Strategy for establishment of personnel KPI at health care organization digital transformation

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Abstract. The article describes urgency of implementation of digital health care in Russia and in the world in general. Advantages and disadvantages of digital transformation and digitalization in modern health care organization. By digital transformation we understand automation of business process and its main purpose will be increase of personnel performance. In this relation term “health care digitalization” will be considered and analyzed in more detail. Implementation of KPI system under conditions of digital transformation of health care organization gives the opportunity to evaluate such hard-to-evaluate indexes as efficiency of doctors’ consultation, surgeon’s operational activity, technique of telephone conversations of clinic administrator or patient retention. That is why we outlined the methods and methodology of worker quality evaluation system with the use of personnel KPI. As of now Russian Health Care System adopts several large-scale informational and analytical projects. Besides, the government develops education and occupational retraining of personnel taking into account health care digitalization.

1. Introduction

Nowadays more and more companies pay attention to implementation of new digital technologies as now business loses its competitive positions without them. It refers to all the activity spheres including medicine. Transfer to digital transformation of processes in health care organization may occur unnoticeably and not as fast as wished it to be, but this process is inevitable. Digital health care is absolutely new concept giving great opportunities for health care industry development. The main advantage of digital technology implementation is increase of performance, control and convenience of work [1].

The main purpose of Russian Health Care System is increase of performance and efficiency of the medical care rendered. Quality of medical care rendering is determined by many factors, one of which is health care organization personnel, its wish to render high-quality medical care, its labor satisfaction. In the modern context invaluable help may be given transferring all the clinical medical processes (for example computer-aided design of technological medical processes based on data of integrated electronic patient charts etc.) to digital format.

2. Materials and methods

Let’s stop at two main terms of our research: digital transformation and KPI (Key Performance Indicator) of organization personnel.
Digital transformation is the use of modern technologies for drastic increase of productivity and value of enterprises [2].

TOPS Consulting has made a research among directors of wide range of companies concerning implementation of digital technologies into their business processes. The research has shown that the companies make their path via digital conversions with different speed and achieved different results. Some of them already transform many parts of their enterprises, but other are still at the beginning. Some enterprises face organizational troubles that prevent their successful conversions.

The best companies are so-called “Digitirati” – combine activity in the sphere of digital technologies and strong management, making transfer from simple IT use to business transformation. Companies being at the stage of “digital maturity” are considerably different. More mature companies from the point of view of digital technologies outperform their counterparts in business. But all the same it can be said that today digital transformation becomes mass phenomenon.

The evidence of this thesis may be, for example, the performed polls. 70% of health care organizations expect noticeable positive changes in relation to transfer to digital business [3]. Such data is brought in the research made by SAP jointly with Oxford Economics. Participants of the poll think that digital transformation will help to achieve considerable advantages, increase service quality, provide patients with the best care and treatment.

During research about 400 top-managers of international companies were interviewed; they determined key trends which, in their opinion, will have a meaningful effect on health care development. Experts believe that maximal volume on investments will be related with the big data and analytics sphere, 76% of companies will invest money in it, 65% will focus on cloud technologies.

Digital technology is one of the priorities of the world health care development, and this market increases by quarter every year. According to Global Market Insights the volume of global market of digital medicine in 2017 achieved 51.3 billion US dollars. By 2024 its increase is expected to be over twice – up to 116 billion US dollars [4].

According to the research performed by Microsoft company, today the world experiences the so-called “tsunami effect”. Health care system experiences the fast-growing load (for example, expenses for health care activities for the people over 65 years old is 4-5 times higher than the one for the people under 65 years old). Changes in the age structure of the population, increase of chronic diseases create new long-term needs in the health care sphere. It requires different profile and models of health care service rendering (telemedicine; constant, long-term contacts with patients, especially elderly and suffering from chronic diseases; Internet of things etc.). IT-solutions should be integrated with health care services within the whole interaction system: in house, at work, on public, in medical and social security system.

Notwithstanding the fact that the majority of health care companies consider digital transformation important for business development and increasing service quality, only 2% of them are now at the stage of completion of this process, 54% launched test or pilot programs on transfer to the digital work model. Some companies have already applied the systems allowing efficiently using the collected data for the further deep analytics and improvement of patients’ care results.

