Telecottages in Hungary

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The first telecottage was "born" in 1985. It was established in Vemdalen, Sweden. The movement arrived to Hungary in 1994. The telecottage is a rural institution using the modern IT tools (computers, Internet, office automation etc.) solving the problems of the local community. The Hungarian Telecottage Association supports the neighbouring countries, transporting their experiences founding their first telecottages and their Association.

1. The origins

The age of information technology, which has revolutionised the world in the second half of the 20th century, commenced in Hungary with the installations of the *first relay-computer* (*MESz-I in 1958*) and of the *first electronic computer* (*M-3 in 1959*). The first relay-computer assisted in education, while the first electronic computer supported, besides scientific calculations, various forms of practical work (architectural design, optimum calculations, operation research, planning calculations etc.). Many of the later acquired computers in this time also assisted sciences but a substantial portion of those were applied by businesses.

Domestic *computing technology* is centered in Budapest and in other larger towns; even as yet, information technology *has not or has hardly reached the people living in smaller communities*, especially those involved in agricultural activities.

Obviously, the village population was also aware of the potentials offered by information technology — through the media, — newspapers, radio and television — but, of course, in villages computers were rarely used in a day-to-day practice, for work or for learning — because there are very few computers there. The computer and information technology bypassed small communities — not only in Hungary, but all over the world, too.

2. Telecottages

This situation began to change in 1985 with the inception of a movement; that is when the first *telecottage* was set up. This took place far up North, in a Swedish village of Vemdalen — where the founder, Henrich Albrechsten, a retired oil engineer, established a rural "institution" where, as he phrased it *"one can do all things the inhabitants could not possibly do by themselves"*.

The movement quickly spread all over the world, telecottages sprang up, and today there are telecottages not only in Europe, but on the American continent and in Australia as well. The telecottage programme has just been launched in some countries of Africa — with the aid of the International Telecommunication Union (ITU), the International Association of Telecentres (ITC) and the UNESCO.

The history of telecottages in Hungary began in the village library of Nagymágócs, where *Jánosné BLASKÓ* set up the first Hungarian telecottage service in the *information corner* with a computer, a photocopier, a public library and various other pieces of information equipment. Unfortunately — owing to the retirement of the founder — in 1995, the telecottage in Nagymágócs was no longer operating.

The *second* — still active — participant in the history of *telecottages* in Hungary is *Mátyás GÁSPÁR*, President of the Hungarian Telecottage Association, director of the National Telecottage Programme. From the air pollution in Budapest he "fled" to Csákberény in order to promote internal development of the village by launching various activities aimed to serve the benefits of the community — with the aid of the Ministry of Welfare. He soon began to organise a rural community institution — but he did not know for a telecottage at that time — for the village and, of course, for his own pleasure, which, besides resolving problems and performing tasks for the community, also constituted an information channel towards the whole of Hungary and the rest of the world.

This was followed by a long period of information gathering, which finally led to the house in Csákberény being promoted to a *telecottage*. This is how the Hungarian *telecottage movement* was launched.

By the middle of May 2001 more than 250 *telecottages and telehuts* (small telecottages, more or less with only 1 computer connected to the neighbour telecottage) were opened in Hungary.

3. Telecottages and the Society

Telecottages have been set up in all countries of the world — including Hungary — primarily by civil organisations, often by private individuals — mostly with external support. The supporting organisations include central and local governments, larger enterprises — primarily information technology – related ones — foundations and funds concerned with the improvement and advancement of rural areas.

For the time being, the telecottages in rural environments are starting their own business undertakings because basically, they *try to provide for the inhabitants of such small communities the services for which there is little demand yet*. Therefore, it is clear that telecottages cannot purchase the necessary equipment and finance their day-to-day costs with the revenues received for their services. Almost all telecottages — during the first 3–4 years of their operation — concentrate primarily on trying to generate demand for their services, primarily

the *application* of information technology and telecommunication, and for its other activities as well. A telecottage — in the environment of a small village — will be carrying out its mission for quite some years, the employees and mostly voluntary staff of a telecottage are in fact *the missionaries of the introduction of the application of information technology (computers, telecommunication, Internet and office technology etc.), social services, civil and other activities*.

