

Information, Information Technologies and Society

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Prof. Grigory Svalov, Session Chairman

The next speaker is Prof. Adzhemov. He is the Head of Moscow Technical University of Communications and Informatics.

Prof. Adzhemov, please start your presentation.

In the beginning was the **Word**, and the **Word** was with God, and the **Word** was God.

The same was in the beginning with God.

All things were made by Him; and without Him was not any thing made that was made.

In Him was life; and the life was the light of men...

....

And the **Word** was made flesh, and dwelt among us, (and we beheld his glory, the glory as of the only begotten of the Father,) full of grace and truth.

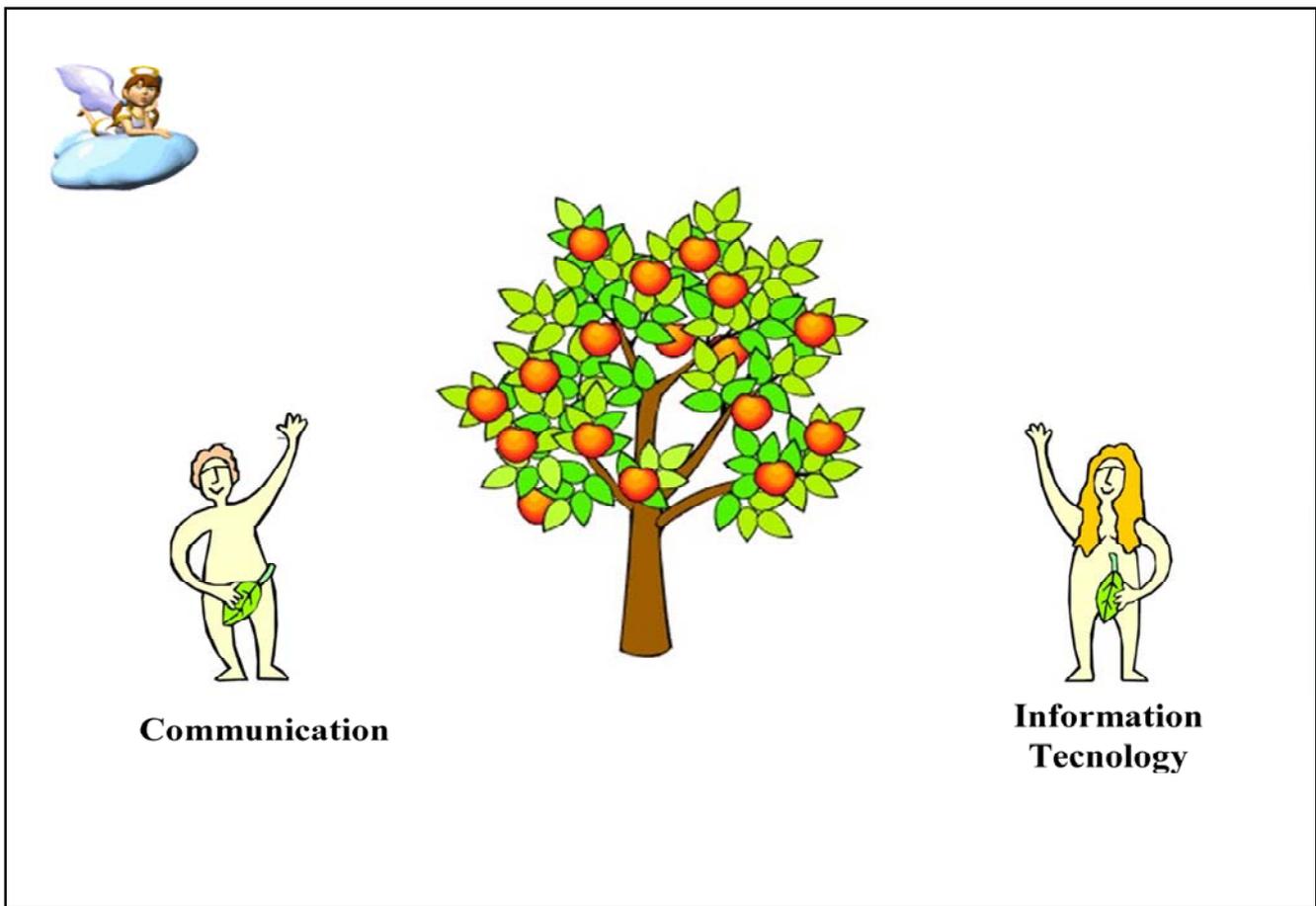
The Gospel According to John

Good morning dear colleagues.

