Eastern Intelligence with Western Components.

ABSTRACT:

This article presents the history of a Hungarian defence industry enterprise, which also became – to a limited extent – competitive in the international arena. The export of arms and military electronics to the Third World was a possible source of foreign exchange for the Hungarian industry. At the turn of the 70s and 80s, several valuable export contracts were signed with Arab countries, including Libya. In the middle of the 80s, as a result of outstanding R&D work, 90 per cent of the Mechanical Laboratory Enterprise’s sales were comprised of indigenously developed equipment. The export of military equipment outside the Soviet bloc also had a crucial effect on the development of enterprise management and business culture.

Introduction

There is a popular legend in Hungarian military circles, according to which Colonel Muammar al-Gaddafi owes his life exclusively to radio reconnaissance stations produced by Hungary. In April 1986, the United States was hoping to eliminate the Libyan dictator with a swift and unexpected air-strike. Bombers were launched from an aircraft-carrier and they attacked the leader’s workplace as well as his home. A group of technicians, sent by the Hungarian producer, were supposedly undertaking regular maintenance work on the radio reconnaissance instruments, when they intercepted and decoded communications from the American attackers. The technicians allegedly warned al-Gaddafi, who was able to leave the bunker in time, and – unlike his daughter – survived the raid.

Although some elements of the story are to be doubted, the questions of how such a small country like Hungary could produce long-range reconnaissance instruments, and how such instruments eventually ended up in an Arab country, certainly deserve attention.

Despite the ongoing «archival revolution» that started about 15 years ago in the countries of Central and Eastern Europe, relatively little is known about the everyday functioning of the socialist economy. Historians have mostly focused on macro-economic developments and large state-owned enterprises, and have paid less attention to individual companies or industrial sectors.

Hungarian telecommunication firm, this article hopes to make a contribution to our general knowledge of the socialist system as it functioned in the 70s and 80s. There is an assumption from a technological point of view that the countries of the Soviet bloc fell behind the developed world in these two decades, because they could not keep up with the pace of development triggered by the computer revolution. The history of Hungarian radio reconnaissance equipment production, however, seems to revise this rather schematic image to an extent. Firstly, it demonstrates the technological challenges the Hungarian industry had to deal with. It also shows how the industry tried to keep pace with international trends and the efforts made in the domain of (military) research development. Finally, it gives an idea about the chances and prospects of a Central-Eastern European company in the market for developed technologies.

The Production of Reconnaissance Equipment in Hungary

The most important user of reconnaissance instruments, the radio reconnaissance service, was re-established in Hungary after World War II (in 1947), and soon became one of the most important sections of military intelligence. From November 1953 on, military intelligence was called the Second Main Directorate of the Staff of the Hungarian People’s Army. The principal task of the Radio Reconnaissance Detachment of the Second Main Directorate was to monitor, intercept, record, decode and process the civilian and military telecommunications of the NATO countries and of Austria. At the same time, it was also observing information traffic on the Mediterranean Sea, including the communications of the US Navy’s 6th Fleet, for example. Although, in the beginning, the radio reconnaissance service used Soviet instruments, experimental development of Hungarian equipment started as early as 1950, and was soon followed by the mass-production of such devices on a national level.

The member states of the Warsaw Pact brought up the issue of manufacturing reconnaissance instruments outside the Soviet Union for the first time in the 60s. In April 1963, the COMECON’s (Council for Mutual Economic Assistance) Standing Committee for Defence Industry, which was responsible for the coordination of defence technology production, research and development and scientific activity in the partner states, established a provisional working group for investigating the possibilities of producing radio reconnaissance and radio counter surveillance instruments. At its meeting in Prague in April 1964, the working group accepted proposals related to the development and production of reconnaissance and jamming equipment, and concerning possible future specialisations in the production process. The suggestions were accepted by the COMECON’s Standing Committee for Defence Industry at its meeting in Moscow in May 1964.

2 According to the Hungarian regulation of information protection (Law 1996/LXV on state secret and military secret), top secret documents issued before 1980 are now available for the researchers. Archival documents issued after 1980 are only available if their classification has been revised and modified in the course of a special procedure, such as the liquidation of firms. Therefore, a high number of important files are still not accessible, and thus some significant details cannot be clarified for the time being.

