To make it clear, I would like you to pay attention to the following table with the calculated significance of the three main indexes for five financial periods (quarters) for 6 different organizations.

As we can see, organization A is absolutely solvent, because all the indexes are within the norms. The other organizations are insolvent. Let us check the level of their insolvency.

So, the insolvency of organization B is permanent and this organization is a bankrupt because it has had bad indexes during 5 financial quarters. Organization C is facing a very difficult financial situation. It is not a bankrupt yet, but because of bad indexes (K1 and K2) during 4 financial quarters the insolvency of this organization is going to be permanent.

You can see that organization D was insolvent in the fourth period and the insolvency was temporary, because the financial situation in this firm has changed for the better.

All of these examples are very simple. Let us discuss a more difficult situation when an organization has been insolvent during three periods in succession. The dynamics of indexes' changes plays the main role in financial analysis in such situations.

For instance, we have two organizations which have been or were insolvent during three periods in succession. These are organizations E and F.

The insolvency of organization E is going to be permanent because the financial situation in this firm is changing for the worse.

The situation in organization F is the opposite. The insolvency of this organization is not permanent because we can notice positive changes in their financial situation.

This kind of analysis (financial analysis) is used only to identify the companies' present situation. To assay the future of financial situation of these companies we have to use another type of analysis (for instance – the discriminant analysis) which is based on different models and will be the best one for concrete organization.

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ARTIFICIAL NEURAL NETWORKS

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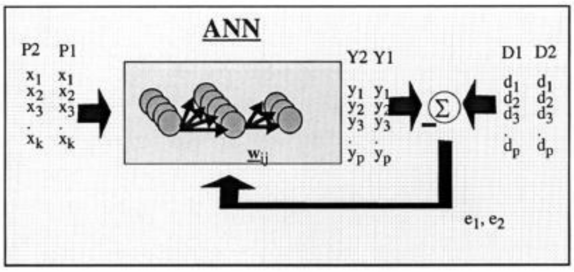
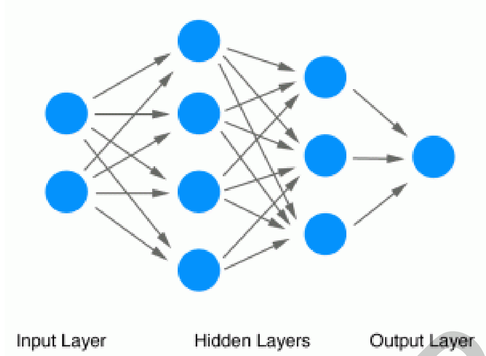
A traditional digital computer does many tasks very well. It's quite fast, and it does exactly what you tell it to do. Unfortunately, it can't help you when you yourself don't fully understand the problem you want to be solved. Even worse, standard algorithms don't deal well with noisy or incomplete data, yet in the real world, that's frequently the only kind available. One answer is to use an artificial neural network (ANN), a computing system that can learn on its own.

An artificial neural network, often just named a neural network, is a mathematical model inspired by biological neural networks (brain). ANN involves a network of simple processing elements exhibiting complex global behavior determined by the connections between the processing elements and element parameters. Artificial neural networks are used with algorithms designed to alter the strength of the connections in the network to produce a desired signal flow.

Artificial neural networks are among the newest signal processing technologies nowadays. The field of work is very interdisciplinary. Basically, an artificial neural network is a system. A system is a structure that receives an input, process the data, and provides an output. Commonly, the input consists in a data array which can be anything such as data from an image file, a sound wave or any kind of data that can be represented in an array. Once an input is presented to the neural network, and a corresponding desired or target response is set at the output, an error is composed from the difference of the desired response and the real system output. The error information is fed back to the system which makes all adjustments to their parameters in a systematic fashion (commonly known as the learning rule). This process is repeated until the desired output is acceptable. The structure of neural computation and simple network topology are shown in pictures 1 and 2.



Picture 1 – The style of a neural computation



Picture 2 – Simple artificial neural network topology

Neural networks are good at providing very fast, very close approximations of the correct answer. Their applications can be categorized into classification, recognition and identification, assessment, monitoring and control, forecasting and prediction. Among the tasks for which they are well suited are handwriting recognition, foreign language translation, process control, financial forecasting, medical data interpretation, artificial intelligence research and parallel processing implementations of conventional processing tasks.

One drawback for using artificial neural networks, particularly in robotics, is that they require a large diversity of training for real-world operation. To implement large and effective software neural networks, much processing and storage resources need to be committed. Simulating even the most simplified form of Von Neumann technology may compel an engineer to fill many millions of database rows for its connections – which can lead to excessive RAM and HD necessities. Furthermore, the engineer of such systems will often need to simulate the transmission of signals through many of these connections and their associated neurons – which must often be matched with incredible amounts of CPU processing power and time.

The explanations of biological and artificial nature of neural networks, examples of training and using of neural networks were given. Also advantages and disadvantages of such systems were examined.

It's evident fact that artificial neural networks are very perspective and modern technologies which will be developing in future.

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NANOMEDICINE

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The problem of nanomedicineis studied in this paper. It's the most promising brunch of science with a wide range of opportunities and If the nanoconcept holds together, it could be the groundwork for a new industrial revolution.

Nanomedicine may be defined as the monitoring, repair, construction and control of human biological systems at the molecular level, using engineered nanodevices and nanostructures. It is used for the diagnosis, prevention and treatment of disease and to gain to increased understanding of complex underlying disease mechanism.

Achievement and future prospects for nanomedicine:

- 1st generation product (2000): dispersed and contact nanostructure (Ex-:colloids), product incorporating nanostructure (Ex-:Polymer, nanostructured metal);
- 2nd active nanostructure(2000-2005) : bio-active, health effect (Ex-:targeted drugs, biodevices), physico chemical active adaptive structure (Ex-:amplifier, actuators);
- 3rdnanosystem(2005-2010) : guided assembling (Ex-:robotics, evolutionary biosystems);
- 4th molecular nanosystems (2010-2020): Ex-: molecular devices 'by design'.

Nanomedicine has a limited number of current applications. Current research and development efforts are concentrated in six primary categories: antimicrobial properties, biopharmaceutics, implantable materials, implantable devices, diagnostic tools.

Biopharmaceutics can be divided into two main areas: drug delivery and drug discovery. It main task is to find and to create a new way to deliver drugs into the body. Nano and micro technologies are part of the latest