According to the Ministry of Healthcare today in Russia there are 65% doctors’ workplaces are automated. 26% of health care establishments have achieved high enough level of IT development – implemented electronic patient charts, organized their interaction with laboratory and radiological systems, analytical systems and decision-making systems [5].

Health care organization management system is undoubtedly difficult as besides resolution of daily legal and financial tasks as well as implementation of good marketing and quality assurance of the health care services rendered it is necessary to properly organize health care organization personnel management process. Experience has proven that the properly built management process results in increasing health care services sales and, consequently, leads to profit improvement as well as clinic goodwill and the main thing – to personnel motivation. That is why health care organization directors increasingly implement system of evaluation of quality of each worker.
Key Performance Indicators are the part of BSC (Balanced Scorecard), offered in the late 80s of the XX century by Robert Caplan and David Norton [6]. According to the scientists, the Balanced Scorecard allows to establish strategies of the fast-growing companies. The Balanced Scorecard adopts four main directions of activity determining strategic prospects of the company: finances, clients and products, business-processes, training and development. Within these directions strategic goals for planning activity of both the whole organization and each separate worker are determined. KPI, being goal achievement indicators, allows to assay company strategy implementation [7, 8]. Key performance indicators KPI are the performance indicators of the departments of hospitals, clinics, laboratories that help medical organizations in achieving strategic and tactical (operational) goals [9].

Implementation of KPI system gives the possibility to evaluate such hard-to-evaluate indexes as efficiency of doctors’ consultation, surgeon’s operational activity, technique of telephone conversations of clinic administrator or patient retention. Thus there appears the possibility to find out which health care organization departments work more effectively or even which certain health care services bring more profit. Consequently this generates the system of factors influencing increase or reduction of total profit or clinic goodwill. KPI idea as personnel motivation system is to unify the goals of one worker with the general goals of the company.

According to statistical data [10], well approved oneself in the world practice, KPI system implementation increases profit of companies from 10% to 30% as it orients workers’ activity to achievement of the planned results with the possibility of their over-fulfillment (and this also depends on a certain person and conditions), increases personnel motivation and retention [11].

KPI system is a powerful tool pursuing at least two global tasks for any company. One of them is undoubtedly efficient motivation of labor activity of personnel, as the worker has clear realistic (in case of professional development and adjustment of system by HR Department specialist possessing this tool or by the third-party specialist-advisor) plans and criteria of remuneration, determining the amount of his/her variable remuneration. And equipping with management system tool convenient and adaptive for company specific nature (at least one main determinable performance indicator may be determined in any activity) [12].

Digital way to manage medical organization and business gives you an advantage in the market. Any health care organization that wants to be commercially successful in the digital era faces the need to represent its products at the digital channels: in social networks, mobile services, clouds, via the Internet of things, big data analytics etc. The center of this system is the patient (client) who got used to feedback from organization at the time convenient for him/her via any available channel.

Special mention should go to the main key directions of development of digital medicine in short-term prospect:

- Implementation of electronic patient charts.
- “Connected patient” concept development – monitoring of state and rendering health care services with the help of the integrated smart devices.
- Telemedicine.

Main advantages of health care digitalization:

- Financial – cost saving at the expense of reduction of contracts between patients and doctors and modernization of service rendering organizational system.
- Social – growth of availability of high-quality medical assistance.
- Professional – improvement of service quality at the expense of reductions of number of medical malpractice, development of predictive medicine, increase of efficiency of clinical researches.

Technical aspects of digital revolution in health care:

- Implementation of electronic patient charts and devices for remote monitoring of patients is mainly related to BigData application.
- Remote monitoring of patients, telemedicine depend on net availability and development of “Internet of things” technology.
• In long-term prospect the growth of application of 3D-print technology for creation of skin and organs is expected.

Thus employer organization needs to create the conditions for development workers’ competence necessary for digital business conduct. Also digital skills become one of the qualities to achieve success in profession.

3. Results
As of now Russian Health Care System determines several large-scale informational and analytical projects. Now within the health care system digitalization projects two informational platforms are implemented:

1) Uniform State Health Information System (EGISZ). This system unifies informational systems of all the health care organizations and relevant agencies, allows keeping unified electronic patient charts and registers of persons with certain diseases. Now 86 regions adopt medical informational systems keeping electronic charts of 46 million patients. There is the possibility for electronic appointment of patients to the doctor etc. In 2009 in the Republic of Tatarstan “Electronic health care” project was launched in pilot mode.