The activities of telecottages — nevertheless — are *formally of a business type*, since citizens are required to pay a minimum charge for the services rendered by the telecottage. The institutions, civil organisations, associations and other similar organisations generally acknowledge that — as shown by international and local experience — for a period of 3–4 years after their foundation, telecottages do not earn enough to cover even their running expenses. Therefore, they keep subsidising them on an ongoing basis. Naturally, there are some exceptions in Hungary, some telecottages can introduce services and can earn enough income for their socially oriented programmes. This period is usually required for them to become self-sustaining, but it cannot be expected for quite some time that they will be able to generate the income required for the procurement of the equipment (computers, fax machine, copiers, phones, Internet link etc.) required for their operation. In Hungary, even *local governments of small villages are not capable of funding this*, they are facing permanent financial difficulties, therefore — understandably — the foundation and *equipping a telecottage is far behind the priority of solving social/welfare problems, construction of pavements, gas and sewerage networks and other similar projects* whereby leaders of the villages can provide for the elementary requirements of the villagers and to improve their living conditions. The operating telecottages keep monitoring bidding opportunities and, in this way, many of them can provide for the financial support required for their operation.

The telecottage movement received its first large impetus in 1996, through the *"Network for Democracy Programme" (DEMNET)*. The programme was launched by the *US-AID, US Government Foundation in Hungary*. One of the

largest and perhaps the most successful domestic projects of the programme was the support provided for the foundation of 31 telecottages. Under the project the telecottages could enter bids for the procurement of IT equipment (computers, telecommunications equipment, office equipment etc.), successful bidders were granted amounts ranging from HUF 1.5 million to 3.0 million (7,5–15.000 USD) per telecottage. The bidders — i.e. local civil organisations — *provided premises and other requirements for operation (heating, power, phone, etc.) mostly with local governmental support* — sometimes from their own sources — along with the employment of voluntary staff on duty in the telecottages.

The foundation of a number of telecottages — primarily of those that launched a wide range of social/welfare programmes as well — was supported by the *Ministry of Welfare, but various funds — OMFB (National Technical Development Committee) IKTA (Application of Information and Communication Technologies), PHARE programme, tenders organised by the Prime Minister Cabinet's Office, the Ministry of Transport, Telecommunications and Water Management — MTTWM, the Ministry of Agriculture and Country-development — FVM, Soros Foundation etc. — also provided the money for the establishment of telecottages.* Some communities established their telecottages with funds from unknown donors, private resources and/or contributions made by local entrepreneurs or larger enterprises.

4. Passageway, the National Telecottage Strategy and Programme, 2000–2006

The first version, called: the *National Telecottage Programme* was launched in March 1998 under *the Government's "Rural Modernisation Programme"* — with the support of *the Prime Minister's Cabinet Office, the Ministry of Transport, Telecommunications and Water Management, and other Ministries*, under the leadership of *Mr. Mátyás GÁSPÁR, President*. The last version, named: **Passageway, the National Telecottage Strategy and Programme, 2000–2006** was launched on September 2000. It is now a part of the Hungarian Development Programme on Informatics. Its Hungarian name is **Szechenyi terv (Plan of Szechenyi)**.

The Passageway (shortened name) defines the main goals of telecottages, contents several programms, started in the telecottage movement so far, but soon most of them will be started step by step. The Passageway gives the prognosis regarding the number of the telecottages in the future, based on the present supports and development.

The table 1 shows how the telecottage movement has changed over the last years. As you see, the number of the telecottages and telehuts is growing very fast, because their activities are good examples to other villages. Telecottages have become the manager center or the "heart" of the villages. A lot of civil activities have started in the villages, since telecottages became operative, e.g. cultural activities are renewed, social activities have gained a new dimension, with the help of the Internet a telecottage can create some new jobs, start the rural tourism, etc. Generally a telecottage could mobilise the free human resources in the smallest villages.

