

**Faculty of Information Technology**  
**Discipline: INFT3107**

**Examination card № 1**  
**Basics of Information Systems: Final Examination (Total points = 100)**

**1A) Required Question (40 points): Business Models**

For any organization, of any scope and scale the goal is to implement its business model and generate profit. The main role of Information Systems in organizations is to support the business model, its development and transformation. The PayPal company is a great example of modern IT company with a business model powered by IT technologies. PayPal is presented in 202 countries and serves over 200 million users.

PayPal is a digital wallet that stores users' debit and credit card details and allows you to shop and transfer money online by simply remembering your PayPal user ID and password.

PayPal is not just an ordinary IT company, but it holds one of the leader positions in revolutionary digital money market. Even so, PayPal is not a bank, it still provides features that are no less than any bank. Money transfers, debit cards, credit cards, loans, payment gateways and digital wallets are just the basic PayPal services. So, the company found a profitable innovational market through the use of new technologies in financing sector.

There are several ways in which PayPal makes profit. PayPal provides an all-in-one business solution in partnership with Xero and Woo Commerce. With a business in a box, you get huge benefits with Xero and Woo Commerce services. PayPal, however, earns affiliate commission through this. Also, users can receive money anytime, but at an additional cost. The company charges a commission every time you withdraw money using a debit card. Moreover, PayPal offers a specific loan service. You do not need to pay for a loan if it is \$ 99 or more, and you pay in full within 6 months. However, for all other terms, PayPal will charge an annual percentage rate of 19.99% commencing on the posting date.

The company is also investing in innovations in fintech startups. PayPal conducts researches about issues of implementation of digital payment technologies and solutions based on artificial intelligence, virtual and augmented reality, data and analytics, the Internet of things and robotics.

PayPal has launched a new 'One Touch' technology that securely stores your PayPal login details on your device and allows you to check out the website without even entering your PayPal username and password

Taking into account the small pullbacks, PayPal has shown strong growth. Over the past 5 years, the company's shares have grown more than 5 times and are now about 10% of their historical highs. Thus, the business model based on implementing innovation technologies proves it self to be highly productive.

**6) (30 points): IS and Healthcare Management**

Nowadays, the use of computers, smartphones and Internet surfing is common for humans. Now we can observe the worldwide globalization of information technology. This suggests that computer technology is always developing and becoming easier for humans, but at the same time more and more functional and powerful. Thus, computers penetrate almost all areas

of activity. One of the areas in which it is difficult to imagine working without special computer equipment and information technologies is the healthcare.

The use of information technology for the treatment of the most serious diseases allows you to get the best result. Errors are excluded at the very first stage - the stage of initial diagnosis, and this leads to the correct selection of drugs and the definition of a treatment strategy, and therefore to the fastest recovery. Information processes are present in all areas of medicine and healthcare. The clarity of the industry as a whole and the efficiency of its management depend on their orderliness.

The development and implementation of information systems in the field of medical technologies is a rather urgent task. Analysis of the use of personal computers in medical institutions shows that computers are mainly used for processing text documents, storing and processing databases, statistics. Part of the computer is used in conjunction with various diagnostic and therapeutic devices. In most of these areas of computer use, standard software is used - text editors, DBMS, etc. Therefore, the creation of an information organizational and technical system capable of timely and reliable diagnosis of a patient and choosing an effective treatment tactics is an urgent task of informatization.

IT technologies is widely implemented in the task of a rapid assessment of the patient's condition arises in a number of very important practical areas in medicine, and primarily with continuous monitoring of the patient in intensive care units, operating rooms and postoperative departments.

There are also cases of Information Systems in control systems for treatment and rehabilitation processes include the automation of the intensive care system, biofeedback, as well as prostheses and artificial organs created on the basis of microprocessor technology.

There are some cases of appliance of IT technologies in medicine that should be considered in Kazakhstan. Firstly, information systems of advisory centers that is informational support for doctors in consulting, diagnostics and decision-making in case of emergency conditions. Next is the information bank of medicine services that will contain summary data on the qualitative and quantitative composition of employees of the institution, the attached population, basic statistical information, characteristics of service areas and other necessary information. Also, there are screening systems for carrying out pre-medical preventive examination of the population, as well as for identifying risk groups and patients in need of specialist help.

In conclusion, Modern technical capabilities allow you to reach high quality a new level of presentation of the course of the disease, namely on the basis of expert automated technologies to simulate the typical development of pathological process. Expert computerized medical systems allow the doctor not to only check their own diagnostic assumptions, but also refer to computer for consultation in difficult diagnostic cases.

## **7) (30 points): IS and Supply Chain Management**

In the globalization world supply chain has become a huge concern. Depending on the product, a modern supply chain can consist of tens or even hundreds of stages and stretch thousands of kilometers around the world. Transportation is managed by dozens of specialists who have to work with tons of documents, and logistics processes sometimes drag on for weeks or months. Supply chains are becoming more complex, and there is less transparency in communication between its participants, because of this, customers and customers do not fully understand the value of the product. In addition, if there is a suspicion of bad faith in one of the participants, it is also difficult to detect violations. Applying Information Systems into logistic processes

solves many issues at transpiration and increase the supply chain productivity. One of the most useful IT technologies in supply chain is the blockchain technology.

Blockchain is a distributed ledger technology represented by a continuous sequence of blocks which contains all records about transactions. It differs from an ordinary data base in that the records cannot be edited or deleted. This technology uses many independent users' devices to store the data. Thus, it is a distributed system and if one node fails it still will be functional.

Smart contracts allow the users to make transactions without any third-party automatically enforce the contract rules by its' functions. Blockchains are already in use at shipping as the Maersk shipping company is applying private blockchains using IBM's Hyperledger Fabric framework to remotely track the cargo data and streamline global trade transactions. The platform has over a hundred participants with the various custom authorities and had enabled to cut down five middlemen per transaction, while normally shipping process at Maersk company took over 200 interactions. The root advantage of public blockchains is the high decentralization which leads to strong security and reliability. As the network grows it becomes nearly impossible to successfully attack on the it. Also, the data related to transactions is provided for public access and can be easily verified increasing the transparency of the network.

Blockchain in logistics has not yet become widespread in Kazakhstan. However, more and more companies use cloud-based transportation management systems to quickly track all logistics processes. In this way blockchain technology could be applied to manage the city infrastructure: auditing supply chains and storages, avoiding need of third party or centralized authority services decreasing the transaction fees and trust issues. The smart contracts in supply chains can help small and medium business a lot and increase the economic growth of the country. It would track the product on its' way from the supplier to the end customer and increase the quality of good and cervices using the blockchains.