2) The Unified Medical Information and Analytical System of Moscow (EMIAS) has been operating since 2012. Number of users of the web-portal exceeds 9 million patients and 10 thousand medical workers. The web-portal gives possibility to make an appointment, receive referral for examination and execute sick slip and patient chart. 97% of prescriptions issued in Moscow are electronic. Moscow is the only megapolis where all the polyclinics are united into one unified system.

The government develops training and professional retraining of personnel taking into account health care digitalization. In 2016 I.M. Sechenov First Moscow State Medical University established the first in the country department for informational and Internet-technologies in medicine. Peter the Great Saint-Petersburg Polytechnic University implements “Health care organization management techniques” master’s educational program within a specialty 38.04.05 Business Computer Science. Training within this program includes all the aspects of enterprise architecture: strategic management, business process system management, operational and project activity, organizational and functional structure, corporate informational systems etc. The equivalent departments and training directions are planned to be established in other higher education institutions as well.

4. Discussion
Nowadays, however, there are problems preventing active implementation of informational technologies into medicine.

Legislation sphere only starts the process of adaptation for new technological realities. On January 1, 2018 in Russia the law on telemedicine took effect, that would allow rendering remote medical assistance – performing conferences, consultations, track patients’ health state remotely, making electronic prescriptions and certificates [13].

Other trouble is related to the technological factor, especially, insufficient level of integration into the unified net and lack of connections to the high-speed Internet networks both for patients and doctors. Connection of all the state health care organizations to the Uniform State Health Information System is planned by 2025.

Despite the above-mentioned troubles it is possible to highlight several advantages of implementation of digital technologies in clinic which will allow evaluating personnel, i.e. determining their KPI, more fairly:

• Personnel performance increases; tasks are completed in time and are not lost, it may be seen who is in charge for these tasks and their deadline. Patient charts are kept electronically, it helps to rapidly and timely find the information about patient and enter the new information;

• The head has all the statistics on each worker at hand – information about holidays, salary, worker performance. It allows to more accurately develop the system of motivation and bonus award and deal with this issue more properly;
• Communication between workers becomes simpler: there is no need to run from office to office to find someone, it is enough just to send a message to the required person and he/she will see it and answer; visual work schedule will show who is on holiday, who is absent today, who replaces the absent worker, who may be forwarded the message or the task to;

• Convenience and efficiency of personnel communication with clients increase. Accounting of all the calls and other addresses to clinic is kept, it is possible to track conversion, demand for which services is higher or less, work with statistics. It is convenient to monitor average bill for each service rendered to patient. All these allow to make high-quality managerial decisions – which directions shall be closed, which ones shall be developed, which ones make the biggest profit, and which ones became counterproductive;

• There is the possibility to use omni-channels: communication with clients may be performed via website, different forms of addressing, messengers. Some services become possible to be rendered remotely – give consultations via Skype or telephone, and results of analyses may be sent via e-mail.

5. Conclusion
Thus, we can conclude that the impact of digital transformation on all aspects of the management of a medical organization is great, and in the future it will only increase.

Implementation of digital method of health care organization management will allow to create a new system of personnel motivation and encouragement, based on application of not only traditional indexes of medical staff performance (number of operations, mortality data etc.), but also new personnel KPI. Personnel may participate and control business process, determine how much time and resources were spent to complete the task, evaluate performance and benefit from work of every worker, his/her contribution into achievement of general purpose of the company etc. In additional for health care organization this will be data concerning illness prediction, preventive care, prediction of patient (client) behavior, results of health care service sales etc.

KPI system correction under conditions of digital transformation of organization gives the opportunity to evaluate such hard-to-evaluate indexes as efficiency of doctors’ consultation, surgeon’s operational activity, technique of telephone conversations of clinic administrator or patient retention. Thus there appears the possibility to find out which health care organization departments work more effectively or even which certain health care services bring more profit. Consequently there generates the system of factors influencing increase or reduction of total profit or clinic goodwill.

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