Global Communications Newsletter

December 2003

An Excerpt from "A Rickety Bridge to Prosperity?"

By Faruk Eczacıba

President of the Turkish Informatics Foundation

8th IEEE Symposium on Computers and Communications

Antalya, Turkey, 1 July 2003

Living in a developing country is not easy. Be it education, health services, transportation, budget deficits, gross national product, whatever, they are a burden to manage in a developing country like Turkey. Therefore, each and every educated person in such a country has a moral and an ethical responsibility toward the well being of the nation. Hence, Abraham Lincoln's musing that you cannot escape the responsibility of tomorrow by evading it today was embedded in my psyche by my father when I was too small to understand its significance. But, now I know. Because, as a well-educated businessman in Turkey, I realize that it is not enough to add value to my corporation only. I should be able to contribute to society as well. This was a moral and an ethical obligation. This was the reason why I and my like-minded friends formed the Turkish Informatics Foundation eight years ago.

I was 25 years old when I graduated from university and began working in our family firm. I call what was then one of the fairly large corporations in Turkey, Eczacıba, a family firm simply because it was run as that at the time. My father was at the helm, my elder brother was helping him, and I was the inexperienced new guy in the block.

This was in 1979. The country was going through one of its worst crises. Turkish economic and political life has always suffered a crisis of some sort in unfailing intermittent cycles. Turkey's main problem was chronically high inflation (but never hyper-inflation), unstable and low growth rate, as well as enormous debt stock, hit by the lack of strict adherence to structural reform to prevent notable public deficits.

The crisis in 1979 was exceptional. Even light bulbs were not to be found. Political assasinations, constant power cuts, queues for everything, petrol shortage … and on top of that, there was spiraling political turmoil hand in hand with social unrest. There was a hint of a covert civil war in the country. Inflation reached 100 percent. The leader of the opposition is now famous for saying "We were even desperate for 27 cents."

Turkey was again the sick man of Europe. (And by the way, no one ever called the Ottoman Empire the sick man of Asia; however, this is beside the point.) Eventually, the chaos of 1979 led to military intervention within a year, in September 1980. For a fresh graduate like me, the situation was not promising at all. But I persevered. The company persevered. And after the military intervention came the eventual liberalization of the economy in the 1980s.

I should emphasize that compared to the 1970s, the 1980s were a different source of stress for us. Before the semi-liberalization of the economy, Turkey was an inward-looking closed command economy. After the reforms of Mr. Turgut Özal, then the liberal prime minister, the Turkish business sector came face to face with a stark reality: How were we to cope with international competition? What were the mechanisms? Who were the players? What were the norms?

Indeed, the 1980s were also tough for our corporation, simply because we had to relearn all the nuts and bolts of global competition. And the Turkish business scene was not ready for this transformation. Besides, the 1980s were the decade when Turkey's paradigms were changed altogether. Up to that decade, Turkey was regarded as the front line state for defending the interests of the West against its most important enemy, the Soviet Union.

Turkey had been seen since the end of the Second World War as a bridge between the East and the West. However, in the mid-1980s cracks began to appear in the Soviet Empire (with Gorbachov's help, of course), and at the end of the decade the 40-odd-year-old Iron Curtain was no more. Thus, Turkey's geopolitical role was questioned for the first time. *The Economist* magazine, in a now famous quote, observed that "Turkey is a bridge, albeit a rickety one, between East and West, and a vital player in the New World Disorder."

Indeed, Turkey continued to be an important player after the Cold War, and as recently as in its balancing act during the Iraq Crisis. However, relations between the United States and Turkey have been restrained since the Turkish Parliament's vote against granting U.S. forces temporary basing rights in Turkey. This was just weeks before the Iraq invasion.

This vote surprised everybody and incensed the United States. The Iraq invasion went ahead without Turkish help. U.S. Deputy Defense Secretary Paul Wolfowitz stated that Washington no longer considers Turkey a vital strategic ally, and called into question the U.S. need for the Incirlik air base. American Undersecretary of State Mark Grossman also warned Turkey, saying "Turkey has choices to make." Only recently, the Turkish government opened all Turkey's air and seaports and border points for humanitarian aid destined to Iraq. All this is just another example of Turkey's precarious geographical position. Indeed, this position has constantly dictated Turkey's situation for centuries, and most probably will dictate its predicament in the future.