3 No. 10/64. protocol 12-14.05.1964, Moscow,
Among the Hungarian telecommunication companies, the Mechanical Laboratory Experimental Communications Enterprise (briefly: Mechlabor, or ML) was the most successful one, and the one with the most experience in the field. This is the reason why it was usually entrusted with the development and manufacturing of short wave and ultra-short wave radio stations as well as radio direction finders, tactical and operational receivers. The legal predecessors of Mechlabor were several private enterprises that specialised in radio-engineering, instrument production and minor experimental developments. At the time of the nationalisation campaign of 1949-50, these enterprises were united in one company, the prime customers of which became the Ministry of Home Defence (Honvédelmi Minisztérium – HM) and the Ministry of Interior. Between 1951 and 1953 the company went through a series of re-organisations. Its name as well as its production profile changed several times. It was eventually named Mechanical Laboratory in 1953, when it started manufacturing professional tape recorders and radio-gramophones as part of the conversion programme initiated by the government of Imre Nagy.4 (The company exported a large quantity of studio-quality tape recorders even in the 60s, but it could also rely on its experience in recording technology during the production of reconnaissance equipments.) From 1955 on, the company started the development of cameras and other instruments for Hungarian Television, which was established in the same year. This was also the year when a separate department for development was set up within Mechlabor. Although the number of orders from the army decreased in these years, the first receiving apparatus, which was suitable for mass production, was developed at the time. (The development of the ML-400 started with the examination of a Marconi RG-44 receiver.) The profile of the company had crystallised by 1957. It comprised the research, development and production of telecommunication devices, instruments and equipments.5

A close cooperation with military intelligence started in the 60s. On the basis of instructions from the army’s Second Main Directorate, Mechlabor constructed the R-1250 short-wave radio receiver in 1965, which was later produced en masse for export purposes.6 The first ultra-short wave reconnaissance radio receivers that had been developed by Mechlabor were delivered to the Ministry of Home Defence and the member states of the Warsaw Pact in 1968.7

1968 was a special year not only for the Mechlabor, but the whole Hungarian economy: the New Mechanism of Economic Management started on 1st January. The re-
form gave the state owned enterprises more independence, introduced financial interest (money-costing) and indirect regulation (the monetary incentives) supplanted the command economy – in the civilian sector. But in the defence industry and in procurement for the army, planning instructions were retained as an essential component of the system. Core objectives were specified as instructions from the Honvédelmi Bizottság (HB, Committee of Home Defence). In the section of the annual plan dealing with production and distribution, the HB prescribed a production task consisting of 30-40 directives to be realised by the companies: the most important weapons, guns, small arms, ammunitions, communication and electronic equipments. The chapter on the annual technical development plan also recorded some 30 to 40 assorted tasks in the form of directives. All the other military products were included in the «accounts section» of the annual plans, with target figures prescribing the expected quantity and the total output price of the products. The defence firms (similarly to the civilian enterprises) had no licence for foreign trade, but they were able to sell their products abroad via the specialised «impex» companies. From the start of the 70s the state supported armament export for the «dollar market» with the same «incentive subsidies» as selling civilian goods abroad.

Following numerous negotiations and working group meetings, COMECON’s Standing Committee for Defence Industry, at its session in Berlin in May 1970, decided on the specialisation of production of instruments for radio reconnaissance and jamming. Hungary was asked to develop receiving stations for the interception of relay transmissions. In the following years, preliminary negotiations were proceeding between the two ministries that supervised the military telecommunication production (the Ministry of Metallurgy and Machine-building Industry – Kohó- és Gépipari Minisztérium – KGM and the HM). Hungarian experts were also able to study the functioning of similar equipment in the Soviet Union. At the same time, the officials in charge started to prepare analyses related to the organisation of production. The next step in the preparation for production was the discussion of the long-range development plan for radio reconnaissance instruments. The discussion took place in September 1973, at the meeting of the Government Committee for Defence Industry that was responsible for coordinating the work of the ministries. The committee deemed it necessary to continue negotiations on this matter with the Technical Body of the Command of the Joint Armed Forces of the Warsaw Pact, and with COMECON’s Standing Committee for Defence Industry. The task of the HM and KGM, on the other hand, was to establish the division of labour between the industrial sector and the Second Main Directorate.


During its preparations, between 1970 and 1975, Mechlabor doubled the value of its production, and already produced two thirds of its products for export. By the end of that period, defence production had reached the 75 per cent from aggregate output of the enterprise, which was remarkably high in the Hungarian context. At the time, the majority of short wave and ultra-short wave receivers delivered by Mechlabor were the company’s own inventions; only «Brusnika» was a Soviet licence product. Some of the equipments already featured integrated circuits.

