Digital Platforms as Factor Transforming Management Models in Businesses and Industries

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Abstract. Increasingly, digital platforms are built into the value chain, acting as an intermediary between the manufacturer and the consumer. The paper presents tendencies and features of business model transformation in connection with management of the new digital technologies. The limitations of traditional business models and the capabilities of business models based on digital platforms and self-organization were revealed. In the study, the viability of the new business model for the dental industry was confirmed and the new concept of the branch self-organizing control system based on the information platform, blockchain, cryptocurrency and reward of target consumer is offered, including mechanisms that make the model attractive for both the consumer and the service provider.

1. Introduction

Today world economy is moved forward by few digital platform super companies: Alibaba, Google, Amazon, Apple, Baidu, Facebook, Microsoft, Tencent. They already dominate in the branches of mobile business, entertainment, the Internet commerce, financial services, communications. These branches involved in the process might become public health service, manufacturing industry, agriculture [1]. It is proved that even the largest and most successful companies of modern times have understood the power of digital platforms [2].

One of the main directions of development according to researchers from Accenture Technology Vision 2016 is transition from enterprise economy to economy of demand based on ecosystem consumers. In this connection not only the business models of the separate companies vary cardinally, but the whole branch business model undergoes essential changes. In the world there appeared a new term “platform economy”, as one of directions of digital technologies development. At the core of business of such systems there is the general information resource which often does not belong to the companies-manufacturers, and is not supervised by them. By 2018, according to International Data Corporation, more than 80 % of the companies with the advanced digital strategy will either have created the platforms or will have entered the partnership with those already available [3]. The success of digital platform super companies is fascinating, but the number of unsuccessful projects is also great. Therefore, many
researchers are concerned with the question: how the new business models are implemented and what determines their success (or lack thereof) [4].

In the authors’ opinion, development of platform economy maintenance depends essentially on reliability of the information on products or services provided and possibility of the consumer to get direct access to the best choice in terms of price and quality.

In the given paper, the factors defining transformation possibility of the administrative model in the stomatologic branch are presented and the conceptual scheme of new business model is developed.

2. Existing management model
In a traditional management model, the manufacturer is a setting element in relation to the consumer, defining the product, its delivery and marketing (a Figure 1). A habitual system of interaction proceeds through various channels

![Figure 1. Traditional business model](image)

Marketing will often disorient the consumer, imposing unnecessary or poor-quality services and goods. The competition attracts the potential buyers at any cost. The buyer is compelled to solve a challenging task choosing the price and quality under the conditions of absence of the trustworthy information, or its distortion, or monopoly and unfair competition.

3. Transformation of management model on the basis of digital platforms
The essence of a digital platform is to bring together producers and users in efficient exchanges of value [5]. These IT - technologies allow one to pass over to an utterly new business model in the branch where the buyers are united in a self organizing community ( Fig. 2) as the major link, setting the demands to the manufacturer.

In the given model, the idea of a new management paradigm aimed to change the classical management one, based on hierarchical structures, is realized [6]. Modern IT - technologies allow one to create the network structures in which the main mechanisms are self-organization and self-development [7].

By the stomatology example, the new concept of the abranch self organizing control system based on the information platform, blockchain, cryptocurrency and reward of target consumer is offered.
Figure 2. Platform-digital business model

Research on the features of the transformational business models run in 40 companies and in 20 various branches revealed 6 criteria responsible for success in business transformation [8]. The authors have come to conclusion that the new business model transforming the branch succeeds if it corresponds to three or more criteria.

The suggested transformation business model viable in dentistry (stomatology branch) corresponds to 5 out of 6 criteria:
- personification of products and services;
- assets sharing;
- payment on delivery;
- cooperative ecosystem;
- flexible and adaptive organization.

Thus, the presence of the given factors confirms that the branch on rendering the stomatology services requires reformation. Besides, this branch, like the one of passengers’ transportation by taxi, is mass and global. There are today the same problems of a manufacturer’s priority and a low degree of consumer satisfaction. Above all, the risks of receiving the poor-quality services at high cost added are. And it is in this particular branch that the authors have started their experiment on transforming into the new business model and the IT infrastructure. Project Dentacoin on the basis of a block chain platform is being realized in the Netherlands as one of the countries with optimum favorable conditions for business development.

The platform infrastructure includes the following blocks:
1. The information bank on the services, based on consumers feedback.
2. Contract information on services based on preliminary diagnostics and coordination with a certain clinic.
3. Payment for the service from crypto currency branch fund.
4. Client’s logistics.
5. Client’s insurance.

Let us consider the essential features of the business model, based on the blockchain solution for the global dental industry from the perspective of the consumer and service provider.

A consumer position. The system is aimed at rational solution of the client’s problems through participation in the self-organizing community. A new mechanism for motivating the consumer is proposed, which encourages people to join the self-organizing community and show activity in it. The mechanism is based on:
- Reliable information about services and manufacturers (price, quality);
- Free diagnostics and preparation of an insurance contract (service selection, risk reduction);
- Logistics (time, transport, accommodation);
- Loyalty system (risk compensation, discounts, cheap logistics, participation in the management of the service delivery system).

In addition, the Dentacoin Foundation will allow patients to participate in the management of the industry. The combination of services and guaranteed quality of dental treatment makes the system attractive for use and active participation of clients, as it is aimed at solving customer problems.

A self-organizing community of customers is the best controller of the development of the industry, focused on long-term success. Active and objective participation of patients in the formation of the information platform is encouraged from the industry-specific crypto currency fund.

A service providers’ position. Service providers will have access to the valuable data on market research and qualified feedback from the patient - the most powerful tool for improving the quality of service. As a result, service providers that have adopted a new industry management system receive a number of advantages:
- guaranteed orders;
- saving on advertising;
- improving quality and developing technologies based on feedback from consumers and manufacturers’ experience;
- developing the competence of doctors;
- the possibility of financial participation.

Based on a self-enforcing Smart contract, the Dentacoin platform will provide optimal autonomy, trust, speed and security. Any manipulation of the data is impossible due to the feedback system based on the blockchain system. The project is at the stage of interface, address database and Smart contracts development.

4. Conclusion
It is now possible to draw a conclusion stating that in the near future many industries and businesses will face a reality of applying modern IT-based new management mechanisms that radically change the existing business models. There are no ready recipes on this path so far. But it is pretty clear that the innovative approaches, focused on behavioral mechanisms of managing the people and inducing self-organizing and self-developing processes combined with modern IT technologies based on information platforms, blockchain, are capable of radical changes for the benefit of the consumer and the conscientious manufacturer.

There are no ready-made solutions for the introduction of digital platforms and there are still more questions than answers. Is it necessary to introduce a new business model, how to implement a new business model, what determines the success of a new business model is not yet well understood, however, and deserves further exploration. Accumulation of data on the blockchain solution for the global dental industry Dentacoin will help fill the gap in existing knowledge.

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Dentacoin project based of a digital platform and block chain under the guidance of one of the authors is being implemented at present in the Netherlands. In July 2017 there was development and financing of the dentistry project within ICO; the new crypto currency Dentacoin (DCN), based on Ethereum, started circulation. Unlike other crypto currencies, the project Dentacoin cardinally changes the branch business model first and foremost by involving the consumers in management of the processes of quality of services, preliminary diagnostics, formation and payment of the contract, logistics and insurance of the client.
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