The Passageway defined some Main Strategical Directions, such as

— stabilising the results of the telecottage movements;

— completing the telecottage network to be capable of technical self-renewing;

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Telecottages	2	2	5	20	80	150	200	400	600	800
Telhuts	—	—	—	—	10	20	30	100	500	1200

Table 1. Hungary: Increase in the number of telecottages and telehuts and their forecast.

— renewing the activity and services of telecottages;

— leading role in the information technology support;

— Hungary would be a regional source-center in the telecottage movement.

Over recent months, a demand has arisen for the establishment of telecottages in towns as well. Communities of residential areas — having familiarised themselves with the goals of the domestic telecottage movement — turned with their request to the Hungarian Telecottage Association and to the National Telecottage Programme for support in the establishment of "telecottages" in residential districts of larger towns as well. It should be noted that a telecottage was established in Budapest in 1998. Its founder called it "telehut" (Hung. Telesufni). However, it was not very successful. Another city-telecottage was established in 2000, in Satoraljaujhely, as a telecottage supported by a local entrepreneur. Those proposing telecottages to be set up in urban areas argue that the barren residential district environment does not differ much from that of a small municipality and it could organise its life much better if it had a community institution similar to the telecottage in the village environment.

5. Some current activities of Hungarian telecottages

Telecottages are a typical "product" of the information age; according to the definition formulated by the Hungarian Telecottage Association, the goal of domestic telecottages is to provide the development of even the smallest communities with an entirely new perspective, through the application of up-to-date tools and information technology equipment.

In some *West European* countries telecottages are called *IT Centres* or *Multipurpose Telecentres* of the village, in others they are called *common office of the enterpreneurs. Hungarian telecottages are both information technology centres and common offices, but they do a lot more than that; they make efforts to organise the life and activities of the village as well as possible, they promote growth of the wealth of the village community*. Therefore, a Hungarian

telecottage is also a village forum where people can exchange their experiences and opinions. Some of the telecottages have also launched *social/welfare, training/education, advisory, cultural and a lot of other similar programmes, in some villages they even undertook to issue local newspapers*, so the Hungarian telecottages are increasingly turning into the intellectual centres of village life. Since Internet is accessible from telecottages, the forum — if the community likes — can be extended to the whole of Hungary, or even globally.

The telecottage is a meeting point for the villagers and its civil organisations but those who call *telecottages the communities' centres for remote teaching or teleworking* or simply a small but important element of the world-wide net, are not wrong either. A telecottage will bring in news about the world to small communities and through the telecottage villages may present themselves to the world. A telecottage is the village's link with the world and a source of information about the world brought to the village.

There are many examples proving that in small municipalities, where there are telecottages operating, *rural tourism grows rapidly and commerce* is getting interested in the products of local artisans/entrepreneurs/farmers (grapes, fruits, wine, grains etc.) presented on the home pages. Therefore, the services rendered by telecottages may even result in direct financial advantage for the citizens.

It is no longer impossible that — if teleworking is really introduced in Hungary — *telecottages could contribute to the creation of new, virtual jobs in villages with serious unemployment rates*. For the time being, it seems to be an illusion, but it may become reality before long, that villagers may be working for remote employers, even in other continents, without even having to leave their village or their own family houses.

It has already become possible that through *teleeducation or teleteaching* inhabitants of small municipalities can obtain even university degrees by learning in the telecottages and taking their exams there, via the Internet.