By March 1976, the preparations for production of the new generation radio reconnaissance equipment reached a stage when decisions could be made regarding the commencement of necessary investments. The Committee of Home Defence, which functioned as a Cabinet within the government and was responsible for defence and security issues, approved a 279.4 mil Forint investment estimate. More than one third of this sum (109 mil Forint = 2.046 mil Dollar) was supposed to be spent on machines and instruments imported from capitalist countries. Moreover, production was only made possible by a continuous, large-scale import of parts from the West. For this reason, the authorities planned to import parts to the value of 3.2 mil Dollar during the period 1976 to 1980. The high percentage of western parts used for the production of military products would have been unimaginable earlier, and in the case of Soviet licences the use of western products was still impossible. As a matter of principle, the Soviet Union objected to such a dependence on imports; nevertheless, this did not stop it from purchasing Hungarian equipment which was much more effective due to the installation of parts made in the West (integrated circuits in particular).

The development of remote-controlled radio reconnaissance instruments that could also fit into automatic systems is one of the most complicated branches of telecommunications industry. It also meant the greatest technical challenge for the specialists. By the second half of the 70s, integrated circuits had become the most common type used by Mechlabor for the construction of equipments. The use of transistors and integrated circuits required the establishment of special testing laboratories. Large investments – mostly financed out of bank loans – were used to purchase modern means of production, machines, and instruments, as well as to strengthen parts production within the company. Mechanised production and the proportion of intermediates that needed less processing were increased at the expense of manual assembling practices.

The first two export contracts that were not accounted in rubles (namely outside the Soviet bloc) were made in 1978 between Mechlabor and Yugoslavia and Iraq. The contracts, which were to the value of 9.7 mil Dollar, were negotiated by Technical Foreign Trade Enterprise (Technika Külkereskedelmi Vállalat – TKV), that specialised in defence technology products. In July 1980, the company received another valuable order: a contract to the value of 13.4 mil Dollar was signed with the Indian Army for the communication jamming system «Forest», the complete radio reconnaissance and

12 The standard was 25-30 per cent, because such companies had had a double – a civil and a military – profile from 1953 on.
13 Gács, A Mechanikai Laboratórium története (cf. n. 5), 27f.
14 No. 6/265/1976. resolution of the Commit-
interception system «Inda», and another equipment of the same kind, which had the codename «Pine». The main co-operation partners of Mechlabor included the Precision Mechanical Works (Finommechanikai Vállalat – FMV), the Communications Enterprise, the Labor Instrument Works and the Research Institute for Telecommunication (Távközlési Kutatóintézet – TÁKI). The deal was worth 33.7 mil Dollar. In sum, the talented development team of Mechlabor had managed to create a group of products that became well sought after both in the Soviet bloc and in the developing world.

The Libyan Business

Besides the countries of Algeria, Egypt, Iraq, India and Lebanon, the TKV also did intensive market research in Libya, beginning in the first half of the 70s. One of the first valuable export contracts was signed in August 1977 by TKV and the Arab Socialist People’s Republic of Libya, which needed immediate weapon supply (to the value of 13.4 mil Dollar) for its military campaign against Egypt. The deal, however, turned into a scandal, since with the easing of the tension – only two and half months after the contract had been signed – the Libyans would not take delivery of the products ordered from Hungary. On the other hand, the quality of the military equipment delivered by the Hungarians was also criticised with good reason. The relationship between the two countries, however, was not spoiled by the incident. In February 1978, another contract was signed for the delivery of weapons between TKV and the Staff of the Libyan Armed Forces.

Negotiations with Libya continued after 1979 with varying intensity. Libya’s demands were significantly different from those of the other developing countries that were Hungary’s partners in arms trading. Besides single weapons and telecommunication systems, Libya was also interested in ordering complex military services and establishments. Such requests meant a challenge for the Hungarian industry and the army, but also meant new export opportunities and the prospect of a large income in hard currency.

