WHEN COMPUTERS BECAME OF INTEREST IN POLITICS

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Abstract: Technical progress was for a long time uncontroversial in the Scandinavian
               left and labor movements. World events like the American war in Vietnam
               and a new zeitgeist changed this at the end of the sixties and politically aware
               computer enthusiasts started seeing computers in a new light. Three themes
               were central in the Swedish discussion: the IBM hegemony, computers,
               personal privacy, and the threat to democratic development by a changed
               balance of power. Swedish debate at the time is from a personal point of view.

Key words: Sweden, computers, government, politics

1.   INTRODUCTION

In the first decades following WW II, technical developments like nuclear power and computers were uncontroversial in the pragmatic Scandinavian societies. However, in the 1960s some of us developed a fascination for computers started to look upon them with new eyes. The computer had become a tool for established power, used to register our lives, forcing organizational changes in society and the workplace that we could not accept. One company – IBM – had a monopoly position. In addition, as we could understand from TV every day, computers were central for the efficiency of the bombing fleets killing Vietnamese peasants.

The intention of this paper is to draw a picture of an awakening critical view of computerization and the birth of computer policy. Maybe the time has come to evaluate what we said then: Was it correct, relevant, and fair?

We will concentrate this study to the years around 1970 and we will discuss three main themes.

- Industrial policy. If you considered computers to be the most important contribution to technology during the twentieth century and if you saw the potential of computers in all areas of human life, it was obvious that an advanced industrialized country like Sweden should have an industry for the production of computer hardware and software.

- The threat to privacy. Computers handled personal information storing it in databases. Inspired by the American tradition of respect for individual privacy, we questioned the practices. This theme was the most successful point in our agenda but in an unexpected way.

- Problems of democracy. The advent of computers changed power structure in the workplace and in society. Computers developed in ways determined by the established powers. There were those who said that we could only use computers in this way.

2.   COMPUTER ENTHUSIASM TRANSFORMED

In 1970 a yellow-colored paperback, "Computers and policy" was published by the then leading left-wing publisher in Sweden, Bo Cavefors. There were four authors: Jan Annerstedt (graduate student of political science), Lars Forssberg (journalist), Sten Henriksson, and Kenneth Nilsson (graduate students of computer science). The title was characteristic for its time – I would guess that there were a dozen book titles these years with titles of the type "X and politics."

The book did not raise much publicity – I believe they shredded most copies in the paper mills when the publisher went broke a few years later. Nevertheless, in some circles there was attention: in a review in the Swedish state radio, a journalist[1] called the book factually incorrect, full of infamy against IBM and lacking any value whatsoever. A central person in the government apparatus,[2] known to be close the minister of finance Gunnar Sträng, declared us dangerous radicals. We even began to know that the board of the Swedish IBM company had discussed whether people could sue us for economic slander. Unfortunately this did not came about – it would have been exhilarating to be inflicted a large sum of money in indemnities to one of the world's most successful companies.

At the end of the 1960s, computers and computerization became controversial. The intention here is to describe how this happened. To some

[1] Ulf Örnkloo
[2] Åke Pernelid

extent, this will have a strong personal flavor – not because I have the whole truth but because this conference supposedly intends to catch witness accounts while it is still possible.

The first generation of computer people in Sweden consisted of those who constructed and wrote programs for BARK and BESK. I joined the second generation as a student of Carl-Eric Fröberg, theoretical physicist and a member of the group going to the US 1947-48 for computer studies. With the influence of Torsten Gustafsson, professor of theoretical physics at Lund University and principal scientific advisor to the Swedish Prime Minister, Tage Erlander, the computer SMIL developed in Lund. I attended one of Dr. Fröberg's first courses in numerical analysis and programming. In 1958, I wrote my first program, which in its first trial printed the 50 first Fibonacci numbers. Let me immediately add that this smooth functioning was not characteristic of all the programs I wrote when I working as assistant and programmer with SMIL.

