ALBANIA - A CONTRADICTORY STORY OF APPLIED INFORMATION SYSTEMS

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Abstract.

There are two periods of Information Systems applications in Albania, "pre-1990" and "post-1990". These periods are influenced by political and economical factors, which have determined the directions and extension of applications, as consequence their social impact. In the past there were political factors "in extremis" that conditioned orientation of informatics to be applied in technical domains, and actually a kind of democracy "in extremis" represents an obstacle for development of distributed applications. In this context the Internet may represent a factor of integration between different organizations and communities.

1. The Beginning of Computers in Albania - a success and a failure.

It begins in 1971, when two small digital and one analog Chinese calculators of second generation (with transistors) were installed in Tirana. With this case it was created a small Center of Calculus, part of the Chair of Mathematics at the University of Tirana. It was an experiment - both politicians and scientists had only vague ideas about computers and informatics and their applications. Quite naturally the attention was directed towards the applied mathematical methods.

Specialists of the Center of Calculus worked for several years to investigate and identify the areas of applications. There were defined a number of interested areas where mathematical methods would be applied, such as geology, energetic, demography, medicine, etc.. In such areas in different institutions there were found specialists that showed interest for mathematical methods and were eager to apply them in their daily work. But this penetration of mathematical methods was done on individual basis - just someone found mathematical methods as interesting and useful.

After some years of really hard work the mathematical methods found "the right of citizen" in a small number of organizations working in geology, energetic, topography, demography etc.. Somehow the ice was broken and even the head of political party in power agreed with the request of some students of mathematics to send the best students to work in enterprises as mathematicians, instead of sending them as teachers in ordinary schools. Those mathematicians entered in a community where the knowledge for mathematics and computers was practically zero. Even quite simple problems treated with mathematical methods were seen as “miracles”, but sometime skeptically as well.

At the end of years 70 most of people accepted computers and mathematics as something useful, perhaps a bit complicated to apply in concrete conditions. This progress was due to the work of Center of Calculus together with a handful of mathematicians working directly at enterprises. Applications were mainly in scientific and engineering domains. Especially in energetic, geology, civil engineering, the use some particular mathematical methods was considered a routine necessary to be completed for any project. New ways of thinking were introduced at engineering community, people becoming more interested to study and apply new methods.

A characteristics of these days was the intense work in programming of even complex algorithms in calculators of low capacity coupled with close collaboration between mathematicians and engineers. A generation of specialists having good knowledge in engineering and mathematics simultaneously was created. In better conditions including international exchanges and more financial support, this generation would be able to compete and collaborate quite well with R&D teams of developed countries. Unfortunately people were forced to work inside an ivory tower, spending a lot of energy even for things that would be received freely through international exchanges.

At the end the balance was positive for the scientific and engineering domains. It was not the same for economical and social domains. This was mainly because of the politics and ideology which dominated absolutely economical and social sectors. Economy was totally controlled by political/ideological factors. In this context computers and mathematics were more or less un-desirable in these domains.

Economical factors were neglected in practice. There were so much words said for putting the economy on a strong scientific basis, but the science was accepted as far as it gave positive answers from the ideological point of view. The same was for social sciences and services. They created a certain level for the economy, jobs, market, social protection, health care, education. But there was no real feed-back implemented in the economic and social system. This key element, together with experimental policies to improve the system artificially, made it unstable, shifting gradually towards a fatal degradation. What was worse, this policy injected the habit of non-thinking how to solve the real problems but just hiding them under the false image of a "strong" economy and society, which was not able to fulfill more than minimal life requirements of population.

Exception was the demography, and just in 1979 a general registration of population was done. It was used a "new" Chinese calculator, always of second generation but equipped with magnetic tape devices. Data entry and calculations lasted for one year, with about 100 people involved. But we have no evidence that the result of this colossal work were really used to define the right policy which would improve the living conditions of the people.