By the summer of 1980, the magnitude of planned orders from Libya had reached three bil Dollar, and there was a continuous exchange of delegations of industrial and military experts between Tripoli and Budapest. The Arab partner wanted to commission Hungarian companies with the building of the main warehouses of the Tripoli airbase, the construction of six military camps, 240 other storehouses, petrol storage, the Nauma airport, and the reconstruction of the airport in Kufra, which would have also included the building of a military base, 1,000 apartments and various service buildings. (In November 1980, the two countries established a joint stock company, the Libyan

18 Control Department of the Ministry of Foreign Trade: Complaint concerning the Libyan supply in 1977, in: MOL, XIX-G-3-p 7. d. The TKV, among others, also delivered ammunitions produced in the 50s and cannons made in 1946 to the Arab partner.
Arab–Hungarian Enterprise for the Building of Military Establishments, with the aim of carrying out the related tasks.\textsuperscript{20}

On 1 July 1980, the Committee of Home Defence gave the necessary permission to sell Libya small arms, anti-aircraft command posts, telecommunication equipments, telephone exchanges, radio reconnaissance and jamming systems, training simulators, diagnostic instruments, military tents, and various military clothing and equipment.\textsuperscript{21}

The Arab partner had almost no experience concerning radio reconnaissance systems; therefore, the Hungarian offer – made at the negotiations in late July–early August 1980 – was accepted without much hesitation. Moreover, soon afterwards, the Libyans requested the planning of a complete radio reconnaissance and jamming service, including mobile and stationary units. Besides requesting plans for a reconnaissance unit of 4,500 employees, the Libyans also asked for the construction and the delivery of the necessary equipment and special bases for the group, as well as for the training of personnel.

The value of the requested equipment would have reached 800 mil Dollar, at least according to the preliminary estimates. After the Libyan request, the KGM initiated a wide-scale assessment of the country’s capacities, since the construction and transportation of the complexes would have required the active participation of the army and at least 20 companies. At the time of the negotiations, only one of the 14 sub-systems was in the development phase; the authorities were hoping to finish the development of the rest in the future, in about three years. The most significant lags could be observed in the production of receiver-transmitter and direction finder antenna systems, and also in the case of ultra-short wave receiver and direction finder equipments. In the case of such products, as well as in the case of transport vehicles and superstructures (i.e. containers) the development phase had to be squeezed into the production phase. The KGM’s biggest worry was related to the acquisition of parts from the West: if due to the embargo, or due to political considerations concerning Libya, the Western partners had stopped their deliveries, then it would have been impossible to continue with the order.\textsuperscript{22}

Had Hungary won the order, the Second Main Directorate would have also been entrusted with a series of crucial assignments. In general, the KGM required the active participation of military intelligence in the transportation of reconnaissance systems and in the following tasks and working processes in particular: during the planning of reconnaissance systems; in the supervision of development; at the military qualitative acceptance; in the training of chiefs, system engineers, operators and mechanics; and at the transference and putting into operation of equipment.\textsuperscript{23}

The flood of orders from Libya created a certain dilemma for the Hungarian decision-makers. The unpredictable payment habits of the Arab partner and other uncer-
tainties gave rise to the question: Is it safe to start such a large-scale project? Nonetheless, the meeting of the KGM, the HM, the Hungarian National Bank, the National Planning Office and the Ministry of Finance in September 1980 was dominated by an optimistic mood. The prospect of significant income in hard currency, and a profit that had been estimated at 15 per cent, convinced the decision-makers that the risks could be kept at an acceptable level, if the necessary precautionary warranties and guaranties were made.24

In the end, the contract with Libya for the delivery of radio reconnaissance and jamming systems was only signed on 15 July 1981. Although the initial scale was reduced, the business — as codified by the contract — was still worth 297 mil Dollar. The division of labour was the following: industry produced and delivered the systems; one department of the Second Main Directorate provided assistance in the application and operation of the systems, and in the training of personnel; repairs and maintenance were the responsibility of a company named INDUSTRIALEXPORT. In the industrial sector, FMV became responsible for the jamming sub-systems; Mechlabor produced the reconnaissance sub-systems; and VIDEOTON Electronics Company manufactured signals sub-systems, and computerized command subsystems.25

Libyan Transport: Problems and Consequences

The large-scale Libyan order, along with the development and production of systems to be transported to Iraq, India, Yugoslavia, and to the member states of the Warsaw Pact, triggered a series of changes in the army as well as in the telecommunications industry. With the aim of coping with the growing coordination and monitoring tasks caused by the large-scale export of radio reconnaissance and jamming systems, the Electronics Directorate of the Hungarian People’s Army (Magyar Néphadsereg Elektronikai Igazgatóság – MN EI, later: HM EI) was established next to the Second Main Directorate in 1982. In the subsequent years, the Electronics Directorate took part in the formation of technical requirements; in defining the directions of development; in the monitoring of production; in assisting the production by the developers; in checking the final product; in the transference of equipment; and finally, in the training of operators and mechanics.26 This way, the army (or more precisely: military intelligence) became involved in everyday production tasks to an extent that was unprecedented in Hungarian history. Moreover, the Electronics Directorate did a high-quality job and became a forerunner of companies providing information technology that were established in the 90s.