By the 1990s I had become an old hand in the company. I

(Continued on next page)

had been working for 15 years. This meant lots of experience in survival tactics in such a volatile and unpredictable economic and political climate.

The 1990s also witnessed the emergence of nongovernmental organizations (NGOs) in Turkey. Foundations and associations were nothing new for Turkish society. However, most of these were endowments with a religious flavor. Therefore, a secular civil society had become one of the most important concerns of academic and public discourse in this decade. Simply because the state-centric state-oriented modernity was giving way to NGOs. In return, these organizations were paving the way for the democratization of state and society relations.

In the 1990s, the need for NGOs to take the helm, discuss and formulate policies, and present these to the government was paramount. By 1995 there were nearly 1800 foundations and associations in Turkey. The populist policies of the 1990s exaggerated the budget deficits, provoking faster expansion of the debt stock. This decade was marked by high inflation, high inefficiency, high interest rates, high levels of nepotism, et cetera. Indeed, 1994 witnessed yet another record inflation and a financial crisis.

In such an atmosphere, we business people had to decide between two alternatives: leave everything as it is and see the country rot, or create an NGO and begin formulating policies on behalf of the government. And, at a later stage, try to influence the politicians to adopt at least some of these policies for implementation. Take moral and ethical responsibility.

Hence, the raison d'etre in spring 1995 for the Turkish Informatics Foundation was: If the government is not able to formulate policies concerning information and communication technology, then we as an NGO can and must do it on their behalf. This formula works not only for developing countries like Turkey, but for developed ones as well. NGOs or think tanks simply do research and formulate policies. Governments may or may not adopt them. If they adopt them, though, these policies may see the light of day and be implemented.

Not only business people but also intellectuals should shoulder the burden of running NGOs. I have often been asked why I am not in politics. The cliché question is: "Your foundation is creating and proposing such and such policy for such and such purpose. Why don't you go into politics yourself and do it directly as a politician?" My answer is simple: Politics is the responsibility of the professional politician. Creating wealth is the responsibility of the professional businessperson. And creating policies is the responsibility of the NGO.

Politicians, business people, and NGOs must work in harmony and close cooperation with each other in order to achieve efficiency in the country. However, there is a snag. As the late U.S. Vice-President Hubert Humphrey once said, "The right to be heard does not automatically include the right to be taken seriously." This is a dire warning to the NGOs. And Pat Caddell, American political strategist and commentator, very wisely summarized this harsh reality in one sentence: "A politician's willingness to listen to good advice rises in inverse proportion to how badly he thinks he is doing." Yes, indeed. We have witnessed this since the first day of our foundation.

Now I can explain how the Turkish Informatics Foundation tries to walk on this tightrope. The Turkish Informatics Foundation was established eight years ago in 1995 by 170 individual members and 107 companies and institutions. The vision of the Foundation is a Turkey transformed into an information society. And its mission is to accelerate Turkey's transformation into an information society. In this respect, the Foundation conducts research aimed at increasing the IT sector's share of the economy. Our emphasis is not on the actual technologies themselves, but on using these technologies to achieve our vision.

We believe that the pathway to a decent future for Turkey is through using technology — mainly information and communication technology (ICT) — for a productive and efficient economy. The European Union also aims to bring the EU to the level of the United States mainly by using ICT. In this respect, the EU has come up with the eEurope program for becoming a global competitor next to the United States in 2010. This extensive program envisages a cheaper, faster, more secure Internet. Also, it aims to invest in people and skills, and wants to stimulate the use of Internet.

Turkey has also agreed on a set of indicators for eEurope. This agreement, known as eEurope+, will be monitored and benchmarked. Turkey agreed to be part of the eEurope+ initiative at the Gotherburg Summit in June 2001.

Turkey's perennial problem, inefficiency and inadequate productivity, may be solved by following the eEurope+ program. Contributions of ICT to economy-level productivity and growth are well documented worldwide. ICT-related productivity gains are being derived from the smart use of ICTs simply because ICTs are enabling technologies that provide a platform for other innovations.

The Turkish government has to find a balance between social capital and the usage of ICTs in general for conducting state business. eEurope+ will be a practical and beneficial benchmark in this respect. In 2001 Turkey went through yet another economic crisis that resulted in the worst recession since World War II. The Turkish gross national product suffered a 9.4 percent decrease; the gross domestic product also fell by 7.4 percent the same year. Although there have been optimistic signs of recovery in the last two years, real recovery is still far away.

