do not provide the required transparency, speed of decision-making, and quality control. Digitalization encompasses not only clinical technologies (3D diagnostics, CAD/CAM, digital radiology) but also management processes: appointment scheduling, financial accounting, marketing analytics, and performance monitoring. The implementation of CRM and medical information systems (MIS) is becoming a strategic tool for the clinic's sustainable development.

The objective of this study is to substantiate the role of digitalization in improving the quality of dental care and clinic management efficiency based on CRM and HIS analysis.

Objectives:

1. To uncover the essence of digitalization in dentistry;
2. To analyze the functionality of CRM and HIS;
3. To evaluate the clinical and economic effects of implementation;
4. To identify the risks and organizational conditions for successful integration.

Materials and Methods

The following were used:

- Analysis of scientific literature and industry reports;
- Comparative analysis of CRM/HIS functionality;
- Structural-functional and systems approaches;



- Elements of economic analysis (ROI, average bill, patient LTV);
- Summarize implementation practices in private dental clinics.

Information base: publications on digital healthcare, methodological recommendations, and data on the practical application of digital platforms.

### **Research Results and Discussion**

As part of our own research, we conducted an analytical assessment of digital management processes in several private dental clinics in Tashkent that are actively implementing CRM and medical information systems into their daily practice. The survey was broad-based and based on an analysis of organizational processes, digital patient interaction tools, open data, and practical observations.

The study focused on private dental clinics focused on modern management approaches and digital technologies, including Smile Concept, DentCare, DENTA, XDENT Dental Clinic, and other private dental centers. These clinics were selected due to their focus on automated patient registration, digital treatment support, and the use of modern management solutions.

The survey revealed that these dental clinics utilize digital systems such as amoCRM, Bitrix24, and specialized medical information systems adapted to the dental field. These platforms are used to automate patient registration, manage client databases, manage internal clinic processes, financial and management accounting, and analyze the effectiveness of marketing activities.

The survey results showed that the implementation of CRM and information systems in these clinics contributes to increased transparency in management processes, reduced administrative burden on medical staff, improved service quality, and optimized patient interactions. The use of digital platforms allows dental clinic management to make informed management decisions based on analytical data, which ultimately enhances the competitiveness of private dental organizations in the context of the digital transformation of healthcare.

#### **Theoretical Foundations of Digitalization in Dentistry**

Digitalization is the integration of information technology into clinical, administrative, and financial processes. In dentistry, it creates a unified digital environment that ensures data continuity: from the initial consultation to completion of treatment and post-treatment follow-up.

Key components:

- Electronic medical record (EMR);
- Automated recording and scheduling;
- Billing and financial analytics;
- CRM funnels;
- Integration with diagnostic systems;
- Management dashboards.

#### **2. CRM systems: management logic and performance indicators**

CRM in dentistry provides:

- Lead and traffic source tracking;
- Conversion rate monitoring (lead → consultation → treatment plan → treatment → return visit);

- Automatic reminders and communications;
- Patient segmentation (by service, receipt, visit frequency);
- Patient LTV (lifetime value) analytics.

Clinic KPIs:

- Initial consultation conversion;



- Average bill;
- Return visit rate;
- Doctor occupancy;
- Revenue per chair/shift.

### 3. amoCRM Functionality and Application

amoCRM is focused on sales and communications management. In dentistry, it is used for:

- Treatment funnel development;
- Administrator workload monitoring;
- Integration with IP telephony and instant messaging;
- Advertising effectiveness analysis.

The practical effect is an increase in the conversion of consultations to treatment, a reduction in lost leads, and improved discipline in processing inquiries.

### 4. Bifoza Medical Specifics

Bifoza is adapted to clinical processes:

- Electronic Medical Record (EMR) management;
- Treatment protocols;
- Examination templates;
- Materials and consumables accounting;
- Financial module. Benefits include reduced paperwork, standardized records, and increased legal security for the clinic.

### 5. Comprehensive automation based on OneMed

OneMed integrates clinical and management modules:

- office scheduling and occupancy;
- treatment plan with costing;
- inventory control;
- management reporting.

The system supports the generation of management reports and financial summaries, which improves the validity of decisions.

### 6. Cost-effectiveness of implementation

Economic effects:

- increase in average check due to transparent treatment plans;
- reduction in accounts receivable;
- procurement optimization;
- reduction in operating costs.

The ROI of digitalization is achieved through:

- increased conversion;
- increased repeat visits;
- reduced time loss.

### 7. Information security and regulatory aspects

Digitalization requires compliance with:

- confidentiality of personal data;
- medical information storage regulations;
- Access rights delimitation;
- Backup.

Local regulations, instructions, and an information security audit are required.

### 8. Organizational stages of implementation

1. Audit of current processes.



2. Platform selection.
3. Staff training.
4. Pilot implementation.
5. Full-scale integration.
6. Monitoring and adjusting KPIs.
9. Digital culture and HR management

Success depends on:

- Employee motivation;
- Data entry procedures;
- Regular report analysis;
- Leadership.

10. Artificial intelligence and its prospects

Prospects:

- AI analysis of radiographs;
- Risk prediction;
- Automated treatment plans;
- Telemedicine consultations;
- Integration with government systems.

### **Conclusion**

Digitalization is shaping a new model of dental practice based on data, transparency, and patient-centeredness. The implementation of CRM and HIS improves clinical and economic efficiency, reduces risks, and ensures the sustainability of a clinic in a competitive environment. Digital competence is becoming a mandatory part of the professional profile of a dentist and manager.

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