24 A memo of the discussion about the Hungarian involvement in planned supply of military facilities in Libya. 5.9.1980, in: MOL, XIX-L-1-qqq 39, d.
It remained a problematic issue, however, that the reconnaissance systems that were supplied to «capitalist countries» (non Warsaw Pact countries) and the ones that were delivered to the domestic market or to the member states of the Warsaw Pact included the same set of instruments. Nevertheless, there was a slight variation between the equipment in terms of software, or when there was the need to adjust the systems to the climate. The major problem was that earlier on Moscow would not give permission to export the latest and most up-to-date Soviet licensed products to third world countries.\textsuperscript{27} In Hungary, however, it was often the case that the developments were the results of special demands put forward by the Indian and Libyan partner, and that such innovations were also made available for domestic use, and were also included in the equipment shipped to socialist countries. The outcome – more up-to-date and more efficient equipment – was generally positive, which eventually overcame the Soviet Union’s concerns about security.

The process of research and development at Mechlabor accelerated and changed radically in the early 80s. The rapid development of electronics and the close deadlines set for the fulfilment of contracts required the reworking and the elaboration of the development plans in the course of production, or the reconsideration of development tasks that had been abandoned earlier. The systems that were exported to the «dollar market» were assembled by ten to twelve companies. Nevertheless, the solving of problems of compatibility required further – continuous – coordination and additional development. The proportion of system development work to additional system compatibility development was 50 : 50; therefore ensuring compatibility consumed a disproportionately large segment of Mechlabor’s development staff, which consisted of 130 employees. At the same time, even if the development section had reacted quickly to the challenges, the bureaucratic, and centrally planned foreign trade remained unable to obtain and import parts and instruments before the deadlines that had been fixed earlier by the respective contracts.\textsuperscript{28}

Besides all that, the additional technical requirements for Libya provoked further problems that had to be realised in the course of production. For this reason, technical development and production often became parallel processes. Moreover, Libya was 20 months late with the opening of the clearing procedure, but was also late with transferring the advanced payment, which was 20 per cent of the total sum. Thus, the companies that participated in the project, short of capital anyway, remained unable to obtain and launch the necessary investments to extend their capacities. Furthermore, due to the delays, payments of development loans to the companies were also suspended.\textsuperscript{29}

The backwardness of the telecommunications industry and computer science also aggravated the difficulties of Mechlabor and other cooperation partners. The supply of raw materials and parts in a socialist context required extraordinary efforts. The most

\textsuperscript{27} This was not a uniquely Soviet attitude. Most developed great powers in war industry tend to react the same way to similar issues.
\textsuperscript{28} Department of Armed Forces of the KNEB: Report on the monitoring of Mechanical Laboratory Enterprise, The initiation and exploitation of defence R&D, 4.3.1983, in: BFL XXIX. 220/a TÜK 14, d.
\textsuperscript{29} Ministry of Finance: Report on the situation of the production and sales of jamming and reconnaissance systems at the VIDEOTON Electronic Enterprise, 14.3.1984, in: MOL, XXIX-F-209-d 94, d. (cf. n. 24).
unreliable partners were the Soviet suppliers: there were times when they shipped nothing for months, and then all of sudden they delivered the entire annual order in one go (while ignoring every possible deadline). In two years, three different foreign trade companies tried to organise the import of parts – without much success. Moreover, Mechlabor required the supply of unique components, or parts that were produced in small series. Therefore, none of the domestic suppliers dared to take over the production of such components. For this reason, Mechlabor, VIDEOTON and other companies were forced to extend their capacities, and to organise the manufacturing of parts within the company, in order to be able to continue production. From this perspective, it is no surprise that the exported equipment contained a high proportion of material and parts that had been imported from capitalist countries. At Mechlabor, for example, the ratio of such components oscillated between 14 per cent and 77 per cent in 1980, and the annual average was 25 per cent, which could only be reduced to 18 per cent in the next two years.\footnote{Department of Armed Forces of the KNEB: Report on the monitoring of Mechanical Laboratory Enterprise. The initiation and exploitation of defence R&D, 4.3.1983 (cf. n. 28)} The reason why VIDEOTON, the prime contractor in the Libyan business, could manufacture the required equipment was due to the fact that 20 per cent of the components had been imported from the West. Besides the COCOM list and the restrictions due to the embargo, the acquisition of goods from the West was further hindered by the prolonged authorisation procedure of the Hungarian foreign trade authorities, the lack of foreign currency, and the suspension of imports. Such obstacles were often responsible for the failure to meet delivery deadlines.\footnote{Report on the monitoring of VIDEOTON Electronic Enterprise. The efficiency of the arms export, 28.8.1984 (cf. n. 26).}