The crisis in 2001 was not just a blip in the performance of the economy, but an ominous sign that inefficiency and inadequate productivity will continue to haunt any economic prospect of growth. Productivity reflects a country's ability to use its human resources and capital to generate wealth. Turkey, in both its GNP and GDP as measured by purchasing power parity, lags behind the EU-15. Indeed, the OECD last year also acknowledged Turkey's position as "a low income country" behind Mexico, Poland, and the Slovak Republic.

The recession in 2001 obviously affected the ICT sector. The contraction in earnings for the sector as a whole was 27 percent. In the IT sector the contraction was 35 percent. The crisis hit the Turkish telecom sector hard, with nearly 1.5 million people terminating their mobile subscriptions. The after effects of the recession could be summarized in one sentence: Turkey's competitiveness suffered a lot. Turkey dropped six spots in 2001 in the Growth Competitiveness Index from 2000, and ended up being the 56th country in a list of 75. Despite recent signs of recovery, the closed loop of poverty still looms over the economy: Inadequate earnings lead to inadequate savings, which lead to inadequate investment, which lead to inadequate production, which lead to inadequate competitiveness, and on and on.

In order to break this vicious circle, inefficiency in economy should be replaced by efficiency and high productivity by ICT use, not for its own sake but combined with product and process innovation.

Furthermore, the Turkish Informatics Foundation believes that, if scientific innovation and research and development cannot find its way to improve the quality of life, any scientific research could be destined to be imprisoned within the ivory tower of academia. Therefore, we strongly support any

(Continued on next page)

"A Rickety Bridge to Prosperity?"
(cont'd)

research and development to be transformed into actual value-added assets. Obviously, our foundation can only propose ways and means of achieving this.

Turkey's record concerning research and development and patent applications so far is not satisfactory. The number of patent applications by Turkish nationals was 134 in 1980, and increased to only 265 in 2000. Those by foreign nationals living in Turkey shot up from 527 to 3177 in the same period. The ratio of foreign to local patent applications for Turkey was 12 in 2000. This, of course, compares very unfavorably with the average of 3.3 for high-income countries. (K. Gürüz and N. K. Pak, "The Turkish National Innovation System in the Making," Knowledge Economy Forum 2, Helsinki, Findland, 2003.)

Results of new policies concerning R&D may be summarized as follows:

- R&D personnel intensity per 10,000 labor force was 7.5 in 1990, but rose to 13.1 in 2000.
- The R&D expenditures as percentage of GDP (GERD) was 0.32 percent in 1990, but rose to 0.64 percent in 2000.
- Percentage of R&D expenditures realized by the private sector was 20.4 percent in 1990, and rose to 33.4 percent in 2000.
- GERD financed by the public sector was 65 percent in 1990, but dropped to 50.6 percent in 2000.

And so on.

These statistics indicate that there is improvement in this field, albeit a slow one (rickety!!!). Turkey's participation in the EU's Sixth Framework Programme is expected to provide new challenges for R&D activities in the Turkish private and public sectors. A new impetus toward a national innovation system, a blueprint for a knowledge-based society in Turkey, may be possible with the help of the EU.

Our foundation is very active and doing its best to explain to all the concerned parties that R&D knowhow and financial help will be available through EU sources; only if, of course, feasible projects are prepared and submitted for approval to the EU.

As you can gather from what I have been trying to summarize here, the Turkish Informatics Foundation, as an NGO, can only convey to the government (and to the private sector as well) relevant ICT examples and applications from all over the world and expect the government to implement some or all of these for Turkey's benefit. Indeed, we presented our case to the Prime Minister last month. We are eagerly waiting for some positive movements toward eTurkey.

Russian President Putin, IEEE President Michael Adler Greet IEEE Life Fellow Prof. Vladimir Kotelnikov on His 95th Birthday

Dr. Henrich Lantsberg, Russia

The celebration ceremony in honor of Academician (full member of the Russian Academy of Sciences) Vladimir Kotelnikov on his 95th birthday was held September 12, 2003, at the Session of the Scientific Council of the Institute of Radioengineering & Electronics (IRE) of the Russian Academy of Sciences.

