

The new economy of computing in the German Democratic Republic

by Hartwig Thomas, June, 1990

Since last November, when the Wall came down, many aspects of everyday life in East Germany have changed. On a trip through East Germany in May 1990, the vague outlines of new structures became evident. The author, a computer professional from Switzerland, was specifically interested in the development of modern computer technology in the German Democratic Republic (GDR). This report contains the subjective impressions which were formed during this all too short span of ten days. All meetings and discussions were overshadowed by almost everybody's complete uncertainty about their immediate economic future. All changes and planning in the GDR are taking place today under incredible time pressure from the political proponents of reunification and with essentially no information about life in a free market world.

From Switzerland to the GDR

On previous trips to the German Democratic Republic (GDR) I had rarely had the chance to talk about computers. People who used computers professionally were not allowed to talk about their work with Western visitors due to some secrecy regulation. Everybody else was simply not interested in computers because the chance of being confronted with these outlandish machines during one's lifetime seemed very remote before the recent changes.

The occasion for our trip from Switzerland to the GDR was a concert tour of the early music ensemble *Musurgia Universalis*, a group of three musicians who live in Switzerland. A number of invitations from friends and relatives and a grant from the Swiss foundation Pro Helvetia gave us the chance to travel through the GDR. The concerts took place in Kambs, Rostock, Berlin, Dresden and Freiberg. I acted as driver for the group and used my free time to talk to numerous computer people about their plans.

Figure 1: Map of East Germany

Computer students in Rostock

I had arranged a meeting with computer students from the students' union in Rostock. As four students share one room in the student high-rises, one

usually tries to sit and talk in a café. Due to the notorious scarcity of restaurants and cafés in the GDR, finding an empty table usually takes some time.

These young students had for the most part started their studies with the object of programming mainframes for large state-owned corporations. They have no concept of the «Home Computer Revolution» although they have heard of PCs before. They perceive themselves as a kind of very specialized engineer whose laboratory work does not have much to do with the everyday life of the people around them. They do not see themselves as being optimally positioned in a new free market economy, they have not heard of computer-yuppies yet. For them computers are machines that perform complicated calculations with numbers in a centrally planned economy. They did not quite believe me, when I claimed that computers are machines to process information and to facilitate decentralized communication.

Whenever I had read or heard about high-tech projects in the GDR, I had been struck by the contradiction between the declared goal to increase the production of communication machines on the one hand and, on the other, the obvious policy to maintain the suppression of any attempt at free communication among the citizens. The development of widely available computing power in the West, and the failure in the East to compete in that market may have something to do with the current changes in the East. None of the computer students appeared to have understood what I was talking about.

They had been inundated by free West German newspapers where the problems of Western students were discussed. Up till now in the GDR the planned number of students has usually matched the planned number of places to study and the planned number of jobs. Now there is a fear of competition. The West German universities instituted admission restrictions («*numerus clausus*») fifteen years ago when the educational reforms resulted in a too large number of students eligible for university studies. Since then it has been estimated that a million young people in West Germany are on the waiting list for admission to a university and in the mean time are working in temporary jobs or studying a subject other than the subject of their choice. The computer students in Rostock see the installation of similar restrictions at their own universities as their protection against the expected flood of applicants from West

Germany. This return to the planned economy on the education level has the appeal of apparent safety for them.

The PC and the Church

It is not surprising that computer students have hardly any concept of the effects of PCs on Western society. The embargo of the Western powers concerning even the most elementary micro-processors in our appliances is still in effect – in spite of five years of glasnost.

Of the CP/M-compatible PCs (e.g. the «PC 1715»¹) that were produced in the GDR before «the Change», hardly any showed up in the computing or science departments of the universities. They were largely exported or used in production. Two years ago it was estimated that a total of eight PC XT's were available in the math departments of the universities of the Republic. Professors and students had to reserve computing time on them months ahead. They were used 24 hours per day as leaving them idle would have been considered a waste. The PC experience was not any different from the mainframe experience for the students.