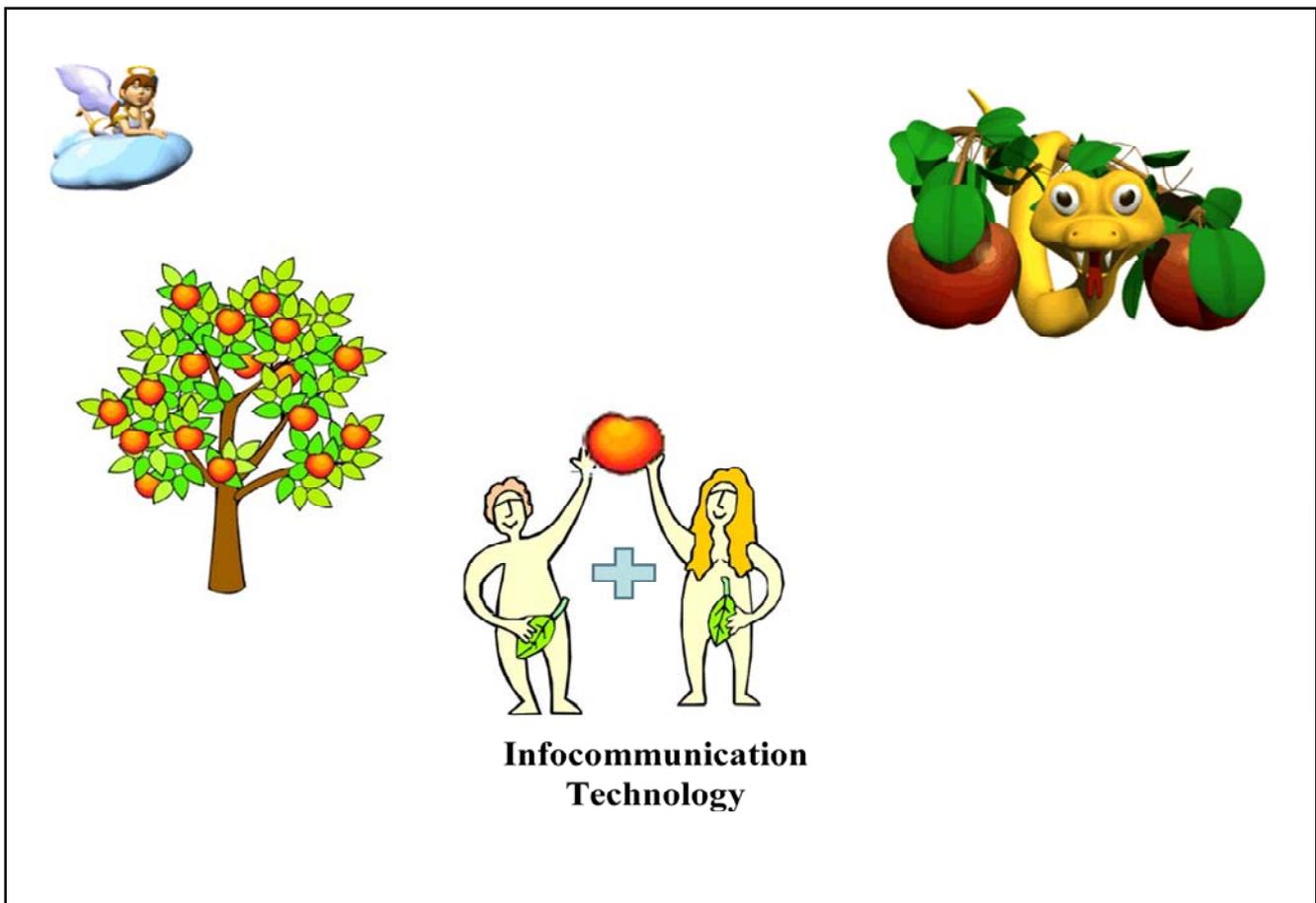
My topic is information, information technologies and society.

The Gospel according to St. John contains extraordinary language pointing to the unique significance of the concept "Word": "In the beginning was the Word, and the Word was with God and the Word was God...". A synonym for this might be "Information."