The greeting message from President of Russia Vladimir Putin read: " Professor Kotelnikov has the right to be recognized as the corypheus of Russian science. Your outstanding research contributions together with your fruitful teaching and state activity are invaluable and brought deserved authority and respect to you."

IEEE President Michael Adler and IEEE Past President Joel Snyder greeted Professor Kotelnikov on behalf of the IEEE Board of Directors and some 382,000 IEEE members from about 150 countries. They made a very special IEEE diploma presentation to Professor Kotelnikov at the session. In his speech, Joel Snyder said: "The man whose 95th birthday we honor today, Vladimir Kotelnikov, is the epitome of the brilliant thinking that has helped to advance our world, inspired by the great Alexander Popov. He has made exceptional contributions to global scientific and engineering knowledge. Today we honor the birthday of an engineering and scientific giant who contributed in vast measure to modern communication theory and sets an example for each of us who aspire to improve our world."

In his speech, IEEE President Michael Adler said: "Dr. Vladimir Kotelnikov has not only attained a venerable age but he has also made extraordinary contributions to our world. Moreover, he continues to be active in his profession. He is one of a great nation's national treasures and one of our most esteemed IEEE Life Fellows. We look forward to more of his contributions and good counsel as well as his leadership role in the growth of IEEE in Russia.

"For almost 75 years he has been making fundamental contributions to his field. Early in his career he independently led the formulation and proof of the sampling theorem known in the West as the Nyquist Theorem as well as the development of the theory of optimum noise immunity. Then he applied his findings to both radar and communications. Through his work he created innovative communications equipment, jet technology, and devices for the control of rocket trajectories. He also improved radio-telegraphic lines, perfected code systems, and had a vital role in the creation of radar astronomy, designing special radar equipment that led to close observation of the planets. Professor Kotelnikov was instrumental in establishing, in 1990, the IEEE Russia Section."

Kotelnikov is widely known in communication theory circles for two contributions: his independent discovery in 1933 of the sampling theorem for band-limited signals and his celebrated theory of optimum noise immunity in 1947.

It was noted at the Session that the sampling theorem is an essential element of digital communications technology. The sampling theorem was not presented to a broad audience until 1948 by Claude Shannon. However, Shannon himself cited earlier publications. When reviewing these references one can state with certainty that Russian scientist Vladimir Kotelnikov (in 1933!!!) was the first to formulate the sampling theorem in a mathematically exact manner and publish it in a communications context. However, his publication in the proceedings of a Soviet conference remained unknown in the West.

Vladimir Kotelnikov made major technical contributions in the areas of radio engineering, radio physics, electronics, radio astronomy, informatics, and cryptography. Director of the IRE and Chair of the Scientific Council Academician Yuri Gulyaev noted that Vladimir Kotelnikov is a unique person: he was

(Continued on next page)

Putin, Adler Greet IEEE Life Fellow Prof. Vladimir Kotelnikov

(cont'd)

elected as an Academician of the USSR Academy of Sciences in 1953 (50 years ago skipping the first grade "corresponding member" of the Academy of Sciences was very rare), he was Director of the IRE for more than 30 years (currently Director Emeritus), Vice President of the USSR Academy of Sciences for 18 years, and Chairman of the Supreme Council of the Russian Federation for seven years.

Professor Kotelnikov is considered the Dean of the Russian communications scientists and engineers as well as the elder statesman of Russian communications technology. Professor Kotelnikov has received numerous Russian and international honorary degrees and awards: twice Hero of Labor, Lenin prize, twice State prize, and so on. In 1999 he received the Eduard Rhein Basic Research Award (Germany) "for the first theoretically exact formulation of the sampling theorem."

In 2000 he was a recipient of the IEEE Alexander Graham Bell Medal "for fundamental contribution to signal theory." There is also an eponymous asteroid #2726 in the International Catalog. Nowadays, Professor Kotelnikov is an active member of the Executive Committee of the IEEE Russia Section.

The celebration events devoted to Professor Kotelnikov included a special conference this September in Kazan (the city where he was born September 6, 1908, and a monument has been erected in his honor) and an international conference this October in Moscow, "Radioelectronics as a Development of Kotelnikov's Ideas."