Through telecottages, small communities may keep in touch with one another, with public institutions, governmental bodies, and with im-

portant information centres in the world. At present — hopefully not for a long — there are legal obstacles to telecottages becoming *official end points for tele-administration* of issues, despite the fact that it has become possible to enable villagers to have their issues dealt with — via the data networks — through "virtual windows" established in telecottages, following the example of the "single window administration" scheme that has become a government programme. For the implementation of this system the telecottages should be granted a certain official status so that they can be authorised to issue official documents. Just one example: the majority of the Hungarian land registry offices are capable of transferring deeds of title, maps and other official documents through the Internet. These documents could be queried by any telecottage as well (where there is an Internet terminal), but this does not make the given document officially authentic since the telecottage does not have official power.

Turning telecottages into administration centres would also provide them with an additional, modest revenue source to cover their operating expenses — through their own operation.

A telecottage — since it can establish a two way, uncensored contact via the Internet — can set up *direct communication with all kinds and levels of authorities* — even with top politicians governing the country. A village citizen who has so far been capable of having a say in village matters only, may in the future express his/her opinions on matters pertaining to the county or even at for a governing the country. Through such a nation-wide mechanism for exchange of experience, a nation-wide dialogue may be established on various issues. Even co-operation may be established between remote Hungarian municipalities and even with similar communities in other countries.

Negotiations have been underway to the effect that telecottages *be granted various postal rights, where there is no local post office*, to accept letters, packages and money, and, since they have remote connections — if equipped with credit card verification terminals (POS) — to operate even as card acceptance points.

In Hungary — so it has been found so far — there are no two telecottages with identical operations, which is also an indication that telecottages meet requirements of the inhabitants of small communities and undertake to perform the tasks for which there is demand in the given community.

Telecottages provide assistance not only to the population but also to local governments, by undertaking civil duties — otherwise to be performed by local governments. There is a very large number of telecottages that undertake to organise social programmes of the given village, other telecottages *become quasi media centres, operating cable television, sometimes broadcasting separate local programmes*. Soon there will be telecottages undertaking Internet service provision for several neighbouring municipalities.

There are small municipalities where in *the telecottage the local, mostly retired, experts undertake tax, accounting, medical, entrepreneurial and — God only knows — what other consulting services*, through which they make money for themselves and, at the same time, they increase the revenues of the telecottage. These experts can especially efficiently utilise the Internet databases accessible from the telecottage, for their advisory services.

In the villages where there is no computer as yet in the local elementary school, the IT training is normally carried out in telecottages. The managers usually organise adult *IT trainings* too. This activity is very important today, when the National Computer and Internet program — the ISIS-SULINET — supported by the educational government, is moving slowly, therefore the rural elementary schools will get their computers and their Internet connection later.

Also, it is frequently found that a telecottage operates as *a special day-time home for schoolchildren, where they can use computers* — at the beginning to play games — but soon a large percentage of the children go on to perform more serious IT activities. The Hungarian Association of Telecottages would like to join the movement of *Computer Pals Across the World (CPAW)*.

In a number of municipalities the telecottage is the location used for the meetings of civil organisations. A number of telecottages are involved in the *planning of the future of the community*, which has a lot to do with the promotion of local enterprises and is tackling the problem

of creation sufficient number of jobs within the municipality.

From the information gathered on local telecottages through discussions with people, more than *hundred types of various activities* have been listed, the majority of which originated from local initiatives. The ever widening range of activities indicates, on the one hand, that the movement is far from having depleted the potentials offered by telecottages, while on the other hand it shows that there are countless — as yet unknown — activities to be undertaken in villages, since these are requirements that seem to be left to telecottages to satisfy.

6. The Hungarian Telecottage Association

The Hungarian Telecottage Association was established in 1995 by Mátyás GÁSPÁR. The organisation has slightly below 200 members now.

The Association was established by private individuals, who elected *Mátyás GÁSPÁR Founding President of the Association.*

In 1997, prior to the launching of the National Telecottage Programme, when, primarily owing to the US-AID "Network for Democracy Programme", telecottages were being set up in various municipalities in Hungary, the members reorganised the Association and today only telecottages can be regular members of the Association.