As a result of immense efforts, deliveries to India could begin in 1981, and after having overcome some minor hindrances, the contractual obligations towards developing countries could also be fulfilled. In 1985 and 1986, reconnaissance and jamming instruments to supply two battalions had been delivered to Libya. The actual deliveries went smoothly, but the technical transference, as well as the putting into operation was delayed for two years, due to various complaints by the buyer.\footnote{Moreover, the Libyan army requested that the systems be installed on RÁBA lorries, but they refused to pay the price of the vehicles and the costs of the rebuilding. Controlling Department of the Ministry of Industry: Report on the comprehensive supervisory monitoring of the Mechanical Laboratory Enterprise, October 1989, in: BFL XXIX. 220/a TÜK 14, d.} Thus, it is quite likely that the reconnaissance system was not yet operating with full effectiveness in April 1986. Therefore, it could not have been used efficiently to protect al-Gaddafi’s life.

A Hungarian diplomat who was working for the Hungarian foreign service in the North African country in that period could only confirm one detail of the legend mentioned in the introduction: that at the time of the American assault, a group of specialists from a Hungarian company was indeed staying in Libya. He categorically denied the rest of the story. According to him, the Hungarians did not even get close to al-Gaddafi. The Libyan leader was not staying in a bunker (there were not any in Tripoli anyway), but in a residential building reserved for him, one side of which was actually hit during the air-strike. The incorrect reconnaissance and the imprecise aiming of the
Americans is also indicated by the fact that while they were trying to bomb the Libyan intelligence premises, they hit the French embassy building, 25-30 meters away from it, and they also bombed a residential building.33

Favourable Prospects – Mounting Difficulties

The partial fulfilment of the large-scale deliveries made the decision-makers of the time come to certain conclusions. On the request of the National Committee for Technical Development (Országos Műszaki Fejlesztési Bizottság – OMFB) in 1985 a group of military and industrial experts prepared a study entitled The Possibilities of the Development and Manifold Utilisation of Special Radio Electronic Systems and Equipments, which evaluated the contemporary situation.34

Parts supply, more precisely, its unresolved problems had become a key issue by the mid-80s. Delays and suspensions in the case of acquisitions from the socialist countries became regular. Although some of the COMECON countries produced high-power integrated circuits (for example the GDR), they would have asked for electronic products of a similar quality in exchange, of which Hungary could offer none.35 On the other hand, the embargo made it almost impossible to purchase integrated circuits from the West. Moreover, the mending, renovation and replacement of locating machines, equipments, and instruments that had been purchased from the West earlier, also became extremely difficult. In the case of radio reconnaissance and jamming systems that were meant to be exported to capitalist countries, the shortage of parts became critical. Obtaining large quantities of diverse parts sporadically and at short notice became more difficult; delivery also took longer, and eventually it added to the unpredictability of the production process.

The study emphasised that a positive effect of the exports to developing countries was that they stimulated domestic vehicle production and the development of truck bodies. Moreover, complex services usually complemented the delivery of systems. These comprised: providing the technical preconditions of operation (repairs, parts supply for maintenance and repair), and creating the organisational and technological background of upkeep; providing technical assistance after the warranty period, and the industrial repair of parts and major components in Hungary; the establishment and equipment of bases, where the systems could be installed or repaired; providing basic and additional training for operators and maintenance workers.