2. First Information Systems and Networks.

The end of years 70 - beginning of 80 were characterized by the acquaintance of modern concepts of informatics and information systems, overcoming the level of mathematical methods. New concepts evolved even in high levels of the party in power. Gradually was designed the idea of project-proposal funded by UNDP for the creation of a metropolitan network in Tirana, to be used for the complex of economical and technical problems of Albanian society. After many oscillations the government agreed for a project funded by UNDP. In the draft of the project were defined the objectives of this project, including economical and social ones. Formally economical problems were considered proprietary (in a time that even main alimentary products were distributed in small rations). Again ideological/political factors conditioned the selection of technology - Honeywell-Bull France (in that time there were no relations with USA).

During 1984-86 a great number of Albanian specialists were trained abroad, for development, maintenance and application of information systems to be implemented. A lot of money was spent to built the infrastructure (the building and cable network distributed in Tirana). In 1985 the equipment was installed - two mainframes, three mini-computers and about 45 terminals distributed in ministries and R&D institutions. Because of the importance, two of mini-computers were installed in the buildings of Energetic Enterprise and of the State Bank. In 1986 the old Center of Calculus, already under the Academy of Sciences, was upgraded in the Institute of Informatics and Applied Mathematics (INIMA).

At the same time the first micro-computers entered in Albania - mainly in some R&D and government institutions. Many discussions were about the solution of the project: mainframes versus micro-computers. Today our personal opinion is that the selection of mainframes technology was the right one - it was a big step forwards that opened the doors toward complex distributed information systems, something unreachable in that time by micro-computers. Learning about "dinosaurs" helped our people to learn the theory and practice of information systems, having no possibility to do it at schools.

During the second half of years 80 the network was used intensively ... but again mainly for scientific and engineering problems. Again ideological and political factors did not permitted serious applications in economical and social domains. Formally a number of applications and expensive software packages were accepted in the project, dedicated for the management and accounting of enterprises, and of course creation of data bases. Such things were considered as very nice when included in reports, as a proof of the quality of the policy applied by the party. But nothing was done by a government, which controlled everything in the country, for their real application. A typical case was the implementation of information systems for the management of stocks - it was

considered as a big problem, much work was done for classification aspects, but no concrete actions were undertaken by government for its application.

A technical achievement was the creation of two data bases. The first one was a documentary data base for indexing of scientific and technical information and documentation, and a special big institution was created for this purpose. The second one was also a documentary data base indexing ideological/political documents of the head of party. A special team was created for this purpose for data entry as well. So, there where the party and government found interesting, big applications were created but never used. The R&D and academic institutions in Albania were mainly unical in their domains, without international relations, so the data base for local scientific information was practically useless. As for the second data base, it was considered as a secret thing, perhaps they used it sometimes only for demonstrations.

Despite such contradictory and absurd situation, the impact of the network was enormous. The people were familiarized more with computers of a higher technology, with new concepts on informatics and information systems, with the networks, with other applications than mathematical ones. The Chair of Informatics and the branch of informatics were created at the University of Tirana. An intensive short term training was applied for the mass of specialists to learn the basis of informatics and the use of new information systems. The result was obvious in scientific and engineering domains, where complex applications were realized in geology and geophysics, civil engineering, energetic. Naturally, a second registration of population was carried out …

3. The Crash and Recovery - New Conditions and Problems.

Beginning of years 90 marked the crash of the metropolitan network. It was result of the global crash of Albania (as happened more or less in other ex-socialist countries). The decrease of scientific/engineering works, invasion of powerful micro-computers, opening of the markets, financial difficulties, the old technology already abandoned by the producer, the lack of useful distributed applications - all these factors had their effect. Meantime micro-computers entered massively everywhere, from government institutions to schools and SMEs, NGOs and even in families. Even the interest for the Internet connectivity is growing quickly - for the first time the Albanian organizations and people have the possibility to use computer networks for international exchanges.