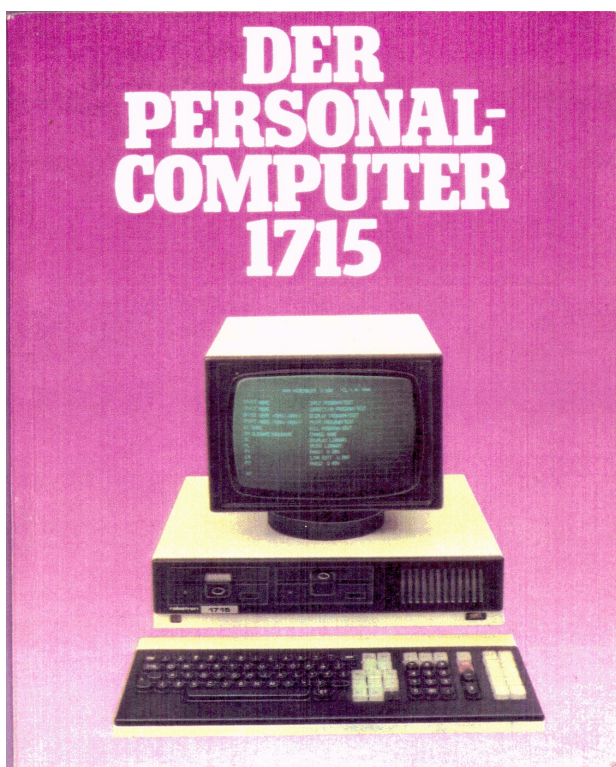


Figure 2: *The Personal-Computer 1715*

1 Der Personal-Computer 1715, Ed. VEB Kombinat Robotron, Verlag Die Wirtschaft, Berlin, 1987, ISBN 3-349-00231-5.

The «official» PCs were not the only ones in the GDR two years ago. Several thousand «private» PCs must have been in the country even then. I mostly encountered them in the offices of the Lutheran Church. The Church, being without state support, had a very pressing need for «private» communication among its members, whether it be for announcements to the congregation or for mailing exhortations to pay the membership fees. The PC with its mail-merge capabilities proffered the ideal tool for these tasks, specially as the usage of printing shops and photocopying machines was heavily censored. The West German partner Church furnished the money and the expertise for acquiring these machines and using them.

Even this spring the only offices equipped with modern PCs were Church offices. The technical advice from the partner Church in West Germany appears to have been excellent. A nicely balanced compromise seems to have been made between price, luxury, speed and durability. The editor's office of the Berlin Church weekly, *Die Kirche*, uses a laser printer for small publishing jobs, a cheap but fast PC AT clone for typesetting, a PC XT clone with a cheap dot-matrix printer for pure text entry and a reasonable, comprehensive German language software package.

For the next few years it will be impossible to sell any other but German language software in what is now the territory of the GDR. Foreign languages were only taught in a rudimentary fashion there by teachers who had never had the chance to hear native speakers. The motivation to learn foreign languages was very low as it seemed highly improbable that one would ever have a chance visit the major Western European countries in one's lifetime. The motivation to learn Russian and other Eastern languages even lower before the newly awakened interest in *glasnost*. It was virtually impossible to obtain publications from the West.

We heard from everybody we met, that they were planning to go on vacation in the West this summer with their first West German marks. Very few of them dared contemplate going to a country where German is not spoken; those who did expressed a fear of being helpless and lost in a world which knows no German.

PCs for a (new) documentation center in Berlin

In Berlin I had the chance to meet representatives of an office engaged in collecting and distributing documentation about economic developments. As

opposed to the Church, all the evaluation, research, collation and copying is done for the most part without the help of computers in these offices. Now that the sources as well as the recipients of some of the material collected by this office are in the West, its computerization is being considered.

This former state-owned, state-run documentation center may be privatized within a few months. Nobody has any idea who will have to pay what to whom for the furnishing, the material, or even the offices themselves at this great location in central Berlin. It is therefore difficult to deal with these freshly-baked capitalists. As the government has not yet established guarantees for private property or decided the future fate of the «people's property», their contracts lack a solid legal basis.

They questioned me about my opinion as to their needs for computerization. They had gotten the impression that they would need the same brand of (main-frame) computers as their West German counterpart and wondered whether it would not be advisable to wait until a world-wide common standard of economic information interchange had been established. For their more mundane office needs they had evaluated the current market quite successfully. Their price estimate seemed rather excessive to me.

After explaining that compatibility of message exchange on diskettes or through the modem did not narrow down the choice to the one expensive, West German brand of computers, I attempted to show that communication is possible, necessary and even desirable in spite of a certain amount of chaos in the standardization. If one wants to wait for world-wide uniformity, one may have to wait for a long time. The typical GDR-reflex of waiting for the only correct huge system – one that will solve all problems and that has been approved by all possible Big Brothers – is not suited to life in the modern chaotic world.

The fundamental gap between «free market» thinking and a «planned economy» mentality became clear when the question of the number of PCs to be used was raised and what they would cost. The representatives of the documentation center used the budgeted amount of money available, divided it by the published price per machine and concluded the number of PCs they could buy was the number of PCs they needed. The idea of assessing the productivity of a PC in the office was quite foreign to them. The argument that one could get credit to buy a PC from any bank, if one could show that one could make a profit with it, clashed with traditional German morals concerning debts. The idea that every PC which is not put to productive use has been

bought too expensively, even if it is within your budget, seemed equally incongruous. Finally the remark that nobody in his right mind bought computers at the published «list prices» met with downright incredulity. The explanation that in capitalism one has to bargain just as one would at an Oriental bazaar seemed somewhat frivolous and was only partly believed.

In order to enable them to fill in the gaps in know-how and to be able to make an informed choice, I suggested that the documentation center should write up a statement of their needs independent of the amount of money available and mail this to the various possible suppliers requesting bids. These suppliers would then be eager to send their business representatives to explain everything that was unclear. In addition the chance of entering this new market would persuade them to offer large rebates and reasonable deals. The meaning of «free market» is comparative shopping and free choice of supplier.