We intuitively understand this phenomenon (Information), but it still has no general definition, although we have learned to use it for practical purposes and often do so when talking about information transfer, information technologies, etc.



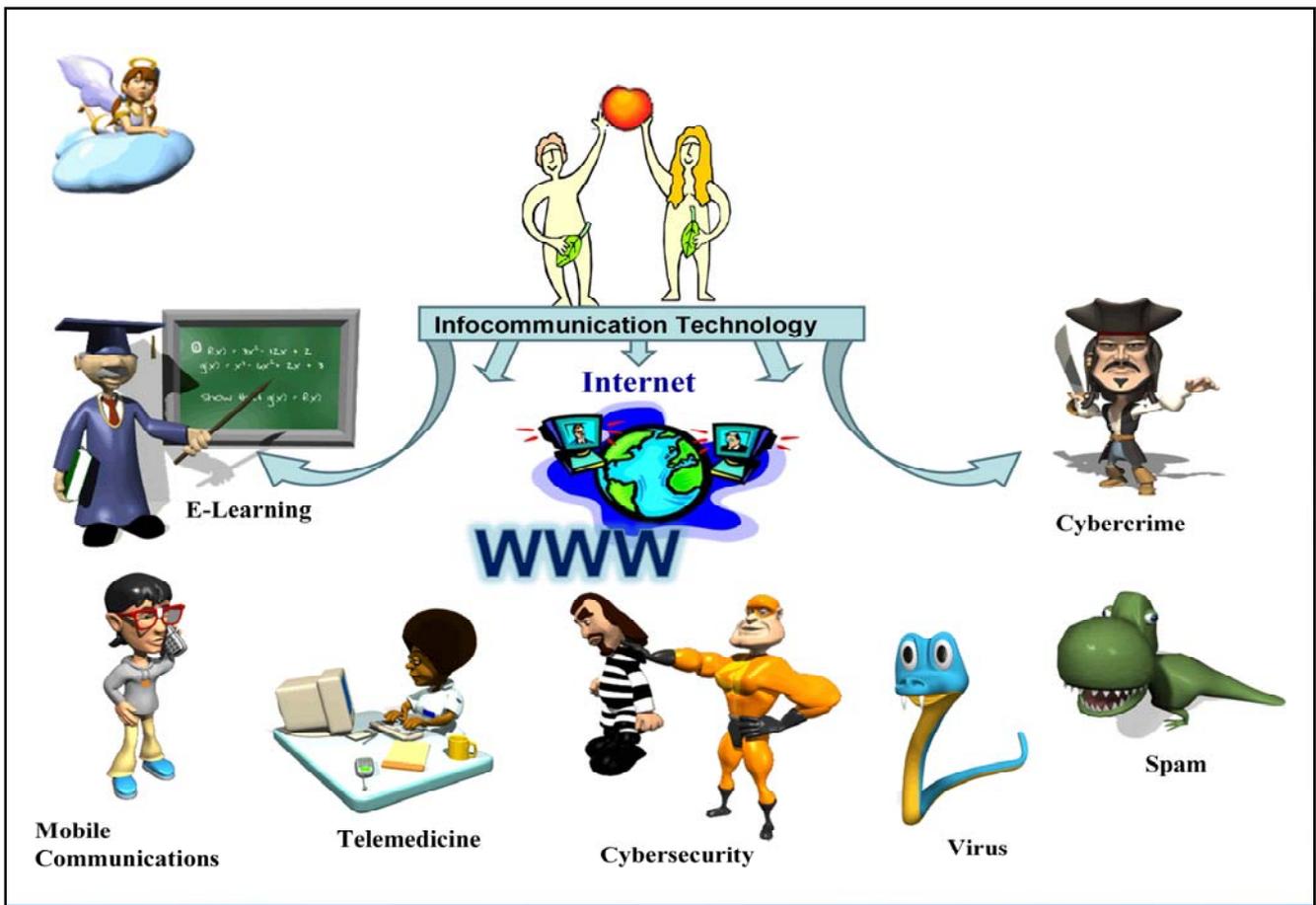
Looking at the history of the development of communications, one must note its growing importance to modern society, in combination with new services and new threats such as information security, protection of personal data, and so on. One must note that throughout their history telecommunications and information technologies have evolved as separate fields in science, industry and application.