The encounter with a computer was for me an important event. A computer could work upon the data it stored and we controlled it by a program stored in the same way. A computer could bite its own tail and hence be self-governing. Consequently, its potential was without limits! (My encounter with Turing's Halting Problem came later!). Therefore, I spent the first half of the 1960s telling everyone about the power of this new machine to strengthen human intellectual capacity.

3.   THE COMPUTER INDUSTRY

The computer was mainly an American development even if we were well aware of the German and British pioneers. The USA was where the significant developments had taken place; this was the location of MIT, Berkeley, Rand Corporation, and all the other exciting institutions. However, I became aware of bitterness among many of those active, over the lack of support for the area in Sweden. After all BESK had been of world class a few years in the beginning of the 1950s. Millions of kronor in government grants were going into the area of nuclear physics, while nobody cared about computers with their immense potential. In 1959 came the final blow to early Swedish computer development: the new computer for the Swedish Defense Research Agency (FOA) and the Royal Institute of Technology (KTH) was to be an IBM 7090. Why not develop a promising Swedish machine that was under construction? We did not understand that nuclear weapons ambitions were what mattered. Significantly, government money was later given to computer construction (for Saab jet fighters) only when channeled through military contracts. There was a long fight for a

large contract for computers used by regional authorities for the revenue service and citizen registration, where the choice was between the less costly and technically more interesting Saab D22 computers and the commercially proved IBM 1401. Finally, Saab and IBM divided the order equally, a classic Swedish compromise. Nevertheless, the difficulties in getting authorities and politicians to understand the importance of a computer industry bewildered me and I felt a need to dig deeper.

I then started an ambitious work: I contacted and visited a number of the key actors in the history of Swedish computer development, from professor Eklöf to admiral Lagerman and the men behind TRASK. The result was a text I published with a translation into Swedish of Peter Naur's "Computers and society"[3] which I volunteered to translate under the condition that I could add my text. I found the key word for the analysis in a Gramsci-inspired text by the sociologist Göran Therborn.[4] The word was *hegemony*. IBM had systematically worked for and reached hegemony in computer usage in Sweden. IBM terminology and ways of looking upon computers what was mattered, solutions of information processing problems occurred within the IBM framework, the IBM school educated far more people than the meager government system. IBM had an extensive base of contacts from its punched cards business and a cash flow from its rental system that was unassailable. IBM was the norm while everything else was a deviation.

I also acted politically as a member of the social democratic student club in Lund. For the 1969 party conference – the one where Erlander was replaced by Palme as chairperson – I wrote a proposal "Government support and control of computer technology".[5] The local branch of the party accepted it as its own. It demanded

- "that the party conference should demand that the government develops such an industrial policy that a vital Swedish state owned industry gets the possibility to work in the computing area;
- that the party conference should ask the government to turn its attention to the importance of following the development of distributed computer power, i.e. generally available distant connections to computers;
- that the party conference should demand that the governing committee of the party should follow with attention technical developments with increasing computer use and hence in its studies and elsewhere form a policy where technical developments are directed in such a way that societal needs are prioritized before managerial and economical needs."

The party board and the conference received the proposals well. A newly started department for industrial developments would handle some of the

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[3] Peter Naur, "Datorer och samhälle". Med ett tillägg om svenska förhållanden av Sten Henriksson Studentlitteratur, Lund 1969.

[4] En ny vänster (red.Göran Therborn). Rabén & Sjögren Stockholm, 1966.

[5] Socialdemokraterna: Motioner till partikongressen 28 september-4 oktober 1969, Vol I, Motion D24

proposals and the board itself would be attentive to developments. The government produced a number of reports such as those on the electronics industry. Within the party, a working group on computer policy produced a document[6] "Computers adapted to human needs" for the party conference 1978. Tage Erlander took up the theme in a symposium 1980 with the title "Computers and society."[7]

4.   COMPUTERS AND PRIVACY

However, let us return to the end of the 1960s. Another computer related problem came up: the threat to personal privacy. Computers made it easy to store and retrieve masses of data about individuals. The inspiration to this debate came from the US with its strong traditions of individualism and personal freedom. This is in strong contrast to Sweden with our parish registration system since 1686, with a strong central power using a personal identity number with a much wider use than the US social security number. News from the US came mainly through the Communications of the ACM and Datamation, the latter now deceased but at the time an important source of news.