The General Assembly also elected a new managing body in 1997, *Mátyás GÁSPÁR, the Founder and Mária ZÁM, earlier Director of the "Network for Democracy Programme" were elected Honorary Presidents of the Association while Gyõzõ KOVÁCS was elected President of the Association.* The Hungarian Telecottage Association is governed by an elected Directorate. The leadership of the Hungarian Telecottage Association was renewed in 2001, the members elected as *an old-new President: Mátyás GÁSPÁR and a new Hon. President: Gyõzõ KOVÁCS.* Majority of the Presidium was changed, several new and young telecottage-head was elected into the Board.

The Association is more of a collective organisation than a governing one, since is also *structured from the bottom up*; telecottages make

their own decisions concerning their operation. The primary goal of the Association is to enrich the activities of the movement, to promote the exchange of experience and the nation-wide dissemination of already proven practices.

The Association is connected with national and local authorities, establishes international relations of the movement, organises study tours, receives visitors from other countries, interested in the activities of Hungarian telecottages.

7. The intelligent regions

The Hungarian Telecottage Association — because the number of telecottages is growing very fast — decided to form 7 regions, the telecottages and telehuts in each regions elected their own Presidium of the Region. The General Assembly of the Association defined their activities. It is the first step in the development of the decentralisation of the movement. The statute of the Association permits to form other groups in the frame of the Association, e.g. *telecottage branches* in the neighbouring municipalities or in small geographical regions.

The development of intelligent regions, as well as the Hungarian telecottage movement, may be boosted by the start a few years ago and by the spreading at an accelerating rate of interactive cable television networks, which can provide telecommunication services for telecottages at prices far lower than the current telephone charges. This seems to enable elimination of another obstacle from the way of the expansion of the activities of telecottages, since if telecommunication costs are cut, then more people can afford to use the very rapidly developing services offered by telecottages.

8. International cooperation

The main important partners of the Hungarian Telcottage Association are the neighbouring countries. These countries — watching the successful telecottage movement in Hungary — started visiting us, exchanging experiences with us and very soon they started their own telecottage movement too. They also established telecottages and their Associations. The Hungarian Telecottage Association — together with

the Associations in the neighbouring countries — will soon organise the *Union od European Telecottage Associations.*

Current situation in the "former Socialist countries":

Romania. They have 23 telecottages and telehuts. They established the *Association of the Romanian Telecottages*, but now they have some difficulties.

Yugoslavia. They have 66 telecottages and telehuts. They were supported by the US-AID, too. The *Yugoslavian Telecottage Association* was established.

Slovakia. They established 1 telecottage, the *Association* was also organised.

Ukraina. Some organisations asked for information about the Hungarian telecottages, the first telecottage is operating now.

Poland. A governmental organisation asked for some information about the Hungarian telecottage movement, they also visited some Hungarian telecottages.

Estonia. About 60 telecottages are working, the movement came to Estonia from Skandinavian countries.

Bulgaria. 3 telecottages are working, about 10 are being established with the help of US-AID.

Slovenia. 3 telecottages have been developed by the local population.

During the ITU seminar in Bratislava (April 2000), some representatives of the local Telecoms were very interested in Hungarian telecottages and they decided to inform local civil and governmental organisations about the telecottages, as excellent "tools" for informatisation of rural communities. These countries were: *Albania, Bulgaria (they realised), Czech Republic, Estonia (they did not hear about their telecottages), Latvia, Lithuania, Russia and Slovenia (later they developed their first telecottages).* They would all like to follow the Hungarian telecottage model.

Telecottages in some other countries.

Many telecottages — their name is *community telecenters or telecottages* — are in USA (3–400), in Canada (about 2000), in UK (220) and in Australia (120). The Hungarian Telecottage Association has some connection with telecottage-oriented organisations in Spain, Italy, Germany and France.

References

Books:

[1] MATYAS GÁSPÁR, MARIA TAKACS, (1997) *Epitsunk telehazat! (Let's construct telecottage!)*, Kozigprint — Kozigkonzult, Csakbereny.