But it soon became clear how they depend on one another and complement one another, forming a single integrated info-communications system.

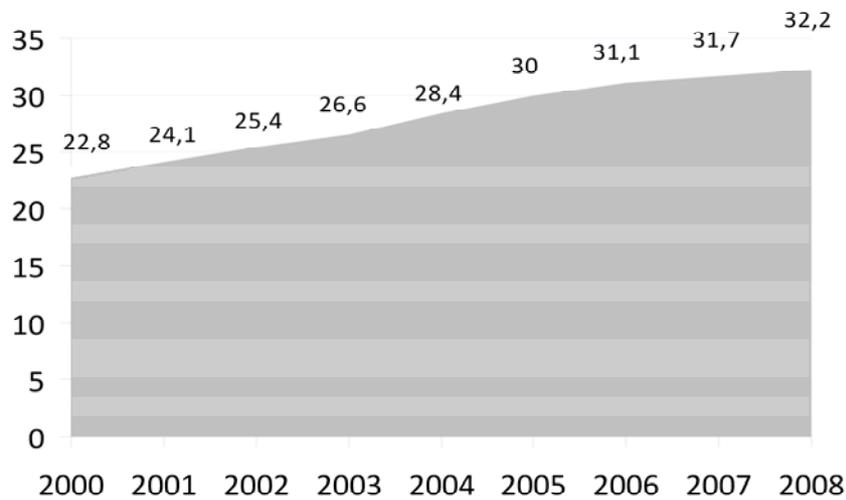
The result was the appearance of entirely new technological solutions and new services that imposed new duties on both communications equipment and information systems and set entirely new requirements for them.

As so often happens, along with results that are useful to the individual and society, the introduction of new technologies such as mobile communications, e-education, telemedicine and so on has its negative aspects that is, cybercrime, spam, viruses, etc. Just as the appearance of machinery and mechanisms and the related industrial activity led to environmental problems, the general penetration of information technologies is creating an equally important problem, that one might, in general terms, call "information ecology." If the traditional environmental tasks were to solve the problems of protecting the natural environment and human health, information ecology must protect man's soul and his consciousness, preserving and enriching culture, both in general and for each individual country and each continent.



It is quite obvious that the traditional world order, with its existing boundaries and states, is undergoing more and more change. Infocommunication technologies have indeed done away with the boundaries of sovereign states, and the emerging social networks on the Internet will soon create new communities of people united not on the principle of geography, but of some other information criteria, for example, the fans of a sports team or a celebrity, classmates, beer lovers, and so on, joining together to discuss matters that interest them (share information), be it the biography, clothing or doings of an actor or the taste of a beer. The results of the discussion flow out into actual deeds and actions, and so one cannot avoid mentioning communities, extremely dangerous to society and to individuals, that promote violence, extremism and the like. All this requires that one approach the further expansion of the pervasive use of infocommunications technologies with special care, since a new world is indeed being created today, a world of information, or rather a world of infocommunication, which certainly includes progressive and promising initiatives, but also threats that are not entirely understood. One must especially note mobile communications systems, which are personalizing all info-communications services. It is no accident that the rate of growth of the mobile telephone subscriber base has surpassed the most optimistic forecasts.