This September is also a very important date for the Russian communication community: the 50th anniversary of the foundation of the Institute of Radioengineering and Electronics of the Russian Academy of Sciences, recognized as one of the leading institutes within the Russian Academy of Sciences.

The main task of the Institute is fundamental research and applied technology development in the fields of radio engineering, radio physics, electronics, and informatics. The Institute was very instrumental and played a leading role in establishing the IEEE Russia Section in 1990 and starting a beneficial cooperation with IEEE in the early 1950s.

The current director of the Institute, academician Yuri Gulyaev, is Chair of the IEEE Russia Section. We look forward with great optimism to continuing our good mutually beneficial relations.

Global Communications Newsletter

www.comsoc.org/pubs/gcn

JOAN GARCIA HARO
Editor

Department of Information Technologies and Communications
Polytechnic University of Cartagena
ETSIT
Campus Muralla de Mar s/n
30202 Cartagena, Spain
Tel: +34-968-325314
Fax: +34-968-325338
E-mail: joang.haro@upct.es
gcn@comsoc.org

FRANCISCO JAVIER GONZALEZ CASTAÑO, Associate Editor
JACOB BAAL-SCHEM, Chapters Corner Editor

Regional Correspondents
HOSSAN AFIFI, France • BORHANUDIN MOHD ALI, MALAYSIA
JACOB BAAL-SCHEM, Israel • DINKO BEGUSIC, Croatia
OMAR CHERKAOUI, CANADA • PAULO DE SOUSA, European Union
VOULA GEORGOPOULOS, Greece • SILVIA GIORDANO, Switzerland
RAM G. GUPTA, India • CARLOS HIRSCH, Mexico
LIANG XIONG JIAN, China • HENRICH S. LANTSBERG, RUSSIA
ARTUR LASON, Poland • JOSÉ MARIA MALGOSA-SANAHUJA, Spain
NICOLAE OACA, ROMANIA • IRADJ OUVEYSI, AUSTRALIA
ALGIRDAS PAKSTAS, UK • GIANCARLO PIRANI, Italy
K. R. SUBRAMANIAN, Singapore • HELIO WALDMAN, Brazil

A publication of the
IEEE Communications Society

Digital Broadcasting and Switchover
By Paulo de Sousa, EU

The European Commission has adopted, at the initiative of Commissioner Erkki Liikanen, responsible for enterprise and the information society, a Communication on the transition to digital broadcasting. This Communication addresses a key issue for Member States in their move toward the information society: which approach to take for the migration to digital broadcasting. The Communication also raises a strategic issue for the EU concerning the future reuse of valuable radio spectrum currently used for analog television.

The Communication on Digital Switchover ("transition from analog to digital broadcasting, from digital switchover to analog switchoff") sets out a guide for the EU countries on the difficult task of migrating to digital radio and television transmission, and ultimately switching off analog transmission, in a consumer-friendly way. It also launches a policy debate on how to make best use of the radio spectrum available after analog broadcasting is switched off.

The Commission is not considering intrusive measures like a harmonized date for turning off analog television across the EU or forcing consumers to buy digital television sets. Progress with digital television varies widely across EU Member States, from 3 to 40 percent household penetration, so a one-size-fits-all policy at the EU level would be inappropriate. But national processes will be actively monitoring, and benchmarking exercises will run for some years. The point is to ensure that national switchover policies provide incentives for consumers to migrate to digital television voluntarily. This will also kick off discussion of the spectrum aspects, never too early given their complexity and long-term implications.

The eEurope 2005 Action Plan requires all countries of the EU to publish their switchover plans, including a possible date for ending analog television by the end of 2003. This will ensure that consumers have enough information and adequate warning to become acquainted with all the possibilities of new digital TV services and upgrade their equipment. Based on a study of results to date, the Communication advises Member States on the policy pitfalls to avoid and identifies items that should be part of national switchover plans. National measures should be transparent, proportionate, timely, and technologically neutral to avoid unduly discriminating against certain parties and distorting competition in the market.

The Communication also launches a policy debate on how the spectrum recovered when analog broadcasting is turned off could be reused transparently and fairly. There are differing views on this among industry players, and it will be important to establish a policy approach that does justice to the economic potential of spectrum release and other public policy objectives. The Commission proposes to take up the issue with Member States within the recently established Community spectrum policy framework set out in the new regulatory framework for electronic communications.