Computing in Saxonia

In Dresden I met a mathematics teacher at one of the local universities with whom I have occasionally exchanged computer experiences for more than fifteen years now. He is one of the early computer users in the GDR, using it for technical computation and in teaching.

At the universities the situation was always difficult. The selection of students destined for academic careers was to a large measure dependent on their ideological aptitude. The members of the Party naturally helped each other to lucrative posts and made it difficult for anybody else to get one. Due to the leading role of the Party, it was practically impossible to challenge their decisions.

The concept of a math department having to fulfill «the Plan» leads to ludicrous scenes such as the ones described in the novels of the mathematician Helga Königsdorf. The scientists less true to the Party line were shunted off to Saxonia, the East German Siberia. Even there, the scientific society was divided into the ones that have to work and the ones that have connections. Due to the large majority of Party members in academia it is predicted that their net of mutual support will prevail without giving way to «the Change».

A delegation from West German universities recently made it clear, that the university could not expect to continue with a one-to-one teacher to student ratio. It is not yet clear who will have to go. It is very difficult for scientists over forty-five to find

jobs in private industry. The large companies in Western Germany do not hire the elderly.

For the teachers at the universities – as well as for people in civil service, in cultural institutions, in hospitals, in schools – the only certainty is that their savings will be reduced by half, that the unemployment rate will probably rise to 50% and that their salaries will not buy what they need for survival. Before «the Change» one had money and nothing in the stores to spend it on; now the stores are full of Western products at five times the Western price and the salaries are not expected to pay the rent any more.

We also discussed recent developments in computer arithmetic² and the chances for a former mathematics professor, who was often at odds with the ideological popes, to find a job in industry where his expertise in solving technical problems on the PC will be useful. When people start being dismissed from the university, it will be the old Party members who do the dismissing.

A zero-information competitive economy?

Almost all the discussions with people in the GDR about their uncertainties and problems and fears are accompanied by an almost unnoticeable but persistent feeling of strangeness. None of their complaints would have been voiced in this fashion two years ago. The advantages of freedom of thought and speech are almost forgotten by now because they have become commonplace. In the ears of an outside visitor, however, the relief they display from the constraints of secrecy, their ability to speak freely, manifest a joy and a self-assurance which almost counterbalance the complaints.

The famous mathematical proofs of the equivalence of a competitive free market system with the best of all possible planned markets³ all require the participants in the free market to have a certain amount of access to information about it. In the GDR we are about to witness a gigantic experiment in zero-information economics very far from equilibrium. The analysis of climatic changes using modern chaos-theory methods has shown that overly fast changes in the boundary conditions of a dynamic system may lead to unpredictable, irreversible developments. For the seventeen million guinea pigs in this economic experiment it is to be hoped that the chaotic solutions of this system will not pull them into the «strange attractor» of another oppressive system of government.

2 Ulrich W. Kulisch and Willard L. Miranker: Computer Arithmetic in Theory and Practice, Academic Press, 1981, ISBN 0-12-428650-X.

3 A. Kirman: Competition versus Cooperation in Economics, The Mathematical Intelligencer, #2, vol. 8, 1986.

K. J. Arrow and M. D. Intriligator (Eds): Handbook of Mathematical Economics, Amsterdam, North Holland, 1982.

The recent political developments in the GDR

Last December it was feared that the dates of the elections would clash with the first free elections in the GDR. These elections of the national parliament were originally scheduled for May 6th and subsequently shifted to the 18th of March. The four main political blocks then were the CDU (Christian Democratic Union), the newly formed SPD (Social Democratic Party of Germany), the «Federation» of the civil rights groups, who were largely responsible for «the Change», and the PDS, the old socialist party with a new name. Apart from the Party, only the CDU had previously existed as a political party. Its leaders had acknowledged the leading role of the socialist party and voted in the parliament as they were told. The «Federation» and the SPD entered the elections with no media, no structures, no money and hardly any previously known candidates. The CDU was endorsed by Chancellor Helmut Kohl as the sister party of his own West German CDU. It was widely perceived as the ticket to reunification and to the West German mark (DM) for the citizens of the GDR and got almost half of the votes in March. The old socialist party had about a sixth of the votes whereas the «Federation» got almost no votes. Those people who were responsible for «the Change» last autumn were not trusted with power by the people. They had pleaded for a slower pace in the reunification process and for the development of a solid economic foundation in the GDR first.

By May the newly appointed government had spent a month in Bonn negotiating monetary union with West Germany. It had become clear, that on July 1st everybody would be able to exchange at most 4000 East German Marks at the one-to-one rate into West German marks. The rest of the savings would be changed at a two-to-one rate. The state would not guarantee employment or stable prices any more. Generally it was assumed that the salaries would stay at their current nominal levels (an average of 700-1000 marks a month as compared with 3500-4500 in West Germany) whereas the prices of consumer goods would adapt themselves to Western levels. The newly elected government had not yet gotten around to decide what was to happen with the «people's property», the state-owned companies, real estate and houses.
H.T.