Swedish authorities had computerized at an early stage with population statistics and parish registers as a backbone for all the others. Statistics Sweden (SCB) had a register of the total population with basic personal data such as name, sex, date of birth, marital status, and income. These were certainly not secrets – the principle of public access to information is central for all Swedish authorities and a source of pride for the country. However, what happened now was that SCB marketed the information in its possession. The statistics service of SCB turned to advertising agencies giving examples to what addresses it could sell.[8]

> "Unmarried teenagers of both sexes living in Skärholmen with an own income of at least 25,000 kronor.
>
> Married retired persons in Skåne and Halland with an income between 20 – 40,000 kronor"

At this time (1969), we were a group of students at the Department of Computer Science in Lund who started an informal group, "The critical group of Information Science". We were influenced by the wave of student

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[6] Datorer på människans villkor. Program för datapolitiken. Socialdemokraterna, Borås 1978

[7] Datorerna och samhällsutvecklingen. Inlägg vid Tage Erlanders datasymposium 1980,Tiden 1981.

[8] Information från Statistiktjänsten, SCB 1969, s. 5-7

activism that followed 1968.[9]   The word "critical" derived from the terminology the Frankfurt School of critical theory (Horkheimer, Habermas).

We started to look into the SCB policy and argued that its way of handling data was in conflict with the intentions of the laws of public access and I wrote a critical article.[10]   A representative of the SCB[11] answered that this was not new at all: authorities had always been willing to offer such data.   Against this, I argued that the introduction of computer technology resulted in a situation where quantitative change turned into qualitative change:

> "When the speed by which one can put together facts is changed, let us say with a factor one million, the whole situation has changed. To be frank: we could accept that the parish clerk sold bridal pairs and new-borns at a price of ten öre per piece, but it is not so great when the vacuum cleaner salesman in the door by his smile indicates that he knows quite a lot about us, even if his data is public and honestly bought from the SCB"

To find out about the size of these data sales, who bought materials, and what they sold, I contact the SCB Statistics Service. .Rumors at the time indicated that intelligence agencies of foreign governments were buying data under disguise. But now SCB was restrictive in its interpretation of the laws on public access! It was not willing to tell me whom they sold the data to, this was a business secret of the SCB Statistics Service. It could not have been demonstrated more clearly how laws were perverted to serve commercial interests.

5.   COMPUTERS, DEMOCRACY AND POWER

What became the central and most difficult problem was the impact on power relations in society. "Knowledge is power" is the old saying and of course, knowledge depends on information. Hence, those working with the processing of information were in a position of power.   Information processing was not just a technical matter but also a political one.

Did computers have some intrinsic properties such that they could only be used to control and govern from above, by governments and authorities over citizens, by organization leaders over members, by management over employees, by producers over consumers etc?   In the literature, this was taken for granted. It showed how management could be more efficient and organizations more centralized.   The distance between the governors and those governed became greater.

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[9] We were also inspired by CPP, Computer Professionals for Peace, in the US.
[10] "Missbrukas offentlighetsprincipen?", Svensk Sparbankstidskrift 1969:7, sid 380-82
[11] Byrådirektör Edmund Rapaport

In 1969 the Swedish State Radio started an educational series "Human beings and computer technology" with a textbook with the same title. The view of the management totally dominates a text that is supposed to take into consideration human beings. The book[12] asks:

> "How will it be possible to adapt the employees to the changes which will follow from the installation of EDP equipment? There is a natural resistance to change. Who will get the new jobs? Which ones will have to leave? Which ones can expect training?"

It was quite clear that people should adapt to technology, which presumably was steering its own course not controlled by anyone. Technology determinism is a term often used to characterize Marx's famous words about the hand mill giving us the feudal lord, the steam mill the industrial capitalist. Technology determines society. The ideologies surrounding computerization said that computers would by necessity result in more centralized systems. Against this, we said that technology was useful for control in the other direction. A democratic society not only depends on governance from above but also control from below. Citizens should be able to scrutinize those in possession of power and to do this they need information. Governments should answer to parliaments, parliament's members are responsible to their electors, local populations should inspect their local government's handling of zoning and school administration, and unions should be able to look into company plans. In these entire situations, we can apply computer technology. It is a banal statement today, but in the early 1970s, it seemed utopian. Of course, it was then utopian: computers were expensive. Maybe it was it was not until personal computers and the Internet arrived that the computer became an instrument for democracy.