[2] HUNGARIAN TELECOTTAGE ASSOCIATION, SEVERAL AUTHORS, Edited by Matyas Gaspar, (1999) *Telehazak es Tavmunka Magyarorszagon (Telecottages and telework in Hungary)*, Telehaz KHT, Csakbereny.

[3] *Passageway, National Strategy and Programme*, Edited by Matyas GASPAR.

Journals:

[1] GYOZO KOVACS, (1998) "Elenkul a telehaz mozgaom" (The telecottage movement becomes lively), *VGA Monitor*, 3/1998.

[2] GYOZO KOVACS, (1998) "A tuaregek telehazat akarnak Maliban" (Tuaregs would like telecottages in Mali), *VGA Monitor*, Vol. 50/1998.

[3] GYOZO KOVACS, (1999) "Tavugyintezes a telehazakban" (Teleadministration in the telecottages), *VGA Monitor*, Vol. 5/1999.

[4] GYOZO KOVACS, (1999) "Telehazak a vonalban" (Telecottages in line), *VGA Monitor* Vol. 17/1999.

[5] GYOZO KOVACS, (1999) "Telis-telehazak" (Full telecottages), *VGA Monitor* Vol. 21/1999.

[6] GYOZO KOVACS, (1999) "A Magyarkeszi telehaz izei" (The flavour of the Magyarkeszi-telecottage), *VGA Monitor*, Vol. 27–28/1999.

[7] GYOZO KOVACS, (1999) "Telemunka es telehaz az itáliai Belgirate-ben" (Telework and telecottage in Belgirate – Italy), *VGA Monitor* Vol. 46/1999.

[8] GYOZO KOVACS, (1999) "A piacenzai telecenter" (A telecentre in Piacenza), *VGA Monitor* Vol. 46/1999.

[9] GYOZO KOVACS, (2000) "Tavol's megis kozel" (Far and still closed — A telecenter in Piacenza), *Business Online*, Vol. 1/2000.

[10] GYOZO KOVACS, (2000) "Teleházak a szomszédban" (Telecottages in the neighbour), *VGA Monitor* Vol. 10/2000.

[11] GYOZO KOVACS, (2000) "Egy eves a WEBRadio" (The first anniversary of the 'Telecottage' WEBRadio), *VGA Monitor* Vol. 12/2000.

[12] Gyozo Kovacs, (2000) "ISTEP 2000. Kassai nemzetkozi szimpozium a tavorvoslasrol es a tavoktatasrol" (ISTEP 2000. A symposium about the telemedicine and the teleeducation in Kosice), *VGA Monitor* Vol. 14/2000.

[13] Gyozo Kovacs, "Nemzetkozi ITU szeminarium Pozsonyban" (International ITU seminar in Bratislava), *VGA Monitor* Vol. 15/2000.

[14] Gyozo Kovacs, (2000) "Telehaz, Telemunka, tavtanulas" (Telecottage, telework, teleeducation), *168 ora*, Vol. XII/7 2000, pp. 44.

Conference Proceedings:

[1] Matyas Gaspar, (1999) "Telecottages in Hungary: Practice which gives Rise to Theoretical Questions", *Proc. 3rd International Austrian-Israeli Technion Symposiuon cum Industrial Forum "Technology for Peace — Science for Mankind"*, Austria, RISC Hagenberg Castle /Linz, 26–27 April 1999, pp. 187.

[2] Gyozo Kovacs, (1999) "The Worldwide and Hungarian Telecottage Movement as the Tool of the Rural Development", *Proc. 3rd International Austrian-Israeli Technion Symposiuon cum Industrial Forum "Technology for Peace — Science for Mankind"*, Austria, RISC Hagenberg Castle/Linz, 26–27 April 1999, pp. 194.