With the aim of concentrating research capacities, a proposal was put forward to establish a centre for analysts – following the Soviet example – within the framework of the Hungarian Academy of Sciences. Such a centre was expected to follow the

34 MOL, XXIX-F-209-d 91, d.
35 About the efforts of the COMECON in the field of the computer industry see Nigel Swain, Socialist autarky and failed socialist internationalism: Comecon and «perverse successes» of the Hungarian computer industry, in: Uwe Müller/Helga Schultz (eds.), National Borders and Economic Disintegration in Modern East Central Europe, Berlin 2002. The manufacturing of integrated circuits was not even included in the production plans.
development of domestic and international research; to direct research efforts; and to divide the tasks among academic institutions, military institutions and company labs. It was also suggested that a separate centre for telecommunications, communications tactics, and radio reconnaissance be established under the authority of the HM and the Ministry of Industry (Ipari Minisztérium – IM, the successor of the KGM), the work of which would also be assisted by a few selected enterprises and the centre at the Academy.

In the field of construction and technology, the specialists expected the most remarkable progress from the inclusion of modular components – that could be utilised in a multiplicity of ways (such as frequency synthesiser, medium frequency amplifier, multiplexer, antennas, adapters, etc.) – in various equipment. In a similar way, they were also planning to classify power sources, antennas, supply-leads, antenna masts, information recording devices, etc. This way, the production of equipment would have required a substantially smaller variety of parts and main components, and the costs of such systems could have been significantly reduced, as well.36

The proposals, however, had little effect. The leaders of the weakening communist party, and the economic decision-makers, who gradually became more focused on monetary issues, were all fully occupied with trying to overcome the deepening crisis. It seemed anachronistic, but while the leaders were constantly talking about the significance of information technology, it was coal industry and energy supply that received the largest part of the investment funds.

Nevertheless, the telecommunication enterprises tried to continue their expansion despite the unfavourable domestic conditions by intensifying their research and development activity, and by launching intensive market research in Asia. Mechlabor was leading the way in such activities: in the second half of the 80s, 90 per cent of its sales comprised products developed by the company. (This was unique among the domestic defence technology companies.) Due to its fourth generation developments, the company and its cooperation partners could still win a tender in India in 1987-88, leaving major enterprises, such as Thomson, Racal and Telefunken behind. In 1987, in order to advance market research, Mechlabor, together with TKV and the HM’s Electronics Directorate, established the Electronics Marketing Cooperation, which was supposed to market the special products of these companies at various international exhibitions. The rightful pride felt over the outstanding innovations of the engineers, however, was eclipsed by unfavourable financial trends. Between 1982 and 1989, Mechlabor invested almost 800 mil Forint (approx. 16 mil Dollar), 45 per cent of which was spent on purchasing Western equipments and instruments. This clearly shows the dependence of the company on imported technology. Between 1985 and 1988, export income was 36.5 mil Dollar, which could only be achieved through the importation of raw materials, parts and instruments to the value of 21 mil Dollar.37 It also needs to be underlined that the Libyan business fundamentally changed the character of Hungarian defence technology exports: besides individual instruments and systems, Hungary also started to export know-how and complex services.

36 MOL, XXIX-F-209-d 91, d.
37 Controlling Department of the Ministry of Industry, Report on the comprehensive supervisory monitoring of the Mechanical Laboratory Enterprise, October 1989 (cf. n. 31).
Despite all the efforts, the menacing signs started to multiply in 1988. Although TKV and the Electronic Directorate initiated exploratory negotiations with China, Malaysia and Egypt, competition in the new markets was tough, and it became more difficult to gain credible information about the qualities as well as the price of competing products. The most up-to-date communication instruments and systems already caused difficulties for the Hungarian reconnaissance systems. It would have been essential to begin development and research in order to react to these new challenges, but no forward plans were prepared. The majority of development activities at the companies comprised additional development tasks that were required by the respective contracts. The lack of well-trained experts became acute, and it became usual for development engineers to carry out the majority of installing, transfer and training tasks, besides solving problems related to the production process. The HM’s Electronics Directorate also realised the unfavourable trends and tried to come up with a series of initiatives to tackle the problems. The companies involved in the large-scale export projects had earlier formed the Electronics Defence Association, but the disruptive forces and the conflicts of interests overcame the initial intentions to cooperate. «Given that in the Hungarian People’s Republic the material, monetary and intellectual capacities are limited, it is important to adapt the results (the acquisition of specimens, copying, etc.), especially in the beginning.» – concluded the study. It also underlined that, due to the growing lack of capital, and the intensification of competition, it would be desirable to concentrate development and research capacities. In order to achieve this goal, the Electronics Directorate deemed it necessary to found a new consortium or share company, and to involve bank capital. However, the ability to respond to the new technological challenges (such as frequency hopping – FH – instruments and direct sequence – DS – instruments, which were used in satellite telecommunication) would have required the mobilisation of much larger financial resources. The developing countries, which were the targets of Hungarian foreign trade, would continue using conventional radio equipments – so went the argument. However, ergonomic requirements, the need for decrease in size, consumption, and weight, as well as for mobility (i.e. the possibility to mount equipment in armoured vehicles, helicopters, aeroplanes, or ships) were also significantly present on these markets.38