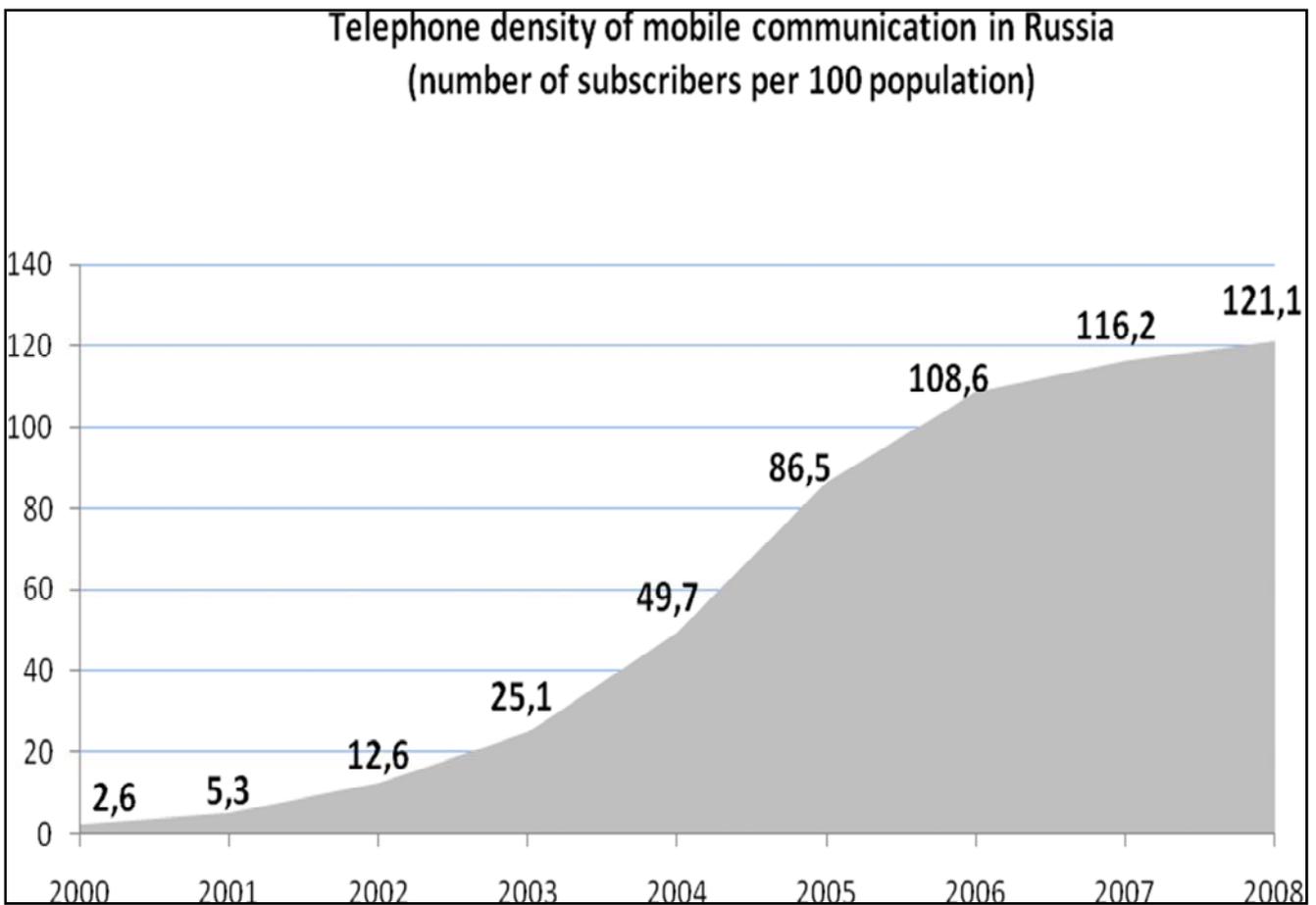
**Telephone density of fixed communication in Russia
(number of subscribers per 100 population)**



The next figures present diagrams for Russia that describe telephone density for land line and mobile communications. Their comparison shows that the latter is expanding much more rapidly.

It has turned out that, despite the high initial cost of mobile communications services, this service is in extremely high demand. In our opinion the explanation lies in the fact that the service “lay” on existing content, which in this case is ordinary human speech. This also explains the rapid expansion of SMS messaging. People had already developed the content (the ability to communicate in writing), and they only lacked the technical capability, which mobile communications provided, and at relatively low rates.

One might therefore conclude that, when an info-communications service provides the ability to carry out an already developed information exchange, that service will expand rapidly and efficiently. Otherwise, the expansion will proceed far more slowly and depend on the rate of content development.



Analyzing the development of info-communications and of new services as part of the integration and convergence of various communications networks, one must note the growing volume of information transfer. The ever-expanding content delivered through broadband Internet, IP TV and the like requires faster and faster transmission methods, which, combined with subscriber mobility, is resulting in a shortage of spectrum resources, which have objective and subjective limitations. In this regard, fiber optic systems are becoming particularly important. They make it possible to increase the frequency resources for transmission many times over. In fact, each fiber taken separately can increase the spectrum resources of the world around us many times over. The future therefore apparently favors communications systems that combine not only the existing capabilities of the air around us, but also artificial environments in the form of fiber optic systems.

In conclusion, I would like to return to the extraordinary words from the Gospel of St. John: "In the beginning was the Word, and the Word was with God and the Word was God..." .

Thank you for your attention!