The interest for learning and using computers is very strong, especially between young people. Knowledge on computers is considered as one of main requirements for getting a job, together with foreign languages. This is very meaningful, taking into account that jobs in Albania are related more or less with commerce, services, associations. Several organizations organize short term training. Only at INIMA there are trained more that 1600 people each year. But there is the other side of the medal. Many young people, after completing university studies on informatics, they prefer working in private companies as secretary or simply go abroad instead of working as researchers in academic institutions. This phenomena has created a difficult and dangerous situation for the academic institutions, with potential grave consequences for the future of the nation.

New conditions, as well as the new Statute of the Academy of Sciences giving full independence for its institutes together with some financial freedom, permitted institutions as INIMA to be reoriented quickly towards the market and to survive. Characteristics of the new times were individualization of institutions and development of their local infrastructures. As result of numerous projects, principally sponsored by international organizations, many institutions and organizations in Albania, especially in Tirana, were equipped with micro-computers and some of them even with local networks. The typical case are those of the Institute of Insurance (INSIG), which created a good data base for insurance polices of autocars; and of Telecom Enterprise of Tirana for processing of invoices, both developed by the team of INIMA. Especially interesting is the collaboration with some Italian enterprises, where about 1000 people are involved for data entry and even programming - a project that continues despite great troubles of the first half of 1997.

Today the information systems are developed and implemented when found useful for internal purposes of interested organizations. Little attention is shown for applications useful to serve the clients, especially in the public administrate, social insurance, labor services, statistics. A typical example are the banks, the main ones owned by the state. Theoretically one of the main users of computers, Albanian banks are in a real backwardness

regarding the application of information systems. The process of implementation of information systems is moving forward but very slowly pushed by some few elements of privatization in horizon.

In the past the key of anomalies was the “extended dictature”, today we are suffering from a kind of “extended democracy”. In the past everything was controlled by the government. Today there is a certain degree of freedom, but in many cases people feel as if the collaboration with others would decrease it. Sometimes people is attracted by their direct profit without thinking for the results of their work. Sometimes people, having quite strange ideas on capitalism and free market, they are not able to find the right way of collaboration. Sometimes even the foreign experts, coming in the framework of international projects, they are not able to work in close collaboration with local people, to share the charge with them on critical topics. Sometimes really interesting projects are developed without the right relations with other projects, and without the right coordination role of government. All these factors do influence negatively, making the implementation and exploitation of information systems to stay behind the actual needs and real possibilities.

4. Going towards “Information Society” - the inevitable luxury.

Developed countries are doing real, concrete steps in that “strange future” called “Information Society”. For developing countries this sounds as a real “luxury” because of the lack of telecommunication infrastructure (without mentioning simple things as daily bread). At the same time it is an inevitable luxury - if countries as Albania will fail to follow developed countries in the creation of technological infrastructure for this “Information Society”, they will fall in a fatal isolation. If the dictatorial isolation of Albania, product of some stupid policies, lasted for 45 years and a popular revolt threw it out, the technological isolation will be much more difficult to overcome. It will create a wide gap between [neighbor] countries, with very dangerous consequences in economic, social and political domains. We are afraid that, unfortunately, some politicians are not understanding this phenomena.

The key towards the “Information Society” is the developed telecommunication infrastructure and useful telematic applications over it. The Internet may be considered as the model for this couple <infrastructure,application>. The story of Internet in Albania is an excellent example showing how the technological backwardness and political shortsight can contribute to obstacle the development of country.

We found a vicious cycle when trying to connect the Internet. The cost of international links is too high for power countries, there is the lack of local telecommunication infrastructure (Albania had 3-5% of distribution before 1990, today slightly improved) necessary to create commercial services to cover such costs, without mentioning the fact that potential clients are not prepared for such services. It is necessary to have time and funds by governments or international organizations to start with Internet and go fast. This is why in many developing countries organizations as UNDP and Soros Foundation are distinguished as Internet providers and sponsors. In some countries, when local governments are interested in the right way by supporting local commercial and academic community to develop Internet services, a good modern infrastructure is created to support their integration with developed countries. But in Albania the things are much more complicated.