[3] Laszlo Z. Karvalics, (1999) "The Pre-History of 'Telecottage-Phenomena' and its Future in View of the Knowledge Background", *Proc. 3rd International Austrian-Israeli Technion Symposiuon cum Industrial Forum "Technology for Peace — Science for Mankind"*, Austria, RISC Hagenberg Castle/Linz, 26–27 April 1999, pp. 197.

[4] Gyozo Kovacs, (2000) "Telejobs and Teleeducation in the Hungarian telecottages", *Proc. ISTEP, International Symposium on Telemedicine and Teleeducation in Practice*, ed. by Frantisek Jakab and Ladislav Samuelis, Slovak Republic, Kosice, 22–24 March, 2000, pp. 175.

[5] Gyozo Kovacs, (2000) "Kistelepulesek az informatikai tarsadalomban. Telehazak Magyarorszgon es az EU-ban, a telehazak szerepe a helyi tarsadalom megszervezeseben" (Small communities in the Information Society. Telecottages in Hungary, in the EU, the role of the telecottages in the organisation of the local communities.) *EMT Days*, Romania, Sf. Gheorge, 24–25 March. The proceedings under publishing.

[6] Gyozo Kovacs, (2000) "The Role of the Telecottages in Hungary and in Central and Eastern Europe", *ITU Seminar on "Interconnection, Universal Access and Services Issues" for CEE countries*, Slovak Republik, Bratislava, 4–7 April 2000., free copy.

Gyõzõ Kovács was born in 1933, in Szekszárd, Hungary. His main diplomas: 1957. M.Sc. in Electronic Engineering from the Budapest University of Technology, 1960 Diploma of Patent Expert.

His main activities:

He started his professional engineering job (1957-59) in the Cybernetical Research Group of the Hungarian Academy of Sciences, he was appointed the Vice Head of the development-team preparing the M-3, the first Hungarian tube computer.

In 1960 he was invited by the University of Timisoara (Romania) to participate in the development of the first Romanian computer, the MECIPT I. Professor Moisil invited him to deliver the first lectures about the computers at the University of Bucharest (Romania) in 1961.

Between 1959 and 1967 he was the Head of the computer operation in the Computer Center of the Academy of Sciences, the first Computer Center in Hungary.

In 1960 they established a new faculty: "Economical Mathematics" within University of Economics. He delivered the first university lectures about "the computers". He wrote the first two university computer-books: "Electronics" and "Computers".

In 1969 he became one of the founders of the Coordination Institute for Computer Sciences, first as Head of the Computer Centre, later as Director of the Software Application Laboratory, then — till 1988 as Director of the Sci-L Ltd company (the first PC clone production company in Hungary).

In 1988 he was given another opportunity in SZÁMALK, Computer Application Company. He established the first Hungarian Distance Learning Centre (today: Open Business School), an English speaking Open University for Business and Management.

Finally he was an Advisor of Informatics in the Prime Minister's Cabinet (1996–98).

Some examples of his public activities:

He was elected as Secretary General (1975-85), Vice President (1985–90, 1993–2000) in the John von Neumann Computer Society. He was one of the founders and the Head of the Editorial Board of the first computer journal for students, the "Microcomputer Magazin" (1983–90) and he took the leading part in the first Hungarian Program for the Informatisation of the Society (1983-88). Part of the program included the National Microcomputer Meetings, first Computer Exhibitions (1983–88), the first Distance Learning Course: the TV-BASIC in the Hungarian Television (1984), opening some hundreds of Micro-clubs, etc.

He was appointed the Hungarian representative in the TC-3 Technical Committee of the (IFIP) International Federation for Information Processing (1985–92), he established and chaired the Distance Learning Working Group, TC3-WG 3.6 (1986–92).

He was elected the President of the Hungarian Telecottage Association in 1997, and the Permanent Honorable President of the Hungarian Telecottage Association in 2001.

He received several Hungarian and foreign awards and prizes for his computer research and his society-oriented activities. He has published: books, a lot of scientific and popular-scientific articles in Hungarian and foreign journals, TV and radio series, reports and talk shows.