6.   IN RETROSPECT

6.1   The computer industry

Of course, technical and commercial advances crushed any dreams about national and independent computer industries. Even large countries like Great Britain, Germany, the Soviet Union, and France, which all tried, had to give it up. The size of the US market and the extreme research resources channeled through defense budgets gave the results. In addition, within the US, competition became too tough even for large companies as General Electric, Burroughs, and Univac. IBM kept its position until the introduction of personal computers changed the rules of the game.

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[12] Sven-Erik Johansson och Bo Wiedenborg "Människan och datatekniken", Sveriges Radios förlag, Kristianstad 1969.

In Sweden Datasaab could continue as long as generous military contracts were forthcoming. Some companies found market niches like the one for the Alfascope terminals. Ericsson's failure with a PC in the early 1980s showed what happens when you just copy, while Luxor's ABC 80 demonstrated the difficulty of going alone.[13] It was possible to construct a unique PC system that was internationally competitive for a year or so. Nevertheless, you could not produce further models taking advantage of the rapid technical change. They later repeated the same process within the software industry: niches were found, but for general software, Microsoft was too powerful. Since then the globalization process had made all hopes for nationally independent hardware or software industries obsolete.[14]

6.2   The threats to privacy

Interestingly enough, the privacy problem was the one area that really gave rise to debate. In 1970, a census took place in Sweden, which became controversial. Debate has since then flared up now and then and all the political parties started to write about computers and privacy in their programs and election platforms. Laws were issued on personal information in digital form, first nationally and later in the EU. Our critique came from an anti-commercial position, while the right wing side of politics issued attacks on "Big Brother" tendencies of the state. In the conflict between public access and personal privacy, the left has rather stressed the needs of public access in an open society.

6.3   Democracy and power

Our critique around 1970 did not contribute much of constructive proposals for action. These came with the breakthrough of the ideas of Kristen Nygaard et al in their work with the Norwegian metalworkers union. Nygaard considered the workplace the main arena. For a change, computer scientists should work with the representatives of labor and not only with management. The result was a series of projects in all the Scandinavian countries, together forming what has become known as "the Scandinavian

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[13] Magnus Johansson, Smart Fast and Beautiful, On Rhetoric of Technology and Computing Discourse in Sweden 1955-1995. Diss. Linköping 1997.

[14] Were the pioneering efforts then just wasted? No, they left a residue of experience which resulted in early adaptation of computers in Sweden. Hans De Geer, På väg till datasamhället : datekniken i politiken 1946-63. Tekniska Högskolan/FA-rådet 1992.

school".[15]   Its original forms are not alive any longer but the ideas are lingering on. The importance attached to user influence within the HCI area is a descendant of these ideas as is the continued interest in so-called participatory design.

Computer technology received much political attention during the 1980s and 1990s.[16]   Interestingly enough, in a speech by the conservative Prime Minister, Carl Bildt expressed the most explicit statement on the relations between policy and computer technology. With a tone and a choice of words, which is not very common among Swedish politicians, he stressed science and technology as the driving forces of history. According to Bildt, a fundamental shift has taken place from the industrial society (in which he includes early computers) with its belief in large-scale production and social engineering. Industrial society has now moved on to the information society and government must act:

> "We need a broad national project for the development and use of the new information technologies"

> "Let us set the target that by the year 2010 we should belong to the spearheads of global development in the use of information technology"

> "In my government there is no computer minister or IT minister. In my government every minister is a computer minister and IT minister"

Clearly, such pronouncements are showing an awareness of the relation between computers and politics. They certainly fulfill the ambitions of the 1970 authors of "Computers and politics" if not necessarily from a similar point of view.