After 1990 INIMA and some departments of Universities of Tirana created their local networks based on Unix servers, and implemented Internet services. The year 1996 found Albania on line - connected with the Internet via a satellite link of UNDP office in Tirana. Numerous non-profit organizations got e-mail access through UNDP. In the middle of 1997 a second satellite link was installed by SOROS Foundation, giving direct access to INIMA and Department of Electronics of Polytechnic University, the latter being interchange point between networks of UNDP and SOROS. People acquired a good know-how on Internet technologies and business-oriented services by participating in the European Programmes Copernicus and Tempus, while a considerable help was given from ISOC and CEENet through their workshops.

Internet was considered as a way to overcome the long lasted isolation and to communicate freely with the world. The interest for Internet connectivity bloomed in academic community and NGOs. Within two years the UNDP site gave e-mail connectivity to more than 200 organizations, with a total of 1300 users which number increases with 15-20 persons each months. The Open Internet Center (OiC) of Soros Foundation, using about 12 PCs, has more

than 200 members, and it is not able to fulfill all requests for membership having no space for more. About 60% of interested people are students and researchers. Intense work is done to connect other faculties and institutes, mainly with funds form Soros Foundation and NATO projects. Business people are becoming interested as well, and their involvement may be very important and promotional for the development of Internet and of the economy as well. Unfortunately there is no commercial Internet provider in Albania, because of the legislation.

The problem in countries as Albania relates with the trends some politicians have to consider their position as a personal privilege instead of a social responsibility. Sometimes people do not understand and does not want to understand the social and economic role of new technologies, they mix-up problems, find monopolized solutions, or even stop the development as long as it is not in the direction they would wish. That is a strong trend in Albania, where for many years the politics conditioned the science and technology, and it is reflected clearly in the story of Internet. Some people does not know what the Internet really is, they consider it simply as a tool for profits, they mix-up the concepts of telecom operator with that of Internet provider, giving as result a wrong and monopoly legislation.

Only recently the Albanian telecom law was improved to permit free concurrency for commercial data transmission services including email and data bases. The old law of 1995 killed in embryo the first public e-mail service created by a private company. In 1997 the wrong application of this law was one of the main factors which killed the regional Phare Project for the creation of academic network. Practically nothing was done in the public sector, this process controlled by certain political circles who wish to have the monopoly. This was despite the public policy of privatization and free market the government is trying to follow. The policy does not follows always the way of logic. But at least we are witnesses of the first commercial attempts to create commercial Internet services and we hope that despite the difficulties they will play a great role in the development of the country. [updated]

Despite these problems, the academic and R&D community in Albania is working to extend the Internet as far as possible. Actual work is done under the umbrella of "@net", a forum of organizations as INIMA, OiC and UPT. It is oriented towards three objectives: promotion and education, development of new information systems in other organizations, and extension of metropolitan network and Internet services . *A special task is pushing the government in the right direction, to consider that we live in a technological and open society which is incompatible with monopolization. The main reason for the crash of the ancient regime was the monopolization of everything - it was the head of state which decided the road and forced the society to follow it. Now it is necessary to break down in a concrete way all kinds of monopoly, as the only way our society would go forward. And the monopolistic policies may have may shapes, sometimes presented even as "liberalization". For us it is important to understand that the government role is to feel the trends and needs of the society and to be leader on the road defined by the society itself. It is important to understand that being a leader does not means that the leader will do everything - development of the country is a summary result of the efforts of everyone doing his own job he is prepared and placed to do. This is not simply a problem of politics but a social problem as well, to teach people to force their own way belonging and moving together in a complex community .* [updated]