In the end, there was no time left to realise the reform plans. The cooperation of COMECON countries – and in fact the socialist regime as a whole – collapsed amazingly swiftly, and in the last days of the Cold War worldwide trade in defence technology products also rapidly declined. Although the Warsaw Pact is often looked down upon, it remained a guarantee for safe income and profit under socialism. Therefore, the suspension of deliveries to the member states dealt a mortal blow to the entire Hungarian defence industry.

Epilogue and conclusion

As it has been demonstrated above, even with substantially less capital and development funds available than their Western competitors, Hungarian development engineers were still able to create world-class products. The secret of success was the concurrence of three important factors: 1. There emerged a close, everyday working relationship between the radio reconnaissance service, the various research institutions and the company. Development was practically a joint activity. 2. Due to the backing of the military intelligence, the enterprise was provided with exceptional support in the Hungarian context. For example, it received instruments, parts, specialist journals etc. that had been imported from the West. 3. A development team composed of engineers, technicians and military personnel of an extraordinary quality was set up. This team was characterised by an innovative attitude and came up with many indigenous inventions. One of the leading engineers, Colonel István Szőnyi, who was the key figure of the research and development section for decades, even received the prestigious Government Prize in 1978. But all these successes were not enough to survive the crises that accompanied the political and economic transformation in 1989/90.

The Hungarian defence industry lost all its traditional markets, and the national armed forces were also radically reduced: military personnel dropped from 155,000 to 60,000 between 1989 and 1997. Defence related firms had 30,000 employees in 1988, and by 1993 their personnel decreased to 5,600 people. Concerning the transformation of the Hungarian defence sector, Judit Kiss underlined that the state policy was one, but not the only decisive factor that reshaped the military industry. She argues that «market forces and the enterprises’ own efforts played equally important roles». There have been many different models for the transformation of defence firms: privatization, profile changes – conversion and diversification, becoming military – strengthening their military profile, or reorganization and restructuring.39 The comparison of some production data is also illuminating: whilst in 1980 the share of military production was 1.44 per cent of the Hungarian GDP, and in 1985 was 1.66 per cent, in 1989 it did not reach the one per cent (0.84 per cent) and in the 90s was never over this value.40

Although the 90s actually became the decade of electronic warfare and, in the war against terrorism, electronic reconnaissance and communication interception has gained a crucial importance, Mechlabor could not take part in this business. For many years, due to financial and marketing problems, the firm was on the verge of bankruptcy. In 1993 its former cooperation partner, the privatized VIDEOTON bought Mechlabor from the state. The new limited company (VIDEOTON-Mechlabor, VT-ML) focused its efforts on the development of reconnaissance equipment (direction finding appliances

and panorama receivers); however, it was not able to win more tenders. In 1998 the total staff of VT-ML was no more than 110 employees.\footnote{Active in the Field of Defense Industry, Brief presentation of Hungarian Companies, Budapest 1998, Hungarian Defense Industry Association. In the last publication of the association (Almanach of the Hungarian Defence Industry 2005) the VT-ML was not presented. For comparison: in the 80s the total number of the Mechlabor’s workforce was 3,300 to 3,500, including 100 to 150 developing-designing engineers.}

We can conclude that Mechlabor was not able to adapt itself to the new circumstances, to the market economy. This failure was rooted in many different factors: the shortage of cash, the breakdown of the former military and commercial networks, wrong management decisions etc. Although the German Bundeswehr inherited a remarkable quantity of Hungarian reconnaissance systems from the East German army and retained this equipment until the turn of the millennium, and the Indian Army may be still using these instruments, the VT-ML central administrative building in Budapest is empty nowadays. There is no information whether the owner VIDEOTON has any plans for its subsidiary.

Address of the author: Pál Germuska, PhD, secretary of the institute, The Institute for the History of 1956 Hungarian Revolution, 1956-os Intézet Közalapítvány, Hungary, Budapest H-1410 Pf. (PO Box 218), Email: germuska.pal@ella.hu.