7.   WHAT WOULD WE SAY TODAY?

What would be the agenda of radical political action within computer politics today? Is it possible to give rise to so much offence today as we did then? I doubt it, but let me try.

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[15]   Jørgen Bansler "Systemudvikling- teori og historie i skandivisk perspektiv". Studentlitteratur, Lund 1987. For a philosophic and academic analysis, Pelle Ehn: "Work-oriented design of computer artifacts" Arbetslivsscentrum/Almqvist&Wiksell 1988

[16] Both the Liberal party and the Center party were active in the area, with Kerstin Anér and Olof Johansson as the main actors. For a review of early computer politics, see Kent Lindkvist, Datateknik och politik (1984). For a follow-up to 1994, see S. Henriksson, "Datapolitikens död och återkomst" in B. Atlestam, Infrastruktur för informationssamhället, NUTEK B 1995:1. For an recent study see Lars Ilshammar, Offentlighetens nya rum – Teknik och politik i Sverige 1969–1999. Diss Örebro 2002.

7.1   The software industry

Software began to replace hardware as the central area.   More
specifically, the Microsoft near-monopoly is in parallel to the position of
IBM thirty years ago – Microsoft has used business practices that in
hindsight makes IBM look benign. As was the case with IBM, Microsoft
has enough money and political influence to get out of any antitrust lawsuits
fairly unchanged.   The challenges are rather coming from technical
developments, for Microsoft from the open source movement, where it
produces software of high quality at low cost.   There is no witchcraft
involved: the method of production is the same as has been practiced for
eight hundred years in the production of new knowledge at universities:
maximal openness. The driving force is recognition rather than money. For
tools like operating systems and basic applications, it should be self-evident
that open source is to be used and supported by all schools and universities,
as by government and municipal agencies. In many countries, this practice
currently happens simply for the reason that they cannot afford to allow
Microsoft to become more profitable. We should do it in Sweden too.

7.2   Public access to the commons

There is a conflict between societal needs for information and the
individual's need for privacy. We know from the Swedish debate about the
secret police registers how the government spied upon a large part of the
population in a way that is not consistent with a free and democratic society.
We know from the present debate on the DARPA project "Total Information
Awareness" how terrorist threats can be used to justify far-reaching
measures like the construction of databases taking full advantage of the
digitalization of society.
    On the other hand, we can see how EU laws about the publications of
names on the Internet give absurd results hindering important public
information.   Additionally, the commercial interests of media producing
companies hinder public access. Lawrence Lessig in his books[17] has shown
the importance of "the commons" for creativity and development in a
democracy.   Fortunately, there is a counter movement speaking for open
access, not only for software but also for general material (Richard
Stallman's Copyleft initiative[18]). It is obvious that this movement is worth
(critical) support.

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[17] Lessig, Lawrence, Code and other laws of cyberspace, Basic Books 1999. Lessig,
    Lawrence, The future of ideas : the fate of the commons in a connected world, Vintage
    Books 2001.
[18] http://www.gnu.org

7.3 A tool for democracy

Many of the demands raised in the 1970s for user influence are satisfied today. Usability has a close coupling to efficiency and quality: computer systems developed with strong user influence are doing their jobs better. Of course, most things remain unfinished: computer systems are still difficult to use for the hundreds of millions of people who expect to use them. Further, we still have the "digital divide" – we cannot expect large groups of people to use computers for reasons of income, education, or age.

For communication between management and those below, between government agencies and citizens there are now many initiatives and examples. The e-mail in its simplicity is a means of communication in all directions. Computers are no longer tools only for those with power and money. Microelectronics in the form of personal computers and mobile phones are today within the reach of all citizens in the Western industrialized countries and in the future maybe for the whole world. There are many examples of how they used computer communications for emancipatory purposes.[19] Antiglobalization movements like Attac are organized using IT, as were the protests against the war on Iraq. Inexpensive computer technology, spread by globalization, is a prerequisite for the antiglobalization movement and this kind of irony is of course characteristic for the history of technology and politics.

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[19] Manuel Castells,The Information age, vol II, Blackwell 1996.